CONTINUITY, TRUST AND COOPERATION: A GAME THEORY PERSPECTIVE ON THE GP-PATIENT INTERACTION

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Carolyn Clare Tarrant BSc (Leicester)

Department of Psychology

University of Leicester

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ABSTRACT

C C Tarrant

Continuity, trust and cooperation: a game theory perspective on the GP–patient interaction

There is evidence that personal continuity is associated with positive processes and outcomes, although much of the previous work has lacked a theoretical framework. This thesis aims to explore, and develop a model of, the relationship between continuity, trust and cooperation in primary care, based on existing principles from game theory.

Hypotheses generated from a game theory perspective were tested through a questionnaire survey of 279 patients. A secondary qualitative analysis of two data sets – interviews with patients and GPs – was also carried out to explore experiences of trust and cooperation in primary care.

The survey findings indicated that a history of positive interactions between a patient and a GP, and expectation of future interactions, were associated with higher trust, as was interpersonal care. Trust was found to be weakly associated with self-reported adherence to treatment.

The analysis of patient interviews found that patients described relatively high levels of initial trust. Repeated interactions allowed initial trust in the GP to be validated, and allowed the patient to build their own reputation as cooperative. Over time, experience of consulting the same GP could lead to a reduction of uncertainty, and a move to a more stable, affective basis for trust. This was associated with increased willingness to disclose information, and to accept treatment or advice. Analysis of GP interviews explored GP views of patient trust, and identified mechanisms inherent in repeated interactions that could promote quality of care.

The findings from the qualitative and quantitative work are drawn together in order to develop a model of trust and cooperation in primary care, informed by game theory principles.

This thesis highlights the reciprocal and interdependent nature of the health professional-patient relationship, and the value of repeated interactions in promoting mutual trust and cooperation. The implications of this for policy are discussed.

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Chapter 1

INTRODUCTION: CONTINUITY IN PRIMARY CARE & GAME THEORY

1.1 Aims and objectives of the thesis

An ongoing relationship between a patient and their general practitioner (GP) has been found to be associated with positive patient outcomes, including trust and adherence to treatment, as well as improved quality of care. However, there is need for a better understanding of the processes involved. This thesis aims to explore the relationship between continuity, trust and cooperation in primary care, and to develop a model of trust and cooperation in the GP-patient relationship, and the role of repeated interactions in producing these outcomes, based on existing principles from game theory along with new qualitative and quantitative research.

The objectives of the thesis are:

a. To introduce game theory as a relevant and useful theoretical basis for research into the GP-patient interaction.
b. To test hypotheses, based on a game theory perspective, about the situational and interpersonal factors associated with patient trust and adherence to treatment.
c. To investigate patients' and GPs' experiences of continuity, trust and cooperation in primary care.

d. To bring together the game theory perspective and research findings in order to develop a model of trust and cooperation in primary care, and the role of repeated interactions in producing these outcomes.

These objectives are achieved firstly through a literature review encompassing relevant literature on continuity in primary care, and giving an overview of game theory and its application to research into the GP-patient interaction. Game theory principles are applied to the quantitative and qualitative research in this thesis. These principles inform the development of a model of trust and cooperation in the GP-patient relationship, and the role of repeated interactions in producing these outcomes.

Hypotheses generated from a game theory perspective about the factors that influence patient trust and cooperation are tested through a postal questionnaire survey of patients from three Leicestershire practices. The game theory perspective suggests that continuity can be represented in terms of a number of variables relating to the quality of past interactions, as well as anticipation of future interactions – an important concept which has not been included in research into patient trust to date.

Following on from this, the thesis presents a secondary qualitative analysis of two data sets – interviews with patients and GPs – which explores experiences of trust and cooperation in primary care. The qualitative analysis aims to validate and develop on the understanding of the GP-patient interaction provided by a game theory perspective. It also allows issues raised in the quantitative survey to be investigated in more depth. In particular, conclusions are drawn about the role of interpersonal aspects of the consultation in relation to patient trust and cooperation.

The key argument of the thesis, based on a game theory perspective, is that repeated cooperative interactions along with the expectation of future interactions, enable the establishment of trust and act to reinforce mutual cooperation, potentially leading to mutually beneficial outcomes.

1.2 Outline of the thesis

This thesis has eight chapters, including this literature review chapter. This chapter firstly contains a review of relevant literature on continuity in primary care to provide a context and justification for the research presented in this thesis. The second part of this chapter includes a review of aspects of game theory and its application to this field of research.

The game theory literature review identifies trust as a key concept; hence, chapter 2 explores the meaning and role of trust in the GP-patient relationship, and identifies areas where further understanding is needed.

Chapters 3 and 4 report on the cross-sectional survey. Chapter 3 reports the development and piloting of the questionnaire for use in this study, and chapter 4 describes the methods used in the full study, and reports the results of the full study.

Chapters 5, 6 and 7 report on the qualitative studies. Chapter 5 provides a detailed description of how the collection and analysis of the qualitative data were undertaken, and justifies the particular analytic approach taken in these studies – that of secondary,

deductive analysis. Chapter 6 reports the findings from the patient interviews, focusing in particular on exploring how trust develops and changes over the course of an ongoing GP-patient relationship, and on the relationship between trust and cooperation. Chapter 7 reports the findings from the GP interviews, focusing on GPs' experiences of patient trust, as well as their views on the relationship between continuity, patient cooperation, and quality of care.

Finally, chapter 8 pulls together findings from the qualitative and quantitative work in order to develop a model of trust and cooperation in primary care, and the role of repeated interactions in producing these outcomes, informed by a game theory approach. The limitations of the thesis, the implications of the findings for policy and practice, and possibilities for further research, are also discussed in the final chapter.

1.3 Introduction

The literature review in this chapter firstly gives an overview of the current understanding of continuity and its place in modern primary care. The first section concludes that there is a need for further research relating to the GP-patient relationship – both the process by which it develops and how positive outcomes develop – based on integrative theoretical models. To this end, the second section reviews relevant literature from the field of game theory, and discusses the application of this theory to research into the GP-patient relationship. Game theory and experimental game research give a useful perspective on the dynamics of repeated interactions, and the process by which these can lead to positive outcomes. The chapter concludes by summarising the

key principles, derived from game theory, which underpin, and are developed and tested, in the remainder of the thesis.

1.4 Continuity in primary care

This section will discuss issues around the meaning of continuity in primary care, concerns about its decline, and its perceived value. This section will also identify the need for further research in this area.

1.4.1 The meaning of continuity in primary care

Continuity of care is considered to be a defining characteristic of general practice. The Royal College of General Practitioners endorsed definition of general practice and the role of the general practitioner states that general practice 'is responsible for the provision of longitudinal continuity of care as determined by the needs of the patient…[and] has a unique consultation process, which establishes a relationship over time, through effective communication between doctor and patient' (WONCA Europe 2002, p. 5).

The precise nature of continuity of care has been widely debated and discussed, but recent definitions describe continuity as a multidimensional concept, in which a number of different aspects can contribute to a patients' overall experience of continuity in their care. Freeman et al.'s (2001) scoping review produced a patient-centred, multi-dimensional definition of continuity of care, in which the key concept of experienced continuity ('the experience of a coordinated and smooth progression of care from the

patients' point of view', Freeman et al., 2001, p. 5) was argued to be achieved through five separate elements or types of continuity: continuity of information, cross-boundary and team continuity, flexible continuity (adjusting to the patient's needs over time), longitudinal continuity (care from as few different people as possible), and personal or relational continuity (the provision of 'one or more named individual professionals with whom the patient can establish and maintain a therapeutic relationship', Freeman et al., 2001, p. 5).

More recently, this definition has been refined to include three key components of continuity: informational continuity, which refers to the use of information on past events and personal circumstances to make current care appropriate for each individual; management continuity, which refers to a consistent and coherent approach to the management of a health condition that is responsive to a patient's changing needs; and relational continuity, defined as 'an ongoing therapeutic relationship between a patient and one or more providers' (Haggerty et al., 2003). Similarly, Saultz (2003) identified three key aspects of continuity: informational continuity, longitudinal continuity (which occurs when a patient receives care from a consistent provider or team of providers), and interpersonal continuity (equivalent to relational continuity as defined by Haggerty et al., 2003), and argued that these aspects of continuity should be seen as hierarchical. Saultz suggests that informational continuity, which requires simply the availability of information about the patient's medical and social history, provides the foundation for the experience of continuity. Longitudinal continuity builds on informational continuity, and some degree of longitudinal continuity is necessary to build a personal relationship, and thus the culmination is interpersonal continuity.

1.4.2 Continuity in decline?

Historically, relational or interpersonal continuity has been the cornerstone of general practice care in the United Kingdom (UK), and is valued by patients (Baker, Mainous, Gray, & Love, 2003; Baker et al., 2006), and professionals (Stokes, Tarrant, Baker, & Freeman, 2005; Stokes, Tarrant, Mainous et al., 2005; Schers, van de Ven, van den Hoogen, Grol, & van den Bosch, 2004). However, there have been cultural and organisational shifts in UK primary care over recent years away from a model of primary care that traditionally had ongoing GP-patient relationships at its heart, towards the provision of primary care through teams, and by providers across a range of organisations. For example, primary health care teams have been growing in size (Baker, 1997), and patients now have more alternatives to the GP surgery as a source of primary care, including the telephone helpline NHS Direct, NHS direct online, and in some places NHS walk-in centres. Under the new GP contract, personal lists of patients have been replaced by registration with practices (General Practitioners Committee 2003). Recent government policy has given a high priority to ensuring access for all patients to a GP within 48 hours (Department of Health, 2002), and there is some evidence that the implementation of access policies can make it more difficult for patients to maintain continuity with their preferred GP (Windridge et al., 2004). Nurses are already taking on many of the roles traditionally held by GPs (e.g. chronic disease management, minor injuries), and a report on the future of health services predicts further changes, including the provision of much routine care by nurses and assistants, allowing GPs to become more specialised (Wanless, 2002). A recent Government White Paper takes some steps to ensure that the importance of providing continuity through ongoing GP-patient relationships is not forgotten, explicitly recognising the value of continuity to patients with chronic health problems, and recommending that

patients should retain the choice of seeing their preferred GP (Secretary of State for Health, 2006).

There are no published longitudinal data on whether, in fact, patients are experiencing a decline in interpersonal continuity, however, Stokes, Tarrant, Baker et al. (2005) found that GPs in the UK expected continuity of GP-patient relationships to decline as a result of the new GP contract. GPs in a recent study described the increasing difficulties in maintaining personal continuity with their own patients in the context of modern primary care, and reported an increased reliance on the practice team to provide continuity (Ridd, Shaw, & Salisbury, 2006).

1.4.3. The value of interpersonal continuity

There has been concern expressed about the potential decline in interpersonal GP-patient continuity (Hjortdahl, 2001), and the possible implications for patient care. There is empirical evidence of the positive outcomes associated with ongoing GP-patient relationships. In their narrative review of empirical research, Pereira Gray et al. (2003) found evidence that continuing relationships between doctors and patients were generally associated with better quality of care, adherence to treatment, and patient satisfaction, but could also be associated with negative outcomes including poorer control in diabetic patients, and difficulty in the application of evidence based care. Saultz and Lochner (2005), in their systematic review, found interpersonal continuity of care to be associated with improved care outcomes for almost all outcomes measured across the reviewed studies, and to be associated with lower cost for about 85% of cost outcomes measured. They point to strong evidence for an association between

interpersonal continuity and improved preventative care, and reduced hospitalisation; these associations were also identified in Cabana and Jee's (2004) systematic review.

Underlying the changes in the organisation of primary care is the assumption that continuity provided through teams of health providers working together, or through improved continuity of information, can compensate for a decline in interpersonal continuity. Indeed, interpersonal continuity may not always be a priority for patients, and informational continuity may be sufficient, in certain situations such as in the case of patients consulting for minor acute problems (Kearley, Freeman, & Heath, 2001; Schers et al., 2002; Baker et al., 2005). Findings from a discrete-choice study carried out by the author of this thesis and colleagues, indicate that the relative importance of continuity of care varies according to the reason for consultation; patients reported being willing to accept a longer wait to access care in order to consult a known and trusted GP in the context of monitoring of chronic conditions, and when consulting with new symptoms with uncertain cause, but gave less weight to continuity in the context of minor acute symptoms (Turner et al., 2006).

It is difficult to assess the importance of maintaining continuity between a patient and a GP without a better understanding of how repeated interactions impact on the development of a personal relationship and on positive outcomes. A number of key questions remain unanswered. Does it matter if continuity in primary care declines? Can repeated interactions be substituted for by one-off encounters with unknown health professionals or care from a team, if there is good informational continuity and health professionals use effective interpersonal skills to build rapport and patient trust? Or is there something unique about the nature of interactions repeated over time? There is a

need for further research into the processes through which trust and cooperation are promoted, in particular, the role of continuity in the development of trust.

Interpersonal continuity is argued to have unique values, which are not shared with other types of continuity. Balint (1964) describes repeated positive interactions between a GP and a patient as leading to the development of a 'therapeutic alliance', in the context of which both the GP and the patient recoup benefits from their investment in the ongoing relationship. The therapeutic nature of the GP patient relationship is acknowledged in the current WONCA Europe (2002) definition of general practice. Saultz (2003) describes a personal patient-provider relationship as being characterised by a patient having a strong personal identification with the provider, trusting the provider on a personal basis, being loyal to the provider, and depending on the provider to assume personal responsibility for their care. This definition is supported by findings from a study by the author of this thesis, and colleagues (Preston, Windridge, Baker, Freeman, & Boulton, 2001); patients, GPs and practice staff described personal GP-patient relationships as featuring mutual personal knowledge, patient trust, and commitment to the relationship on the part of both the patient and the GP.

Hjortdahl (1993) provides evidence that GPs' personal knowledge of patients accumulated over repeated interactions enables them to make better use of resources, and that continuity engenders a sense of responsibility for the patient, which is also believed to lead to better quality care. Stokes, Tarrant, Baker et al. (2005) found that GPs did not feel that interpersonal continuity in the main could be substituted for by improved information sharing or by better team continuity. Interpersonal continuity of care from one health provider has been found to be associated with positive health

benefits, which are not found when continuity is provided through care provision on the same site but with different care providers (Mainous & Gill, 1998).

There has been a scarcity of primary-care research grounded in theoretically based models. Existing models of continuity of care are atheoretical in the sense that they are not based on a particular theoretical perspective, instead, models have been developed based on reviews of empirical research, and expert consensus. However, without an integrative theory, it is difficult to predict how changes in the organisation of primary care might impact on the process and outcomes of patient care, or to inform the organisation of primary care to promote these desirable outcomes. There has been recent emphasis on the importance of theories in health care practice and research (Alderson, 1998), and, in particular, in relation to research into the GP-patient interaction (Bower, Gask, May, & Mead, 2001; Stewart, 2004). Stewart (2004) argues that 'Future research needs to be more grounded in theories of relationships and to test a more holistic conceptual framework of influences on and influences of patient-clinician relationships' (p. 390).

1.5 Game theory as a basis for research into GP-patient relationships

This thesis suggests that a theory that has been widely used in social psychology – *game theory* – has the potential to help further understanding of GP-patient relationships in primary care. Game theory is concerned with interactive decisions, where the outcomes of an interaction are dependent on the choices and actions of both individuals involved (in the case of a dyadic interaction). Game theory and experimental game research

provide strong, theoretically underpinned evidence about the factors that promote cooperation and trust in one-off, and repeated, interactions.

The medical consultation can be understood as a dyadic social interaction involving interactive decision-making. In a typical consultation, the doctor elicits information from the patient, then offers a diagnosis or opinion and may also discuss and offer treatment. The patient can choose what information to disclose and how to present it, can ask questions that influence the doctor's perception of the problem, can make explicit requests, and above all can choose how to respond to the advice offered or the treatment prescribed. The outcome of the consultation is affected by the actions and choices of both participants.

The two way nature of the consultation was highlighted by Tuckett, Boulton, Olson and Williams (1985) in their seminal work 'Meetings between experts', in which they rejected the paternalistic notion of the doctor as the expert, and recognised that both the doctor and the patient bring expertise and knowledge to the consultation. They pointed to the need for the development of a shared understanding between the doctor and patient. The notion of 'shared decision making' – the idea that doctors should collaborate with patients in making treatment or management decisions – has been the focus of extensive conceptual and empirical research, particularly in the context of primary care (Charles, Gafini, & Whelan, 1997, Elwyn, Edwards, & Kinnersley, 1999). There is, however, little evidence that shared decision-making routinely happens in consultations (Stevenson, Barry, Britten, Barber, & Bradley, 2000). Nonetheless, it is clear that even if the decision-making *process* is not shared, the outcome of the consultation will still depend on the choices of both the doctor and the patient – the

doctor's decision about treatment or management, and the patient's decision about whether or not to follow the advice or prescribed treatment. As such, the GP-patient interaction is amenable to investigation from a game theory perspective. However, this area of research is not well developed.

The following sections (1.5.1 to 1.5.3) will provide an overview of some relevant principles of game theory, and findings from experimental game research into trust and cooperation. Section 1.5.4 will then review the small body of work applying game theory to aspects of the doctor-patient interaction and service provision more generally.

1.5.1 Description of the fundamentals of traditional game theory

Game theory provides a conceptual apparatus for describing and analysing interactive decision making. The theory emerged in the 1940s (von Neumann & Morgenstern, 1944) following preliminary work by the French mathematician Borel and the Hungarian mathematician von Neumann in the 1920s and 1930s. Its influence in the social and behavioural sciences began to grow after the publication of a more accessible account of the theory by Luce and Raiffa (1957), culminating in the award of Nobel prizes to three leading game theorists in 1994 and two more in 2005. The theory has found wide application in social psychology, and it has been used to model decision making in a range of contexts (Colman, 2003), including economics (Camerer, 2003; Sugden, 1991), politics (Axelrod, 1984; 1997), and biological sciences (Maynard Smith, 1982).

Game theory is concerned with decisions in which the outcomes depend on the actions of two or more decision makers, called *players*, and where each player has two or more

ways of acting, called *strategies*. Each player is assumed to have clear preferences among the possible outcomes. The theory is not concerned with the sources and nature of preferences and beliefs but assumes that preferences and beliefs are more or less consistent and that people generally try to do the best for themselves in the light of their beliefs (Colman, 1995).

In dyadic interactions, where outcomes depend partly on the choices of both players, a player cannot know the probability of different outcomes. This means that if a player does not have any strong indication of what the other player's strategy might be, the player cannot say which move should be taken in order to produce the preferred outcome. However, with additional assumptions, game theory allows for the fact that a player can and does judge these probabilities, in the light of everything that he or she knows about the game and the players' preferences, dominant strategies, equilibria, and so on. The first assumption is that the game structure, possible strategies, and payoffs are *common knowledge*. The second assumption, *complete rationality*, states that players are rational in the sense that they choose strategies that will maximise their own expected payoff, according to their knowledge and beliefs, and that this too is common knowledge in the game.

Essentially, game theory provides a means of abstracting the fundamental structure of an interaction and representing it in terms of a strategic game. The most famous of all strategic games, the *Prisoner's Dilemma* game, is a standard model of a two-person interaction involving cooperation and competition, or trust and betrayal. Its name comes from a scenario involving two people, arrested and charged with involvement in a serious crime, held in separate cells and prevented from communicating with each

other. The police have insufficient evidence for a conviction unless at least one of the prisoners discloses incriminating information. Each prisoner is faced with a choice between concealing information (*C*) and disclosing it (*D*). If both conceal the information, then both will be acquitted. If both disclose the information, then both will be convicted. If only one prisoner discloses the information, then that prisoner will be acquitted and will also receive a reward for helping the police (the best possible outcome), while the prisoner who conceals the information will receive an especially heavy sentence (the worst possible outcome). It is customary to interpret the *C* strategy as *cooperate* and the *D* strategy as *defect*.

The underlying structure of the Prisoner's Dilemma game is shown in Figure 1.1.

		II	
		C	***D***
I	***C***	**3, 3**	**1, 4**
	D	**4, 1**	**2, 2**

Figure 1.1 Prisoner's Dilemma game. Player I chooses between rows C (cooperate) and D (defect), Player II chooses between columns C and D, and the numbers in each cell represent the payoffs to Player I and Player II in that order, 4 being best, 3 second-best, 2 third-best, and 1 worst.

A key concept in game theory is the *Nash equilibrium*[1]. For a two-player game, a Nash equilibrium is a pair of strategies that are *best replies* to each other, a best reply being a strategy that yields the best outcome to the player choosing it *given the co-player's*

[1] The *Nash Equilibrium* is named after the Nobel laureate John Nash, the subject of a biography by Sylvia Nasar (1988) and an Oscar-winning film entitled *A Beautiful Mind.*

strategy. The unique Nash equilibrium in the Prisoner's Dilemma game is joint defection (*D*, *D*), with both prisoners disclosing information. This is because *D* is a best reply for both players in the sense that *D* yields a better payoff than *C* against a co-player who chooses *D*. In fact, the *D* strategies are dominant for both players, yielding a better outcome to each individual than cooperating, whether the co-player chooses to cooperate or to defect. Although both prisoners would be better off if they both chose to conceal the information (*C*, *C*) than if they both disclosed it (*D*, *D*), joint cooperation is not in equilibrium. This is because the best reply to a cooperative (*C*) strategy is defection (*D*) – a prisoner who discloses information while the other conceals it is not only acquitted but also rewarded. And by choosing *C*, a prisoner exposes himself to the risk of the worst possible outcome for himself – the possibility of an especially heavy sentence if the other prisoner succumbs to the temptation of a reward for confessing. Hence, (*D*, *D*) is the only outcome in which each player's strategy is a best reply to the co-player's, and it is the unique Nash equilibrium of the game.

The Prisoner's Dilemma game crops up ubiquitously in interpersonal, social, political, and economic interactions in everyday life. It applies to any dyadic interaction in which each participant is tempted to choose a defecting action that would yield the best payoff provided that the other participant did not choose it also, in which case both are worse off than if both resisted the temptation and acted cooperatively. The game structure can apply to both simultaneous and sequential decision making (Nowak & Sigmund 1994; Frean, 1994)

In non-cooperative games such as the Prisoner's Dilemma, the rational choice model prescribes a choice of strategy that leads to sub-optimal payoffs for players (in the

example above, players would be better off if they both choose (*C*, *C*), rather than the prescribed (*D*, *D*)). From a purely game-theoretic point of view, cooperation is never a rational strategy in a single-shot game. It can also be shown, through backwards induction, that cooperation is not a rational strategy when interactions are repeated a finite number of times with a known end point (Luce & Raiffa, 1957).

However, although game theory models do not predict cooperation in single-shot or finitely repeated games, experimental evidence indicates that people do often cooperate under these circumstances. There is evidence that slightly over half of players cooperate on the first trial and a substantial proportion even on the last (Pruitt & Kimmel, 1977). This means that predictions based on traditional game theory are sometimes paradoxical and problematic.

In a single-play or finitely repeated Prisoner's Dilemma game, game-theoretic principles show that cooperation is not a rational strategy; but the situation is different when we consider interactions that are expected to continue indefinitely in the future. Analysis of the indefinitely repeated Prisoner's Dilemma game reveals that, in this context, it is possible to find cooperative strategies that are Nash equilibria (Binmore, 1992). This suggests that cooperation is a rational strategy when interactions are embedded in a sequence of repeated contacts that are expected to continue indefinitely in the future. Cooperation has also been shown to be rational in finitely repeated games where there is uncertainty about either the time horizon or about the other player's strategy (Fudenberg & Maskin, 1986; Kreps & Wilson, 1982). In either of these cases, it can be rational for a player to cooperate, because this might encourage the other player to cooperate later on to the advantage of the first player.

Although joint cooperation is an equilibrium in indefinitely repeated games, there are other equilibira, for example, the catastrophic (*D*, *D*) 'lock in' (repeated joint defection) (Abreau, 1988) that is often observed when the game is repeated many times by the same pair of players. Formal game theory is thus somewhat indeterminate, leaving open a wide range of strategies that meet its rationality criteria. In a large-scale experimental study, Rapoport and Chammah (1965) mapped the course of cooperation over many iterations of the Prisoner's Dilemma. They found an initial level of cooperation of around 50%, followed by a rapid decline in cooperation. After about 30 iterations, cooperation levels began to increase, reaching around 60% after 300 iterations. Even in the context of indefinitely repeated games, mutual cooperation is not guaranteed, and traditional game theory models do not allow us to predict the circumstances under which cooperation is more likely to occur.

1.5.2 Evolutionary game theory

Evolutionary game theory, which rose to prominence in the 1980s, stimulated primarily by the work of Maynard Smith (1982) and Axelrod (1984, 1997), focuses on indefinitely repeated games. Evolutionary game theory is concerned with the application of game theory to issues around natural selection and the evolution of cooperation, and the need for assumptions about rationality is removed in this context. The players are individual organisms, the payoffs are measured in units of Darwinian fitness – numbers of surviving offspring – and natural selection ensures that only the most successful strategies survive in the course of evolution. The evolutionary process can be either biological – organisms being replaced, generation by generation, by the fittest ones – or social, strategies being replaced by more efficient ones through learning

and imitation. In the latter case, evolution can be Lamarckian in the sense that acquired characteristics can be passed on through the evolutionary process.

Whether players converge on joint mutual cooperation in iterated Prisoner's Dilemma games depends on both players' choice of strategy (whether to cooperate or defect on each round). Axelrod's (1984) computer simulations aimed to find out what sorts of strategies were successful in promoting the evolution of cooperation, given the multiple possible equilibira of which invariant joint cooperation is just one. Axelrod's computer tournament experiments pitted different game strategies against each other in repeated Prisoner's Dilemma games, to find out which strategies were most successful. The tournament rounds were won by the strategy 'Tit for tat' (TFT). TFT is a reciprocal strategy that involves cooperating on the first move, and thereafter reciprocating the other players' previous-move choices (cooperating if the other player cooperates, and defecting if the other player defects); this strategy was most successful at eliciting cooperation from other players. By examining the strategies that were most successful, and comparing them with those that were least successful, Axelrod concluded that evolution of cooperation in repeated interactions is promoted when players are nice (reciprocate cooperation until the other defects), provokable (retaliate if other defects), forgiving (start to cooperate again if other player cooperates), and make their strategy clear.

The concept of reciprocity is central to mechanisms that have been proposed to explain the evolution of cooperation between unrelated individuals. Trivers (1971) suggested reciprocal altruism as an explanatory mechanism: individuals will help others even at a cost to themselves (altruism), if this altruism is likely to be reciprocated to their benefit

in the future. Reciprocal altruism is promoted when individuals are able to recognise cheaters (who do not reciprocate), which is more likely in social groups that stay together for a long time. Alexander (1987) introduced the idea of indirect reciprocity – indirect reciprocity occurs when others observe reciprocal behaviour from an individual; this observation then forms the basis of the individual's *reputation* and is used by others as a basis of deciding how to behave towards that individual. Fehr and Gächter (2002) extended this work by suggesting that altruistic punishment of defectors is also important in maintaining cooperation in a society, particularly when reputation is not very important. They describe punishment of defectors as 'altruistic' because it entails costs, in terms of time and the risk of retaliation, without any direct benefit to the punisher – in that sense it is a public service.

These mechanisms indicate that cooperation will be more likely when people have internalised norms of altruism and reciprocity (i.e. a tendency to use nice, reciprocal strategies like TFT), and will be promoted when players are able to recognise other players from past interactions and recall the history of their previous interaction with that player (in particular, whether or not the player cooperated in previous interactions). Subsequent researchers have shown that recognition of co-players and recall of past interactions promote cooperation (Crowley et al., 1996; Lindgren, 1991). Axelrod's computer simulations also indicated that cooperation could evolve even in a population of defectors if social structures existed that allowed cooperators to identify and interact with other cooperators. This means that if players can make a judgement about the other player's likely strategy, then cooperation can evolve successfully, even if the specific players have not interacted in the past.

As well as experience of reciprocity in past interactions, the possibility of future reciprocation of cooperation, and future punishment for defection, are important in evolutionary game theory explanations of cooperation. If players anticipate interacting again in the future, then they can foresee future payoffs from mutual cooperation, and the threat of recrimination from the other player in future interactions acts as a disincentive to defection. In addition, if players anticipate future interactions, then each player has a reason to believe that the other player will be motivated to cooperate. Axelrod (1984) termed this the 'shadow of the future', and concluded that mutual cooperation is more likely when the shadow of the future is large: when the future is sufficiently important in relation to the present, and the long term incentive to achieve mutual cooperation is greater than the short term incentive for defection. Axelrod specifically recommended that, in designing institutions to promote cooperation, interactions should be structured so that there are frequent and durable relationships between individuals. Heide and Miner (1992) used an iterated games framework to identify predictors of cooperative behaviour between buyers and sellers, and found, as predicted, that anticipation of open-ended future interaction, and frequency of contact, were associated with joint cooperation.

1.5.3 Broader considerations around game theory, and the emerging field of behavioural game theory

Evolutionary game theory provides some enlightening suggestions as to the mechanisms that promote the evolution of cooperation over repeated interactions. However it is limited in that it is based on the evolution of cooperation without intentional choice; it does not incorporate models of the individual decision maker, and how decisions may be influenced by psychological and social processes in an

interaction. In addition, evolutionary game theory does not provide prescriptive models of cooperation in single shot and finitely repeated games.

In experimental and real-life situations, we see more cooperation than predicted by traditional game theory models based on assumptions of complete rationality. The assumptions underlying traditional game theory, in particular the assumption of rational self interest, have been questioned in recent years (e.g. Colman, 2003), and there is an increasing recognition that broader considerations need to be taken into account if we are to understand how people will behave in interactions. Attempts have been made to extend traditional game theory to improve its predictive ability, and to incorporate empirical findings from experimental work and concepts from evolutionary game theory (e.g. Camerer, 2003; Ostrom, 2003). This work provides a useful basis from which to develop models of the medical consultation.

Kelley and Thibaut's (1978) interdependence theory made a significant contribution by considering psychological aspects of the interaction in the context of game theory models. They suggested that to understand levels of cooperation, interaction situations should be analysed in terms of several different dimensions. Much of the work described in this chapter is based on the Prisoner's Dilemma game, or other mixed-motive situations; these types of interaction are characterised by dependence on the other player's choice to determine a player's outcomes, the potential for accruing benefit from mutual cooperation, and a conflict of interest between collective and individual benefit. Cooperative outcomes under these circumstances call for exchange (to achieve a mutually beneficial cooperative outcome, players must be prepared to give up some of their possible payoffs from self-interest in order to benefit the other player).

To understand cooperation in such situations, there is a need to question an individual's motivation (to what extent are they willing to cooperate when this means a benefit to the other at some cost to themselves?), and their beliefs about the other player (do they believe the other player is motivated to cooperate?).

a. An individual's own motivation to cooperate

In understanding why people may be willing to cooperate, evolutionary game theory points to situational features that act as incentives to cooperate (in particular, positive past interactions, and anticipation of future interaction). Kelley and Thibaut (1978) extended the traditional game theory model by arguing that cooperative or non-cooperative choices cannot always be understood in terms of individuals acting rationally to maximise their own payoffs. They argued that individuals may not always prefer outcomes that simply maximise their own immediate payoffs, i.e. individuals may not act in accordance with the principles of rational self-interest, but instead may transform their preferences to take into account broader considerations such as long-term goals and the outcomes for others. These transformations may be automatic, rather than a product of rational reasoning, and may incorporate both objective and intrinsic emotional or psychological payoffs.

Rabin's (1993) 'fairness equilibrium' theory illustrates how payoff structures in traditional games can be transformed to produce a psychological game structure. The ultimate payoffs in the psychological game structure are a function of the objective payoff plus an emotional or psychological increment to the payoff if other player acts kindly, or subtraction from the payoff if the other player acts meanly. Mutual cooperation becomes a psychological Nash equilibrium in this transformed game, along

with mutual defection. Cain's (1998) linear-altruism model, and Fehr and Schmidt's (1999) inequity-aversion model are also examples of transformations that take into account other considerations than self-interest (i.e. variations in concern for others, and in concern for equality of outcomes)

Support for the idea that people transform objective payoffs to take into account broader considerations is provided by Ahn, Ostrom, and Walker (2003). They presented people with descriptions of Prisoner's Dilemma games and asked about order of preference for outcomes. They found that preferences did not always match the objective payoffs, for example, some people preferred mutual cooperation (*C*, *C*) over defecting while the other player cooperated (*D*, *C*), despite the fact that the *DC* outcome gave them a better objective payoff.

Van Lange and De Dreu (2001) suggested, based on evidence from research using experimental games, that whether these transformations will lead to preferences for cooperative outcomes, and as such motivate players to choose cooperative strategies, depends on a number of factors. A key factor is the individual's disposition towards cooperation ('social value orientation', McClintock, 1972). Depending on their concern for their own and others' outcomes, people may be disposed to maximise their own outcomes, to maximise joint outcomes or ensure equality of outcomes, or to maximise relative outcomes, and this disposition will influence the extent to which the player makes cooperative choices; these interpersonal dispositions are likely to be shaped by experience. The internalisation of social norms, in particular that of reciprocity (in other words, whether the player believes that cooperation should be reciprocated) is also important in determining cooperative orientation.

This suggests that as well as being influenced by situational features of the interaction (such as repeated interactions, as indicated by evolutionary game theory), an individual's willingness to cooperate may be in part explained by the individual's cooperative disposition, and the extent to which they count the other person's interests in with their own.

b. Trust in other

As well as being influenced by prior propensity to cooperate, cooperation is influenced by beliefs about the likely cooperativeness of the other player. As described in section 1.5.2, decisions about how to behave towards an individual are influenced by judgements about the likely strategy of the other individual, and reputation (either from first hand or second hand experience) is seen as important in this judgement. Gambetta (2000) suggested that beliefs about others' motivations are central to understanding cooperation, and influence whether or not cooperative motivations are expressed as cooperative actions.

This belief about, or attitude towards, the other player's likely cooperative intentions is a definition of *trust* in game theory terms. In other words, trust can mean that the probability that someone 'will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of cooperation with him' (Gambetta, 2000, p. 218). Trust implies vulnerability and a willingness to engage in cooperation despite the risk of adverse outcomes (as in the Prisoner's Dilemma game where choosing to cooperate leaves one open to the risk of the worst possible outcome if the other player chooses to defect).

To understand this, consider player A, who is motivated to cooperate. If player A does not attribute cooperative intentions to player B then he/she may choose not to cooperate, despite a preference for cooperation, in order to avoid the negative consequences of cooperating whilst the other player defects. In contrast, a belief that player B will cooperate makes a cooperative choice from player A attractive.

But how do individuals make judgements about whether other individuals with whom they are interacting are likely to be motivated to cooperate, i.e. how do they judge the likely trustworthiness of others? To some extent this is correlated with the player's own norms of cooperativeness: there is evidence that an individual's social value orientation influences beliefs about the cooperativeness of others; individuals with prosocial or cooperative dispositions are more likely to cooperate, but are also more likely to attribute cooperative intentions to others (Kelley & Stahelski, 1970).

Players' own past experiences may also be important in determining their beliefs about the cooperativeness of others. Henrich et al. (2001) argues that players compare the current interaction to analogous situations to decide how others will play; there is evidence that experience of different levels of cooperativeness in previous games with different players influences the level of cooperation in the current game (Eckel & Wilson, 2003).

One of the most useful sources of information on which to base judgements about the likely cooperativeness of another individual is experience of past interactions with that individual in particular. As discussed in section 1.5.2, prior interactions with a specific co-player provide a basis from which to estimate, with a high degree of confidence,

their likely cooperativeness in the current interaction. Repeated cooperative interactions allow norms of mutual cooperation to be established. Players can build up reputations for trustworthiness that are valuable in helping to maintain reciprocal cooperation, allowing mutual trust to develop. Both trusting, and knowing that one is trusted (mutual trust) are important. For example, if player A has any reason to think that player B does not trust him/her to cooperate, then this is a reason to believe that B may choose to defect (in order to avoid cooperating with an uncooperative person), i.e. to have lower trust in player B. As a result, player A may then choose not to cooperate. If players have not interacted in the past, then knowledge about a co-player's reputation (evidence about the co-player's level of cooperativeness in interactions with other players) will be a useful resource for judging likely cooperativeness in the current interaction.

Impression formation is likely to be important when players are dependant on others for outcomes – there is evidence that impressions of the other person's morality have a particular impact on expectations of cooperation (De Bruin & Van Lange, 1999). Individuals form beliefs about the intentions of others from information such as impressions of personality and stereotypes about group membership such as sex or occupation (De Dreu, Yzerbyt, & Leyens, 1995).

Interpersonal features of the interaction may also be used as cues to judge the likely cooperativeness of a co-player. Verbal and non-verbal communication between players has been shown to increase cooperation (Wichman, 1972) – communication may allow players to signal cooperative intentions, and give individuals cues as to the cooperativeness and trustworthiness of others. Frank, Gilovich, and Regan (1993) found that face-to-face discussion allowed individuals to predict the cooperativeness of

others at a better-than-chance level. Smiling may be an indicator of intentions, and has been found to elicit cooperative behaviour (Eckel & Wilson, 2003). These sources of information may be valuable when individuals have not interacted in the past, but may have less influence on judgements of trustworthiness if players have a history of past interaction.

Ullmann-Margalit (2002) points to reasons why people are willing to suspend distrust in situations analogous to the Prisoner's Dilemma. She emphasizes that 'it may thus be the *content* of the situation in which we find ourselves, namely its social context, which will indicate against a pessimistic and suspicious adoption of the distrust presumption. Or else it may be the game-theoretical *structure* of the situation that will achieve the same purpose', in other words, both the structure of the situation (e.g. whether or not the interaction is repeated), and the social context may indicate that trust is justified.

These concerns highlight the importance of taking into account the intrapersonal, interpersonal, and social factors that influence individuals in social interactions.

1.5.4 Review of previous research applying game theory to aspects of the doctor-patient interaction and service provision more generally

Hockstra and Miller (1976), were among the first to recognise the interactive nature of decision making in medical consultations, and hence the value of game theory in modelling this decision-making process. There has also been some interest in the use of game theory to develop prescriptive models of medical decision-making (e.g. Diamond, Rozanski, & Steuer, 1986). De Jaegher and Jegers (2001) used game theory for the basis

of a model of supplier-induced demand in health care – a situation where there is a clear conflict of interests for the health care provider.

Game theory also has the potential to provide a valuable theoretical basis for broader questions about the medical consultation and its organisational context (Tarrant, Stokes & Colman, 2004). Perhaps surprisingly, this approach has received little attention, with several notable exceptions. Important work in this area has been carried out by Gutek and colleagues in the United States (US) and Australia (Gutek, 1995; Gutek, Bhappu, Liao-Troth, & Cherry, 1999; Gutek, Cherry, Bhappu, Schneider, & Woolf, 2000). This work provided illustrations of the applicability of game theory to models of service provision in various domains including health care, and explicitly linked the organisation of service provision to service quality. Although not specific to the medical consultation, the work included physician-patient interactions as one type of service provision. Batifoulier (1997) specifically explored the relevance of traditional game theory models to the doctor-patient interaction, and drew on this theoretical perspective to address the question of what produces cooperation between the doctor and the patient. Palombo (1997) also used game theory principles as the basis of a discussion on the development of the therapeutic alliance in psychiatry.

Gutek's work is the most significant work to date in applying game theory to service provision, encompassing both theoretical model development and empirical testing of hypotheses based on game theoretic models of service provision.

Based on traditional game-theoretic principles, in particular the distinction between single-play and indefinitely repeated games, and the experimental work of Axelrod

(1984), Gutek (1995) proposed three distinct modes of service provision, which she termed *encounters*, *relationships*, and *pseudo-relationships*. The anticipation of future interaction is taken to be a key factor in distinguishing between the different modes of service provision. Gutek asserted that continuing relationships between providers and consumers are conceptually distinct from the other modes of service provision, and have unique features that help to promote cooperation and quality of care.

Encounters, where the service provider and customer interact on only one occasion, are equivalent to the single-play Prisoner's Dilemma. In this case, the service provider and customer have little incentive to cooperate, and it is difficult to promote service quality.

Service provided through *relationships* between a service provider and a customer reflects the indefinitely iterated Prisoners Dilemma, where players have information about each other's past actions, and anticipate future interaction. In this case, cooperation is more likely, and Gutek commented that, in the context of a relationship, 'high quality delivery of service can be maintained simply by the dynamics of the relationship' (Gutek et al., 1999, p. 219)

The third mode of service provision, the *pseudo-relationship*, describes service provision from an organisation with which the customer has repeated contacts, although each interaction is with a different representative of the organisation. This is likened to multiple single-play Prisoner's Dilemmas, each with a different co-player, except that in this case the organisation can reward service providers for acting in the best interest of the customer and provide incentives for the customer to continue to use their services. Pseudo-relationships can have some of the features of a relationship. However, pseudo-

relationships are ultimately similar to encounters in that there is no shared history of interaction, and no anticipation of future interaction, between the individual service provider and the customer. So pseudo-relationships do not have the internal dynamics that promote service quality, at the level of the individual interaction, in the way that is evident in a relationship between an individual service provider and customer.

Gutek's empirical work provided evidence to support her assertion that continuing relationships between providers and consumers are conceptually distinct from the two other modes of service provision, and have features that are not replicated in other types of provision. Customers who received service in relationships were more likely to trust their providers and recommend their providers to others. Customers reported more personalised service in relationships, and were more likely to direct complaints to their individual providers than to managers (Gutek et al., 2000). Service relationships were also found to be linked to higher customer satisfaction and higher frequency of service use (Gutek et al, 1999). Gutek's work suggests that service relationships have unique features that help to promote quality of care, and that are not shared by other models of service provision. The game theory model indicates that mechanisms for maintaining quality are internal to relationships, but need to be external in the case of encounters and pseudo-relationships.

Overall, Gutek's distinctions point to the value of game theory as a theoretical basis for models of the medical consultation, which can be used to predict how the organisation of primary care is likely to impact on the quality of patient care. However, Gutek's work did not have a specific focus on medical consultations, although physicians were included as one type of service provider. In addition, the applicability of models such

as the one devised by Gutek to the particular context of UK primary care consultations needs to be explored. Although Gutek's work is valuable, she used game-theoretic principles in a limited way in developing models of service provision, and did not question the validity of the underlying principles or the applicability of these principles to the different types of service provision.

In developing a model of the medical consultation based on game theoretic principles, it is important to consider the applicability of these principles. Batifoulier provided an insightful review and critique of traditional game theory principles as the basis of models of the medical consultation, in his 1997 discussion paper, published in French.

Batifoulier (1997) recognised that game theory provided a useful basis for modelling the GP-patient interaction, given that it is a situation in which outcomes depend on the choices and behaviours of both parties. He reviewed traditional game theory, and introduced possible ways of modelling the physician-patient interaction in terms of a range of games with different strategic properties (e.g. Centipede game, Assurance game). He highlighted the shortcomings of traditional game theory predictions about doctor-patient cooperation based on assumptions of complete rationality, and concluded that traditional game theory leads to untenable conclusions about cooperation between the doctor and patient (i.e., that cooperation is never rational in one-off or finitely repeated encounters).

He also recognised the inherent risks and uncertainties for patients in consulting for medical care, in that patients cannot have certainty that the doctor will act in their best interests, and indeed may not be able to judge this even post-consultation. Batifoulier

recognised that cooperation from the patient (in single-shot or finitely repeated games) must depend on a belief or expectation that the doctor will act in a trustworthy way. He discussed three factors that may promote patients' belief that the doctor will be trustworthy, which in turn promote patient cooperation. Firstly, the ongoing relationship between the doctor and his/her patient promotes trustworthiness, because if the doctor does not behave in a trustworthy way he faces the negative consequences of loss of patients or damage to his reputation, which may also have financial implications. Secondly, doctors' social contract with their peers promotes trustworthiness – the requirements of membership of the medical body limit doctors' freedom to practice, and give patients assurance of the trustworthiness of doctors; it is in each doctor's interest to be trustworthy as this is ultimately beneficial to the reputation of the profession as a whole. Finally, the doctor has professional ethics, in other words, personal, internalised norms of trustworthiness.

Batifoulier's (1997) review indicates some of the limitations of traditional game theory as a model of the medical consultation. A successful model of the medical consultation may need to look beyond traditional game theory, and incorporate the broader considerations that are taken into account by behavioural game theory. Ostrom's (2003) model, described in the following section, may provide a useful basis for the development of such a model.

1.5.5 Ostrom's behavioural game theory model of trust and cooperation

Ostrom (2003) has developed a behavioural model of trust and cooperation in multi-player social dilemmas. The model is based predominantly on evolutionary game theory, but recognises that people make intentional choice about their behaviour, and

are influenced by psychological and social processes. This approach discounts traditional game theory assumptions of complete rationality and common knowledge. Ostrom argues that people should been seen as boundedly rational; people seek to improve the values important to them (which includes what happens to other individuals), are influenced by their expectations of what others will do, use information about the characteristics of the situation and about the characteristics of others in making decisions about how to behave. In real life people are unlikely to calculate a complete set of strategies for every situation; in fact they may be limited in the extent to which they are able to do this (Camerer, 2003, clearly illustrates the limits of reasoning in his discussion of 'beauty contest' games), but instead use heuristics learned over time (what actions have brought good outcomes in the past?), as well as relying on internalised social norms (such as reciprocity) and learned interactional rules (e.g. interactional rules of the consultation) when deciding how to behave in interactions.

Internalised reciprocity norms, as described in the section 1.5.2, are a key factor: in an environment where many people have reciprocity norms, there is value in having a reputation for keeping promises, and in performing actions with long term gain but short term cost. Reciprocity norms are a product of social learning, so individuals vary in the probability that they will use a particular norm; some people may take advantage of cooperators and reciprocators by free riding or cheating. A boundedly rational individual recognises that others may use a range of norms, so has to invest effort into assessment of other's intentions (or trustworthiness).

Ostrom's theory assumes that people learn from interactions with others about how frequently others use norms such as reciprocity, learn to recognise and remember

trustworthy and untrustworthy individuals, cooperate with individuals who are expected to be trustworthy and build a reputation for being trustworthy by resisting temptation of short term gain for long term benefit. As such, there are three key factors in predicting cooperative behaviour. Firstly, the level of cooperation is influenced by the probability of each individual using reciprocity norms (based on their own past experience of benefit from reciprocity, and of retribution). Secondly, an individual's overall level of trust in others also affects the likelihood of cooperation. This trust that others will reciprocate cooperation is correlated with individuals' own norms (Kelley & Stahelski, 1970), but also strongly influenced by information about the other's past cooperativeness. So, thirdly, the other player's reputation is also important in predicting cooperation. This core set of factors is influenced by physical, cultural and institutional variables (the precise nature of which will depend on the type of interaction), each player's past experience, and the risk of extending trust in the current situation. Verbal and non-verbal communication allows for agreement on cooperative strategies and, more importantly, assessment of trustworthiness, and therefore can influence level of trust.

Ostrom (2003) formalises her model as shown in figure 1.2 below:

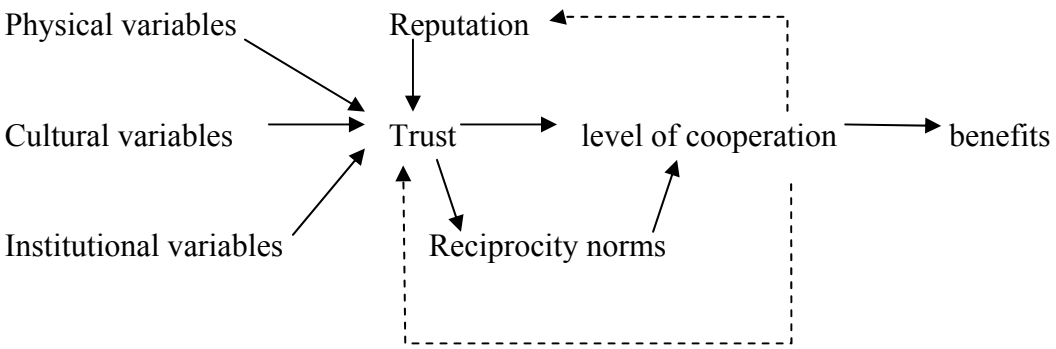


Figure 1.2: Ostrom's (2003) model. Arrows express the direction of influence, and dashed arrows indicate feedback loops.

In repeated multi-player social dilemmas, initial cooperation can lead others in the group to become more trusting and to increasingly use reciprocity norms, so cooperation reinforces the value of reputations for reciprocity, and increases levels of trustworthiness – this feedback loop is indicated by the dashed lines.

A study by Jeffries (2002) using a student sample provides some support for this model, but suggests that influences on trust and cooperation may change with increasing experience of another player. Jeffries tested hypotheses about the development of initial trust (i.e. trust in the initial interaction between two individuals), and found that internalised reciprocity norms predicted initial trust in an unfamiliar partner, but that the importance of norms diminished following an interaction. Once a player had interacted with a partner, evaluation of the cooperativeness of the partner's behaviour was the only significant predictor of trust.

Ostrom's model makes clear the link between an individual's trust (based on assessments of another individual's trustworthiness), the individual's own orientation to cooperation, and the level of cooperation, albeit in the context of multi-person social dilemmas. The model shows how initial trust can be built upon through repeated cooperative interactions, making future cooperation more likely. Although this model describes multi-player interactions, it can equally be applied to dyadic interactions. This model provides an explanatory framework in relation to the association between repeated interactions, trust, and cooperation, and provides a useful starting point for research into the GP-patient interaction.

1.5.6 Summary of game theory literature

Game theory is concerned with interactive decisions, where the outcomes of an interaction are dependent on the choices and actions of both individuals involved (in the case of a dyadic interaction). Game theory allows interactions to be represented in terms of choices for each individual about whether or not to cooperate under conditions of uncertainty and possible conflicts of interest, and has enabled experimental research into conditions which promote cooperation or conflict to be undertaken. Theory and findings from experimental game research suggests that cooperation is more likely if interactions are repeated, if individuals recall each other, have experience of reciprocal cooperation in the past, and anticipate interacting in the future. In particular, anticipation of open-ended future interactions, or where there is uncertainty about the time horizon, will make cooperation more likely. Cooperation depends both on an individuals' motivation or incentive to cooperate *and* on beliefs about the likely cooperativeness (trustworthiness) of the other(s) – particularly where there is a possibility of conflict of interest. Behavioural game theory assumes that individuals use any information available to them to judge the likely actions of the other(s) with whom they interact (e.g. Ostrom, 2003). Decisions about whether to trust may be based on: propensity to trust and social norms (should I trust?); group membership / observable features of other (are these people usually trustworthy?); reputation of other as cooperative (is there evidence that this person has been trustworthy in past?); situational / interpersonal cues to the other's intentions in the current interaction; (is this person motivated to cooperate in the current situation?). Both trusting and being trusted are important for mutually beneficial cooperation, and trust is reinforced by repeated cooperation.

In a single interaction, players have less information on which to base their judgements of others, and the structure of the situation does not promote cooperation based on reciprocity. In this context, boundedly rational individuals will base their choice of strategy on their own orientation, characteristics of the other player and features of the interaction – the latter two factors will be more important in cooperative decisions in the context of single play than repeated games. However, repeated interactions strengthen reciprocity norms, and feed into reputation, and provide a mechanism to encourage trustworthiness based on positive or negative consequences for the future, so cooperation based on reciprocity is reinforced.

1.6 Conclusion

This chapter has identified the need for theoretically underpinned research into the processes involved in the development of the GP-patient relationship, and through which it can lead to positive patient outcomes. This chapter serves to address the first objective of the thesis – that of introducing game theory as an appropriate theoretical basis for research in this area. The insights provided by game theory underpin the remainder of the thesis.

The key argument, based on a game theory perspective, is that repeated interactions between a patient and a GP have unique dynamics that do not exist in a one-off interaction. Repeated cooperative interactions promote trust, and act to reinforce mutual cooperation, potentially leading to beneficial outcomes. This argument will be tested and developed through quantitative and qualitative research in this thesis.

Game theory literature highlights the central role of trust in achieving cooperation in dyadic interactions. Before describing the primary research, the following chapter will review literature on trust in GP-patient interactions, and evidence for the relationship between repeated interactions, trust, and patient cooperation in primary care.

Chapter 2

THE MEANING AND ROLE OF TRUST IN PRIMARY CARE

2.1 Introduction

The previous chapter identified the association between repeated interactions and trust, and the central role of trust in achieving mutually beneficial cooperation. Patient trust has been seen as a core component of the GP-patient relationship (Saultz, 2003), and as central to the therapeutic alliance (Fugelli, 2001; Mechanic, 1998). Fugelli (2001) goes as far as to argue that 'trust is to general practice like blood is to the body' (p. 576). This chapter is concerned with literature relating to trust in primary care – its meaning, development, and its association with positive outcomes through increased patient cooperation. This review informs the primary research, identifies areas where further understanding is needed, and helps to locate this thesis in the context of current primary care literature.

2.2 The meaning of trust

Several key review articles on trust in primary care have been published recently. Pearson and Raeke (2000) and Hall, Dugan, Zheng, and Mishra (2001) reviewed and synthesised existing trust literature in order to define trust in physicians, and to identify measures of trust, and predictors and consequences of trust. More recently, Gilson (2003) provided a comprehensive review of theoretical perspectives on trust. Also,

Calnan and Rowe (2004) produced a discussion paper for the Nuffield Trust, which reviewed trust literature and set out an agenda for future research (see also Rowe & Calnan, 2006). There has been much theoretical work in developing an understanding of trust, although not a great deal of qualitative work exploring the meaning of trust.

Trust in medical care contexts has been conceptualised as having two interrelated elements (Mechanic, 1996): *social or institutional trust* i.e. trust in collective institutions/bodies such as the health care system, the medical profession, and *interpersonal trust* i.e. trust in a particular individual. Social or institutional trust (or, as it is sometimes referred to, system trust) is hypothesised to influence the development of interpersonal trust.

Hall at al. (2001) expand on this distinction, proposing the following dimensions, and suggest that trust in different objects may have different natures, and may influence each other:

	Individual	**System**
Personal	my GP	GPs in general
Institutional	my practice	NHS / primary care in general

In their UK patient survey, Calnan and Sanford (2004) found that aspects of trust relating to personal aspects of health care (patient-centred care, and levels of professional expertise) were more strongly associated with general trust in health care than were institutional aspects of health care (e.g. policies and inter-professional communication).

Interpersonal trust is commonly defined as occurring in the context of an ongoing relationship, as being built over 'repeated interactions through which expectations about trustworthy behaviour can be tested over time' (Pearson & Raeke, 2000, p. 510). Trust in health care is generally seen as involving *both* beliefs about the medical competence or technical skills/ability *and* judgements about the motivation and intentions of the other (i.e. beliefs that the doctor will act in your best interests) (Calnan & Rowe 2004). There is strong evidence that personal trust in doctors remains high (Thom, Ribisl, Steward, Luke, & Stamford Trust Study Physicians, 1999; Hall et al., 2002; Tarrant, Stokes, & Baker, 2003; BMA, 2005).

2.3 Why trust is important in primary care – uncertainty and vulnerability

It is well recognised that medical care involves uncertainty and vulnerability for patients – because of the uncertainties surrounding health and illness, and the imbalance of knowledge and expertise between patients and health professionals, it is difficult for patients to accurately judge how well they have been treated by the GP (Arrow 1963). Outcomes may not directly reflect the quality of care, for example, some patients may get better whatever the GP does. Potter and McKinlay (2005) observe that 'Cab clients unlike patients can decipher a good outcome from a bad outcome – they do or do not arrive at their requested destination' (p. 476).

However, health care would not be possible if the patient was not willing to consult a GP and cooperate with their advice or treatment despite this uncertainty, and for this, some level of trust is necessary. Arrow points out that, because of the uncertainty

involved in directly evaluating outcomes, the patient must, in part, replace 'direct observation by generalised belief in the ability of the physician' (Arrow, 1963, p. 965). Dibben, Eley Morris, and Lean (2000) discussed the relationship between trust and cooperation within a consultation, noting that cooperation on the part of both parties is a desirable outcome. They argued that cooperation in a consultation is dependent on both trust and willingness to cooperate, and that where trust is higher than the cooperation threshold for each individual, cooperation should occur.

It is important to note that trust arises from conditions of vulnerability and need/reliance on others. Trust involves risk arising from uncertainty about another's intentions and likely actions. If there is absolute certainty about the future behaviour of others, there is no need for trust. Hall and colleagues define interpersonal trust broadly as an 'optimistic acceptance of a vulnerable situation in which the truster believes the trustee will care for the truster's interests ' (Hall et al., 2001, p. 615).

Entwistle & Quick (2006) raise the issue of whether trust can be dysfunctional in terms of patient safety, as trusting patients may be less vigilant and hence more vulnerable to harm. Nonetheless, they note that trust relationships can incorporate discussion of patient safety issues and vigilance.

2.4 Theoretical perspectives on the development of trust in primary care

On what basis do patients invest trust in a GP? McAllister's much cited 1995 paper points to two fundamentally different bases for trust in an individual: cognitive (based

on objective evidence of trustworthiness, or 'good reasons'), and affective (based on the emotional ties between individuals). Gilson (2003) identifies a number of possible bases for interpersonal trust. Firstly (based on rational choice theory), trust can be seen as a strategic behaviour, where the individual weighs up risks and benefits of making themselves vulnerable by trusting another, based on expectations about the other. This might involve a calculation about whether the future actions will be beneficial and hence whether the benefits gained from cooperation will outweigh the risks. Secondly trust can be based on affective components e.g. a belief that a GP has benevolent/caring motivations, which might arise from emotional and obligational bonds developed through repeated interactions. Thirdly trust may have a moralistic basis (arising from beliefs about how people should behave).

Although interpersonal trust tends to be defined in the context of ongoing relationships (particularly in the case of primary care research), Gilson (2003) recognises that trust can exist outside the bonds of a relationship, and that cognitive trust in strangers is possible. She emphasises that trust is essential for the initiation and maintenance of successful relationships, and argues that trust can be extended to strangers when the truster has information to judge whether the trustee is likely to take his/her interests into account. She suggests that this information may be based on systems (which have regulatory power, or are providers of expertise and qualifications), on shared norms (such as being members of the same church), and from the other's reputation. Similarly, Parsons (1968) identified value congruence, or shared common values, as a necessary condition for interpersonal trust to exist in the doctor-patient relationship, Hall et al. (2001) suggest that, at the beginning of the GP-patient relationship, newly formed 'blind trust' is based upon general attitudes about doctors or health plans. The

basis for trust shifts to knowledge of individual GP characteristics once the patient has experienced care from the GP.

Several researchers have suggested that trust is learned, and that the *nature* of trust can change and develop over the course of a relationship. Lewicki and Bunker (1996) suggest that over the course of a relationship, trust can evolve from calculus-based (where calculation of the costs and benefits of trusting are central, and are informed by judgement about whether the other's interests are best served by trustworthy behaviour), through knowledge-based (where a history of past interactions, and developing understanding, allow each individual to make predictions about the other's likely behaviour), to identification-based (where a high degree of identification, and shared values, lead to instinctive beliefs about the other's positive intentions).

Dibben et al. (2000), based on the work of various other researchers notably Lewicki and Bunker (1996), develop a theoretical model of the development of trust over the course of a relationship. They argue that, initially, trust is dominated by dispositional trust (a patient's propensity to trust). In a first meeting or consultation, achieving cooperative outcomes depends on developing secure situational trust in the consultation. In some contexts there is no opportunity to develop trust over a period of time (for example, in the case of a single consultation with a specialist in secondary care) so this trust built in a single consultation (also referred to as 'swift trust') enables effective cooperation to be achieved even when trust has not been built over the course of a relationship.

However, when there are repeated interactions between the same patient and health care provider, there is the opportunity for this situational trust to build into 'learned trust'. This learned trust is carried into future consultations, and is modified by the experience of situational trust in future consultations. Situational trust in each consultation may take on a different character as the relationship progresses (from calculus based, to knowledge based, then identification based, as described by Lewicki & Bunker, 1996). However, trust may develop to a different degree in each individual relationship. Thus Dibben and colleagues make a clear distinction between the experience of trust in a consultation, and trust as an attitude learned and reinforced by experience over time.

Levin, Whitener, and Cross's (2004) empirical study supports the theory that the basis of trust changes over time; they found that in the case of manager-subordinate relationships, trust in new relationships was based on demographic similarity, in medium-length relationships was based on trustworthy behaviours, and in long term relationships (average nine years) was based on shared perspectives.

Rowe and Calnan (2006) suggest that changes in the organisation and delivery of health care, and broader social changes such as the notion of increased patient choice have implications for the nature of trust in health care, with a shift from 'embodied' trust (trust that resides in the individual health professional, is affect based, and is characterised by passive acceptance of advice or treatment), to 'informed trust' (which is cognitive based, where knowledge and decision making are shared, and where information is used as a basis of judgements of trustworthiness). However they recognise that levels of trust may vary with different illness types and at different stages in the GP-patient relationship.

2.5 Trust and continuity

Trust is seen as a core component of the personal GP-patient relationship, and is assumed to develop with an ongoing relationship. Trust can be argued to be an important intermediate outcome of continuity, which promotes further positive outcomes – adherence to treatment in particular. However, continuity has been found in empirical studies to be only weakly associated with trust, or not at all. Mainous, Baker, Love, Gray and Gill (2001) found trust to be associated with one continuity measure (length of time of relationship with the doctor), but not another (usual provider continuity – a measure of the proportion of all health care visits over the past year or more in which the patient sees their regular doctor). Length of patient-physician relationship was found to be associated with higher patient trust by Kao, Green, Davis, Koplan, and Cleary (1998), Thom, Ribisl et al., 1999, and Safran, Taira et al., (1998). Caterinicchio (1979) found no significant association between frequency of patient-provider interaction and trust, and Tarrant, Stokes, and Baker (2003) found that trust was not associated with patients' duration of registration with the practice, or proportion of visits to the 'usual' GP.

Hence there is some evidence that the *length* of the relationship (but not the frequency of interaction) is associated with trust. This evidence is correlational, so the causal direction is not clear (in fact the relationship is likely to be cyclical, with repeated interactions building trust, and trust promoting continuity).

One of the problems is that studies have used a range of different measures of continuity. Continuity is multidimensional, and many studies do not distinguish

between different dimensions of continuity – particularly in the case of studies carried out before the recent conceptual work on continuity (Freeman et al., 2001; Haggerty et al., 2003; Saultz, 2003). Saultz (2003) highlights the fact that continuity is most often measured through objective means such as numbers of providers seen, duration of the relationship, or frequency of contact with a specific provider, rather than addressing the subjective aspects of the relationship which may be rather more difficult to measure.

There is evidence that physicians' interpersonal skills, including communication and interpersonal care, are strongly related to patient trust (Safran, Kosinski et al., 1998; Thom, Ribisl et al., 1999). From a survey of primary care patients in the US, Thom & Stanford Trust Study Physicians (2001) found trust to be associated with the physician being comforting and caring, demonstrating competency, encouraging and answering questions, and explaining. Tarrant, Stokes and Baker (2003) found GP-patient communication, interpersonal care and knowledge of the patient to be strongly associated with patients' trust in their usual GP. Fiscella et al. (2004) found trust to be associated with patient-centred behaviour of a clinician in a consultation, and Krupat, Bell, Kravitz, Thom, and Azari (2001) found congruence of patient and physician beliefs about patient-centredness to be associated with trust. Although interpersonal skills are important for trust, interventions to enhance patient trust by improving physicians' trust-related interpersonal skills have been found to be unsuccessful in improving trust (Thom, 2000; Thom, Bloch, & Segal 1999).

Caterinicchio (1979) found a particularly strong relationship between past successful treatment and trust, and concluded that positive physical and emotional outcomes in past treatment are critical for the development of trust in a physician. Caterinicchio

suggested that continuity may only be important in that it can provide the opportunity for encounters in the past to be judged as successful. He concluded that the manner in which treatment is provided is more important than the number of times a patient receives treatment from the same doctor (i.e. quality not frequency is key) – although it is noted that some degree of longitudinality is important for the relationship to develop. Tarrant, Stokes, & Baker, (2003) also argue that trust is likely to be related to the quality of the relationship between the GP and patient.

Other factors have been found to be associated with trust. Whether patients have enough choice of physician, and on what basis they chose the physician (convenience versus personal recommendation) have been found to be associated with trust (Hall et al., 2002; Kao et al., 1998; Thom, Ribisl et al., 1999), although the relationship did not emerge as significant in Hsu et al.'s 2003 randomised controlled trial. Patient age is related to trust, but other characteristics such as gender, ethnicity, education and health status, have not been found to consistently predict trust (Pescosolido, Tuch, & Martin, 2001), nor have general measures of social trust (Thom, Ribisl et al., 1999).

Features of the organisation in which the doctor works may also influence trust. In particular, organisational features or policies that could potentially be seen by patients as conflicting with the interests of the individual patient are associated with lower trust. A large-scale survey in US found that individuals from managed-care communities with a higher prevalence of gate-keeping activity reported less trust than individuals from areas with lower gate-keeping, being less likely to agree that they trusted doctors to put their medical needs above all other considerations, and more likely to feel that doctors

were strongly influenced by insurance company rules when making decisions about medical care (Haas, Phillips, Baker, Sonneborn, & McCulloch, 2003).

Overall, the evidence suggests that trust is only weakly associated with longitudinal continuity, but is closely related to the quality of the ongoing GP-patient relationship.

2.6 Trust and cooperation

Trust can be argued to be an important feature of personal GP-patient relationships on both intrinsic and instrumental grounds (Hall et al. 2001). Trust is seen as having intrinsic, affective values i.e. being valued as an outcome in itself. However, there is also evidence for the instrumental importance of trust, suggesting that trust may indirectly impact on health outcomes through improving patient satisfaction, adherence to treatment or advice, continuity of provider, and perceived effectiveness of care (Caterinicchio, 1979; Hall et al. 2002; Safran, Taira et al., 1998; Thom, Ribisl et al., 1999).

There is empirical evidence that aspects of the GP-patient relationship – trust in particular – are associated with cooperation between the patient and the GP, which can lead to better health outcomes due to better patient acceptance of advice and adherence to / compliance with treatment.

The conceptualisation, definition and measurement of patient acceptance of advice or treatment have been the subject of much debate, and this is discussed in the following

chapter. Vermeire, Hearnshaw, Van Royen, and Denekens (2001), in their thorough review of medication compliance research, are critical of the assumptions and methodologies of much of the research in this area, and find no strong or consistent evidence for predictors of compliance. However, they point to some evidence that the quality, duration and frequency of the doctor-patient interaction, and patients' beliefs about medication, influence compliance.

Benson and Britten (2002) found in their qualitative study that one of the reasons given by patients for taking antihypertensive drugs was positive experiences with doctors (including trust in the doctor). Ettlinger and Freeman (1981) found that compliance with a new prescription for an antimicrobial drug was strongly associated with whether the patient knew the doctor well. Safran, Taira et al. (1998) found that adherence to physician recommended lifestyle changes was significantly associated with patient trust, as was patient satisfaction. Kerse et al. (2004) found trust to be associated with medication compliance in univariate analysis, although this association was not significant in multivariate analysis, where doctor-patient concordance emerged as the only predictor of compliance.

Thom et al. (2002) found in their study that primary care patients in the lowest tertile of pre-visit trust were less likely to receive medical information, new medication or a diagnostic test that they requested or wanted. Two weeks after the consultation, patients in this low trust tertile were less likely to be satisfied with the care provided, less likely to intend to adhere to advice or treatment, and less likely to report symptom improvement.

Higher levels of patient trust have also been associated with improved management and outcomes in the case of a common chronic condition – diabetes. Alazri and Neale (2003) found higher levels of patients trust to be associated with lower haemoglobin A1c levels in patients with Type 2 diabetes, and concluded that this was likely to be due to better adherence to treatment. Parchman, Pugh, Hitchcock Noel, and Larme, (2002) found continuity of provider to be associated with better glucose control in patients with type 2 diabetes, and suggested that patient trust was likely to be a key factor. Bonds et al. (2004) found higher trust levels to be associated with lower levels of perceived hassles of diabetic care activities and lower difficulty in completing diabetes care activities. Patients with higher trust had better global assessments of their overall ability to complete diabetes care activities. The authors suggest that patients with higher levels of trust may be more actively engaged in their medical care so may have fewer difficulty and hassles in performing self-care activities that they had input on; equally these patients may have higher trust levels because they have been engaged as an active participant in the health care decision by their provider. Additionally patients who have high levels of trust may be willing to overcome initial discomfort of treatment, believing that it will ultimately be beneficial to them.

This argument is supported by Caterinicchio (1979) who found patient trust to be associated with perceived positive health gains from treatment, and reduction of treatment anxiety. Treatment anxiety levels were found to be lower when patients had experience of past successful treatment and high trust. Cateriniccio concluded that a high degree of trust is likely to lead to compliance even if the cost is high (e.g. tolerating pain).

Overall, there is relatively robust evidence that trust is associated with acceptance of advice and adherence to treatment, adding weight to the argument that trust may be a key factor in understanding the relationship between interpersonal continuity and positive outcomes. However, the process by which trust develops needs further discussion.

2.7 Findings from qualitative research into the nature of trust in primary care

2.7.1 The patient's view

Qualitative work has investigated the dimensions of trust from the patient's perspective. Thom and Campbell (1997), in their interview study carried out in the US involving patients with a range of health conditions, identified categories of physician behaviour which were associated with trust. These included categories of physician behaviour relating to technical competence (the physician's thoroughness in evaluation, and providing appropriate and effective treatment), interpersonal aspects of the interaction (understanding of patients' individual experience, caring, communicating clearly and competently, partnership building, honesty and respect), and structural/staffing factors. Similar dimensions were identified by Mechanic and Meyer (2000) in their US qualitative study of patients with chronic illness; they found that patients focused on the doctor's interpersonal and technical competence, although technical competence tended to be judged through interpersonal cues or reputation. Mechanic (2004) summarises these findings to suggest that patients' trust in doctors is built on beliefs about technical competence, interpersonal competence, and indications that the doctor is their ally.

The development of patient trust has been investigated in several studies. Thorne and Robinson (1988), in their qualitative interviews with patients with chronic illness, found that these patients entered relationships with absolute 'naïve' trust based on expectations that the doctor would have the answer to their problems, and would share their values. They found that patients then experienced a stage of shattered trust, when their problem was not easily resolved and there was incongruence between their expectations and the doctor's actions or priorities. Trust was then reconstructed based on an informed perspective of the skills and limitations of the doctor. However this trajectory of trust development may only be relevant for patients experiencing chronic illness.

Mechanic and Meyer (2000) found that patients described the development of trust as an iterative process, which involved testing doctors against their expectations, and evaluating their experiences. Patients who felt their illness was not validated by the doctor, and hence felt more vulnerable, were more likely to actively test the trustworthiness of their doctors.

Gore and Ogden (1998) carried out a qualitative study of frequent attenders in UK primary care, to investigate how patients described the development of their relationship with their GP. Although this study did not focus on trust, patients described how they judged trustworthiness in initial consultations, and then validated their initial judgements based on evidence of caring, which reduced their uncertainty about future behaviour. Once the relationship had developed, patients worked to consolidate their views of the GP by setting boundaries.

The concept of trust placed prior to interaction (described as naïve trust by Thorne & Robinson, 1988) has not been extensively explored or developed through qualitative work on trust in health professionals, often being taken as given. However, Halliday (2004), in her qualitative work on trust between patients and midwives, highlighted the important distinction between the initial act of trusting, which she termed 'placed trust', and trust as a response. She suggests that women place trust in midwives in order to counter vulnerability. This placed trust is based on beliefs about the training and levels of expertise of midwives in general, and expectations of the general role of 'midwife', and acts as an initiator for the relationship. The importance of this placed trust was demonstrated in the qualitative interviews with patients and midwives about the development of trust during care in pregnancy. She found that, rather than building trust over the course of the relationship, women tended to enter the relationship with a high level of trust based upon beliefs about the midwife's qualifications and expert power. This trust was then maintained and reinforced through information seeking, in which the boundaries or limits of trust were established. If the trust in the individual midwife was not maintained, women tended to seek an alternative.

2.7.2 The GP's view

There has been very little relevant work exploring GPs' views of interpersonal trust. Calnan and Rowe (2004) note that qualitative research conceptualising trust has focused on patient trust in professionals and has looked at the patient's perspective. They suggested that more research is needed from the perspective of health professionals and managers.

Mainous, Kerse, Brock, Hughes, and Pruitt (2003) carried out a qualitative study of primary care doctors in the US and New Zealand, to investigate the strategies doctors used to increase patient trust. Doctors believed that trust was achieved through relationship building, and described the importance of initial friendliness and rapport with the patient. They felt that strategies such as being professional, being unhurried, and being willing to listen, helped build trust. Doctors did not talk about medical competence as building trust, believing that patients were generally unable to judge the quality of their medical care, and that patient trust was primarily based on interpersonal aspects of the consultation and positive health outcomes.

Dibben and Lean (2003) explored the development of 'swift' trust – that is, trust developed in a one-off consultation – in their qualitative study of US nutrition clinic consultations. They found that in a one-off consultation, health professionals described building patient trust through being open and sharing information, thus demonstrating their willingness to cooperate.

GPs' trust in patients is a key issue that has not been extensively explored. Govier (1998) argues that medical relationships are less reciprocal in exchange of trust than other types of social relationships (there is less vulnerability for the GP in trusting their patients than for the patients in trusting the GP). However, Entwistle & Quick (2006) argue that doctors entrust in patients their efforts to care, and their good reputation, hence trusting a patient entails a degree of risk for the doctor. Misplaced trust can lead to inappropriate care, wasted effort and resources, or threat to the doctors reputation (Rogers, 2002). Doctors may question the trustworthiness of patients in terms of their legitimacy to access care, their testimony or account of their symptoms, and their

competence to contribute positively to their own health (Rogers 2002). If GPs have varying levels of trust in their patients, this may have implications for the extent to which mutually beneficial cooperation is achieved. Gilson (2003) briefly discusses physician trust in patients, and suggests that physicians may demonstrate different levels of trust to different groups of patients, with some groups of patients being seen as undeserving (e.g. teenage mothers), and physicians expressing lower trust in patients who are seen as using the system inappropriately. The result of this is that these patients ultimately get lower quality of care. Rogers (2002) highlights the importance of doctors' trust in patients in enabling patient autonomy, honest communication, and as having therapeutic value.

Thorne and Robinson (1988) conclude from their qualitative work that successful GP-patient relationships involve not only the patient trusting the GP, but also feeling that they are trusted by the GP as competent to manage their own condition – and that being trusted enhances the patient's trust in the GP.

2.8 Implications for future research on trust

It is important to note that much of the research into trust in physicians is based on the premise that interpersonal trust is intrinsic to physician-patient relationships. Although trust is an important part of the therapeutic relationship, interpersonal trust does not only exist within relationships, and, as has been discussed by others including Gilson (2003) and Halliday (2004), trust may be placed in an unknown other, or developed as a consequence of a single interaction. Previous empirical studies of trust in primary care

have only studied trust in the patients 'usual' GP. However, this introduces a confounding factor, making it more difficult to assess the relationship between continuity and trust, as, by definition, patients seeing their usual GP already have some degree of longitudinal and interpersonal continuity. The broader definition of trust as a belief in the likely trustworthiness or cooperativeness of another – as in Hall et al.'s definition of trust as an 'optimistic acceptance of a vulnerable situation in which the truster believes the trustee will care for the truster's interests' (Hall et al., 2001, p 615), – helps to conceptually distinguish trust from relational continuity. Using this definition means that it is valid to investigate patients' trust in the GP they see, even if this is an unfamiliar GP.

Additionally trust tends to be understood as a stable attitude, with measures of patients' trust in their usual GP tending to involve completion of general attitude statements prior to consultation (this is likely to represent learned trust rather than situational trust e.g. Dibben et al., 2000). One implication of this is that empirical studies have not generally explored the impact of interactional processes in specific consultations on the development of trust – particularly cues to trustworthiness such as verbal and non-verbal communication. The one exception is Fiscella et al's 2004 study of physician behaviours and their impact on trust.

Thus there is a need for further research which conceptually distinguishes trust from interpersonal continuity, and which explores the development of trust taking into account the impact of both situational and interpersonal features of the consultation.

2.9 Summary of trust literature

Trust is recognised in primary care literature as a central part of ongoing GP-patient relationships. There has been much influential theoretical writing on patient trust. It has been proposed that initially trust is based on general attitudes towards doctors or the medical profession. Once the patient has experienced care from a GP, the basis of trust shifts to knowledge of the individual GP. It has also been argued that trust is learned, and the basis for trust changes over time, from a cognitive or calculative basis (based on objective evidence of trustworthiness, or 'good reasons' for trusting), to being affective or identification-based (based on emotional ties between individuals).

Although trust is an integral part of an ongoing relationship, findings from empirical studies of the relationship between continuity and trust have produced mixed results. Findings indicate that trust is associated with length of GP-patient relationship but not frequency or proportion of visits to the patient's usual GP. There is evidence that good medical and emotional outcomes in past consultations, and interpersonal care, are associated with trust. This has lead some researchers to conclude that it is the quality of the interactions between the patient and GP that is important in developing trust, and that continuity is only important in that it provides an opportunity for the quality of the interactions to be evaluated by the patients. However, there is a need for further research into the association between continuity and trust.

Because of the uncertainty associated with consulting a GP, trust is theorised to be essential in achieving patient cooperation. There is relatively strong evidence for an

association between aspects of the GP-patient relationship – trust in particular – and a patient's acceptance of, and adherence to, advice or treatment.

Qualitative studies of patients' experiences of trust find that patient trust is primarily based on an evaluation of the GP's interpersonal and technical competence, and can be influenced by organisational factors. Qualitative studies have described the development of trust as involving the patient iteratively testing the GP against expectations, to reduce uncertainty and establish a level of informed trust. The patient feeling validated by the GP also was also found to be an important aspect of trust development. There are several issues relating to the qualitative work which has been carried out on trust to date: firstly, much of the has been carried out in the United States of America (US); secondly, research has tended to focus on specific groups of patients such as those with complex chronic illness, or frequent attenders; and thirdly, research has tended to focus exclusively on features of interpersonal trust developed over the course of a relationship. There is little research into trust outside of the context of an ongoing relationship, although Halliday (2004) found that patients were willing to place trust in midwives, based on beliefs about professional competence and expert power. One study of GPs' strategies to build patient trust found that GPs focused on interpersonal skills such as relationship-building, taking time for the patient, and being willing to listen, rather than demonstrating medical competence (Mainous et al., 2003), however, there has been little exploration of GPs' views on trust and cooperation.

Overall, there is need for further work to explore the process by which trust develops in the context of the GP-patient relationship, and the role of trust in the personal GP-patient relationship.

2.10 Conclusion

The key principles of game theory identified in the first chapter suggest that trust has a central role in achieving cooperation in social interactions, and that trust and cooperation are reinforced by repeated interactions. This chapter has reviewed the literature on the meaning and role of trust in primary care.

The review has identified that, although trust is seen as a core aspect of the therapeutic relationship, the association between continuity and trust has been found to be weak. Trust is theorised to develop, and the basis of trust to change, over the course of a relationship, although there is little qualitative work into the nature or development of trust. There is relatively strong evidence that trust is associated with patient cooperation in terms of compliance or adherence to treatment.

This review provides a broader theoretical understanding of trust alongside that provided by game theory, and locates this thesis in the context of current theory and evidence in primary care.

The chapters that follow use a game theory perspective to address some of the issues raised. To begin this process, chapters 3 and 4 report a patient survey investigating the relationship between aspects of continuity, trust and cooperation, based on a game theory perspective. The next chapter describes the aims of the patient survey, and the methods used.

Chapter 3

QUESTIONNAIRE STUDY:

BACKGROUND, DEVELOPMENT AND PILOTING OF THE QUESTIONNAIRE

3.1 Introduction

The first piece of empirical research described in this thesis involves a questionnaire survey of primary care patients, which aimed to test hypotheses about the relationship between aspects of continuity identified from a game theory perspective, and patient trust and cooperation. This chapter gives the background to the study, and outlines the hypotheses being tested. The chapter also describes the development and piloting of the questionnaire for use in the full study.

As discussed in chapter 2, there is evidence that aspects of GP-patient relationships, trust in particular, are associated with positive outcomes including patient acceptance of advice and adherence to treatment. Although trust is recognised as being an integral part of ongoing GP-patient relationships, the length of the GP-patient relationship has been found to be only weakly associated with trust, whereas experience of positive past outcomes, and interpersonal aspects of the consultation have been found to be strongly associated with trust. This has led to the suggestion that it is the quality of the GP-patient relationship, rather than its longitudinality, that promotes trust and cooperation. However, it is also recognised that some degree of longitudinality is necessary for a good-quality relationship to develop.

Game theory gives a theoretical perspective from which to understand the relationship between continuity, trust, and patient cooperation. Cooperation is seen as being dependent both on an individual's willingness or motivation to cooperate, and on this individual's judgements of the trustworthiness of the other individual. Game theory provides a model of how specific situational and interpersonal features of the interaction influence both motivation to cooperate and judgements of trustworthiness, giving a possible insight into the dynamics of trust and cooperation in the GP-patient interaction.

Firstly, as described in Chapter 1, research based on game theory suggests that patients are more likely to trust, and hence cooperate, when there is evidence of past trustworthy behaviour. Past experience is likely to be seen as a reliable source of evidence on which to base judgments of trustworthiness – if the GP was trustworthy in the past then he/she is likely to be so on the current occasion – so repeated positive (cooperative) interactions are hypothesised to promote trust. The importance of positive outcomes from past interactions in promoting trust was also suggested by Cateriniccio (1979).

Game-theoretic research also suggests that it is important for each player to have evidence that the other recalls past interactions, particularly that a patient believes the GP knows him or her as a cooperative patient – as this is a reason to believe that the GP will be willing to act in the patient's best interests. Patients may also use other evidence to form judgements of trustworthiness. In particular, they may use cues such as how the GP interacts with them in the consultation; the association between interpersonal care and trust has been documented in previous research, as described in chapter 2. Secondly, game theory points to anticipation of future interaction as a key factor influencing trust and cooperation. If individuals expect to see each other again in the

future, then they can anticipate future benefits from cooperation. Open-endedness of future interactions provides a rational basis for cooperation. When future interactions are anticipated, each person has a reason to believe that the other will be motivated to cooperate, and hence will be more likely to trust the other. So anticipation of future interactions is hypothesised to promote trust and cooperation. This hypothesis has not been tested in previous research.

This study focuses on testing hypotheses about specific aspects of continuity identified from a game theory perspective – the nature of past interactions and the anticipation of future interactions – and their association with patient trust and cooperation. This survey aimed to test the following hypotheses about the relationship between situational features of the consultation, and trust and cooperation:

Hypothesis 1: A history of past interactions between a patient and a general practitioner (GP) will be associated with greater patient cooperation and trust.

Hypothesis 2: The more confident a patient is that past interactions were cooperative, the more likely the patient is to cooperate and trust the GP.

Hypothesis 3: The more a patient believes that the GP recalls past interactions with him/her, the more likely the patient is to cooperate and trust the GP.

Hypothesis 4: A patient's anticipation of future interactions with a GP will be associated with greater patient cooperation and trust.

Hypothesis 5: If a patient expects interactions with a GP to continue for an open-ended period of time in the future, the patient is more likely to cooperate and trust the GP.

Hypothesis 6: Patient cooperativeness will be positively associated with patient trust.

This study involved a postal questionnaire survey of patients consulting GPs at one of three Leicestershire practices. Patients consulting for any reason were included in the study, and they were asked to fill in the questionnaire in relation to their most recent consultation. The following sections describe the development and piloting of the questionnaire for use in the full study. The questionnaire was developed for use by patients consulting either a GP or practice nurse, hence the questionnaire is described in these terms in this chapter. However, in the full study, only patients consulting a GP were included in the analysis for reasons described in chapter 4.

3.2 Pilot study – method

Questionnaires provide a means of collecting quantitative data for statistical analysis, and as such a postal questionnaire was the method of choice for collection of data to test the specified hypotheses. The questionnaire was developed for the purposes of the study and piloted prior to use. Ethical approval for the study was gained from the Leicestershire Research Ethics Committee

3.2.1 Operationalising key variables – trust and cooperation

Before describing the development of the questionnaire, the issues around operationalising and measuring two of the key variables – trust and cooperation – will be discussed

a. The measurement of trust

Over recent years, several multi-dimensional scales have been developed that measure patients' trust in their physician, although the dimensions included in the scales have varied. Hall et al., (2001), based on a review of writing by trust theorists, previous questionnaires, and their own work, postulated five dimensions of trust: *fidelity* (pursuing the patient's best interest and not taking advantage of vulnerability i.e. caring, respect, advocacy, avoiding conflict of interest), *competence*, *honesty* (including admitting to lack of knowledge or expertise), *confidentiality,* and *global trust*. However, they noted that dimensions of trust have not emerged in empirical work, instead trust has been shown to behave as a unidimensional construct, and most trust scales are designed to produce a single score for trust.

Most of the available trust scales have been rigorously assessed and shown to have reasonably good psychometric properties (Anderson & Dedrick, 1990; Kao et al., 1998; Leisen & Hyman, 2001; Ramsay, Campbell, Schroter, Green, & Roland, 2000; Safran, Kosinski et al., 1998, Thom, Ribisl et al., 1999), and these scales have been widely used in primary care research. The properties of the most commonly used scales were reviewed by Hall et al., (2002), who highlighted some of the problems with existing scales. Problems included inconsistencies in how trust was conceptualised (e.g. whether questions were about attitudes or behaviour) and differences in the dimensions included in the scale (e.g. whether or not technical competence was included). Hall et al., (2002) described the development of a new scale (the Interpersonal Trust in Physician scale - ITPS) to address some of these problems.

In the pilot study, trust was measured using the Patient Trust in Physician Scale (Thom et al., 2002), which consists of nine items that can be converted into a 1-100 scale using the following formula: (mean –1) x 25. This questionnaire was chosen as it is commonly used in trust research. A question on overall trust adapted from the GPAS questionnaire (NPCRDC, 1999), was also included, although this was not used in the analysis.

b. The measurement of patient cooperation

It is recognised that patient cooperation could be seen as involving a wide range of behaviours – including consulting appropriately (e.g. not over-using the service), acting cooperatively during the consultation by being open and willing to negotiate, and by accepting the GP's advice or treatment. For the purposes of this survey, patient cooperation is operationalised narrowly as acceptance of the GP's recommended treatment or advice.

Patient compliance with medical regimens is an important issue in primary care, contributing to the effectiveness of prescribed treatment and overall outcomes, and as such is a key link between the process of care and patient outcomes (Vermeire et al. 2001).

Compliance or adherence is often measured through patient self-report, as this is the easiest and most cost effective means; however this is likely to lead to overestimation of levels of compliance or adherence. Estimates of levels of non-compliance with prescription medication suggest that up to 50% of patients may not comply with their treatment regime (e.g. Dunbar-Jacob & Schlenk, 2001). It is recognised that non-

compliance can happen in many different ways, and may be intentional or non-intentional.

Recent years have seen critical discussion of the terminology around patient compliance or non-compliance with medical regimens. The term 'compliance', defined as 'the extent to which a patient's behaviour matches the *prescriber's* recommendations' (Horne, Weinman, Barber, Elliot, & Morgan, 2005, p.27) has been criticised as representing a paternalistic and doctor-centred view of medication taking, where the patient is expected to submit to the doctor's orders, and where non-compliance is seen as deviant (although early compliance research did recognise that compliance was not always desirable e.g. Ley, 1977). The term 'adherence', defined as 'the extent to which a patient's behaviour matches *agreed* recommendations from the provider' (Horne et al., 2005, p. 27) has been suggested as a more neutral alternative to compliance, reflecting patient choice to a greater extent, and emphasising the need for agreement between GP and patient. The working party for the Royal Pharmaceutical Society of Great Britain introduced and defined the concept of 'concordance', which has been widely accepted. Concordance is defined as 'agreement reached between a patient and a health care professional, that respects the beliefs and wishes of the patient in determining whether, when and how medicines are to be taken … in which the health care professionals recognise the primacy of the patient's decisions' (Horne et al., 2005, p.27).

Concordance emphasises the important of negotiation, and the primacy of the patient's perspective in the prescribing of, and taking of, medication. As such, concordance provides an ideal to work towards in prescribing. However it may be a less useful

concept in empirical work where the interest lies in assessing the extent to which medication is taken as prescribed. It is quite possible for concordance to be achieved, but for the patient to fail to take the medication as prescribed (for example, because of unexpected side effects). Horne et al. (2005) note that the terms compliance and adherence both primarily reflect the extent to which the patient's behaviour matches the prescriber's advice. In this study, the outcome of interest is the extent to which patients follow through with the treatment or advice they receive, negotiate, or agree, and as such the term 'adherence' is used in the empirical study in preference to concordance, to represent this concept, although the term 'compliance' is retained when discussing existing literature.

In this study it was felt that self-report of adherence was the most appropriate option, given resource constraints. A measure of adherence to advice or treatment was included in the pilot questionnaire, in which patients rated their adherence on a scale from 1 (did not follow the advice or treatment at all) to 10 (did everything exactly as recommended). This question was adapted from Robinson et al. (2004).

3.2.2 Developing the pilot version of the questionnaire

It is commonly recognised (e.g. Boynton & Greenhalgh, 2004) that existing validated and reliability-tested questionnaires should be used where possible in preference to the design of a new questionnaire from scratch, both in order to save time and resources and to ensure the collection of high quality data. Validated, reliability-tested scales are available for the measurement of concepts such as trust, based on extensive qualitative work to inform the operationalisation of these concepts, and extensive piloting to ensure reliability and validity. Where possible in the design of the questionnaire, existing

scales were used or questions adapted from published questionnaires. However, there was no suitable measure of continuity that allowed the specific aspects of repeated interactions to be investigated, so these questions were developed from scratch based on prior theory, and carefully piloted.

The continuity measure included questions about the patient's most recent consultation to assess:

- whether or not the patient and the GP/practice nurse had a history of past interaction
- the level of patient's confidence in the cooperativeness of past interactions
- the patient's perception of the GP/nurse's recall of past interactions
- whether or not the patient anticipates seeing with the same GP/nurse in the future
- whether or not the patient anticipates the relationship with the GP/nurse to be open-ended

Each of these questions was presented as a statement (e.g. *This GP/nurse remembers me when I visit*), with a five-point scale labelled 'strongly disagree' to 'strongly agree'. These questions also had a separate box labelled 'not sure/not applicable'. Including a 'don't know' option reduces the extent to which people report meaningless opinions (e.g. about fictitious subjects or subjects about which they have no experience), and there is evidence that suggests 'don't know' choices reflect true lack of opinion to some extent. However respondents may also choose a 'don't know' option for other reasons such as avoidance of cognitive effort or fatigue. Evidence suggests that including a 'don't know' option does not improve reliability of data (Krosnick, 1999). In this study a 'not sure/not applicable' option was included, as some of the questions were

potentially not relevant if the patient had not seen the GP or nurse before, or referred to issues which the patient may or may not have knowledge about.

In addition, measures of trust and adherence were also included, as discussed below. Patients were also asked background questions about their reason for consulting, their health status, age, sex, ethnicity and occupation.

At the end of the questionnaire, patients were asked to indicate how long the questionnaire took to fill in, how easy the questionnaire was to complete, and for any comments on the questionnaire. The pilot version of the questionnaire is included in Appendix 1.1.

Prior to use, the pilot questionnaire was reviewed by two experts in questionnaire design along with participants on a survey design course.

3.2.3 Administration of the pilot questionnaire

A pilot was carried out involving the postal administration of the questionnaire to 50 patients in one GP practice. Oppenheim (1992) recommends piloting the questionnaire wording as well as other aspects of the study such as procedures for drawing the sample. The aim of the pilot was both to help test and refine the questionnaire, based on response distributions and missing responses to questions, and to test that the instructions to practices and method of administration worked successfully before rolling this out to three practices.

One GP practice volunteered to pilot the questionnaire. A random sample of consultations from the previous two weeks (weeks beginning 24th January 2005 and 31st

January 2005) was drawn from the practice computer system, excluding patients under the age of 18. The questionnaire was posted to 50 patients who had consulted a GP or nurse at the practice over the previous two weeks (25 male and 25 female), along with a letter from a GP, an information sheet, a pen, and a reply-paid envelope for returning the questionnaire to the researcher. The Practice Manager at the pilot practice was asked for feedback on the wording of the questionnaire.

3.2.4 Analysis of pilot data

Descriptive statistics and frequency distributions were produced for each question in the questionnaire, to assess response patterns and identify questions which had very skewed responses, or had a large number of 'missing' responses. Pearson correlation coefficients were also produced to get an indication of whether expected relationships between variables were evident in the pilot data.

3.3 Pilot study – results

3.3.1 Participants

The questionnaire was returned by 27 patients (27/50, 54%); 11 (41%) were male, and 14 (52%) were female (two missing). Patients' ages ranged from 29-90 (mean 58.7); 20 (74%) had a long-term health problem, and 14 (52%) were in fair or poor health. Nineteen (70%) patients consulted with the GP or nurse that they usually saw.

3.3.2 Feedback on the questionnaire

All patients found the questionnaire 'quite' or 'very' easy to fill in (26% and 74% respectively). Patients took on average 9.7 minutes to fill in the questionnaire (range 2-60 minutes).

Seven patients commented on the questionnaire. Two patients commented that it was difficult to judge (as non-medical persons) whether they were getting the best possible medical care. One patient did not complete the adherence scale but wrote 'Have not yet decided - will wait a few days to see if it clears first' which suggests non-adherence, at least at this point in time. Another patient commented on q.7. 'The doctor asked me to see one of the practice doctors if the problem continued, she did not say her personally'. Finally, one patient felt that 'being a mother of three young children I consider their health more important than my own. I feel I know my own health needs but when it comes to taking your children to see a doctor you're at their mercy. It would be interesting filling in a questionnaire with regard to my children's health'.

3.3.3 Response patterns

Frequency tables were produced in order to inspect the response patterns of individual questions. Responses to the questions designed to measure continuity for the purposes of this study (q.6.a to q.6.j) showed a reasonably good distribution, although results were positively skewed. This may be due to the fact that a large proportion of patients saw the GP or nurse they usually saw.

There were four potentially problematic issues:

1. All but one patient said that the GP or nurse had asked to see them again (question 7.). This may be a valid response, but the question may have been misinterpreted (e.g. patients responding 'yes' if the GP had said anything about consulting again if the problem got worse, instead of than only ticking 'yes' if the GP had asked them to come back and see him/her personally). This question was also commented on by one patient.

2. Responses to the adherence scale were highly positively skewed. Although the scale ran from 0-10, responses ranged from 7-10, with 16 patients (60%) reporting complete adherence. There is likely to be a strong social desirability bias in answering this question, and it was decided to consider possible alternatives to this question for the full survey.

3. Some of the questions in the Thom trust scale showed relatively high proportions of missing responses. Question 9.f ('How much did you trust the GP/nurse you saw to… tell you if a mistake was made about your treatment') was omitted by seven responders (26%), and question 9.g. ('How much did you trust the GP/nurse you saw to… put your medical needs above all other considerations, including costs') was omitted by five (19%), suggesting that patients may have found these questions difficult to answer. In addition, the mean score from the Thom trust scale was highly positively skewed (mean 88.50, range 50-100, with 37% of patients scoring 100). The GPAS trust score was also positively skewed: mean 9.40, range 6-10, with 17 (63%) of patients choosing the top score of 10. This is in line with published findings that trust in physicians is generally very high, and with published data from the Thom scale (for example, Thom et al., 2002, found a mean of 87, range 14-100, with 29% patients scoring 100). However, it

was also felt that there would be value in considering alternative measures of patient trust which may have better psychometric properties

4. Some patients saw both a GP and a nurse, and were unsure whether the questions should be answered in respect of the GP or the nurse. In the final version of the questionnaire, a further instruction was added to clarify this: 'If you saw a GP *and* a nurse, please answer the following questions about the GP'.

3.3.4 Correlations between questions on the pilot questionnaire

A table of correlations (Appendix 1.2) suggested support for some of the stated hypotheses, although the sample was too small to draw conclusions. Only one variable – whether the patient has seen the GP/nurse before – had a significant correlation with the adherence measure, with patients who had seen the GP/nurse before reporting higher adherence. This lack of significant relationships with adherence is probably due to lack of variance in adherence scores.

3.4 Developing the final version of the questionnaire

3.4.1 Changes to the questionnaire

Following piloting, several minor changes to the questionnaire instructions and wording were made. In addition, the three issues highlighted above were addressed in the following ways:

1. The question about whether the GP / nurse had asked the patient to come back and see him/her again was split into two separate questions as follows:

On this occasion, did the GP/nurse ask you to come back again if you had any problems?

Yes

No

If yes, did the GP/nurse ask you to come back to see:

him/her specifically

any of the practice GPs/nurses

2. Improved questions on adherence were developed, based on an approach taken by Kerse et al. (2004) in their study of compliance with medication in primary care, carried out in New Zealand. Kerse et al. asked patients immediately after the consultation whether they received a prescription, and then telephoned four days later and asked whether the patient had filled the prescription, were taking the medication, and if not, why not. Patients were classified as compliant if they had received a prescription and were taking the medication, or if they were not taking it because it was a repeat prescription and they already had enough medication. They were classified as noncompliant if they were not taking the prescribed medication at follow-up for any other reason. Those who had not received a prescription were not included in the compliance analysis. Kerse et al. found that 61.3% of patients received a prescription for medication, and 78.6% of those who received a prescription were taking the medication.

This approach was adapted to be used as a written self-report measure of adherence for the current study, worded as follows:

On this occasion, did you get a prescription?

Yes

No

(if yes) Have you taken the medication?

Yes, exactly as prescribed

Yes, but not exactly as prescribed *(e.g. did not take all the tablets, took a lower dose)*

No, not at all

If you have not taken the medication at all, or have not taken it as prescribed, please say why not:

The original adherence question measure was slightly reworded, and retained in the questionnaire to allow all patients, including those who had not received a prescription, to report adherence.

3. As the trust scale used in the pilot questionnaire (Thom et al., 2002) had produced disappointing results, an alternative trust scale was identified for use in the full survey. The Wake Forest Interpersonal Trust in a Physician Scale (ITPS) was developed by Hall and colleagues (Hall et al., 2002), based on a review of trust literature and a sound conceptual model of trust. The ITPS has been shown to have better psychometric properties and a lower mean (77 on a 100 point scale) than other commonly used scales of patient trust in their physician. The scale consists of 10 items, which are combined to produce a score out of 100. The team have recently developed and tested a short form of the scale which has five items, and which has similar psychometric properties to the full scale (M. Hall, personal communication, March 2005; Dugan, Trachtenberg, &

Hall, 2003). This 5-item scale was chosen for inclusion in the final questionnaire.

4. In addition, it was decided to include a scale measuring interpersonal aspects of the consultation, given that there is strong evidence that interpersonal care is associated with trust. It was intended to include interpersonal care in the multivariate regression model of predictors of trust, to enable the effects of interpersonal care to be controlled for in assessing the association between continuity and trust. The 3-item scale used in the GPAS (NPCRDC,1999) survey to measure interpersonal care was included in the final version of the questionnaire.

Feedback on the revised version of the questionnaire was obtained by asking six PhD students from the University of Leicester to complete the questionnaire, then interviewing them to check their understanding of the questions and to get feedback on questionnaire wording and layout. Further minor changes were made as a result of this, and the final version of the questionnaire was resubmitted to the Leicestershire Research Ethics Committee, and ethical approval for the final version of the questionnaire obtained. The final version of the questionnaire is included in Appendix 1.3.

3.4.2 Changes to the patient sample

Following the pilot it was decided to restrict the age range to 18-75. Older people may find it more difficult to fill in questionnaires, and there are likely to be a significant number of older people in nursing homes. Given the comment by a parent cited above, it was also decided to include parents consulting with young children (under 5) in the sample.

3.4.3 Instructions to practices

The pilot practice found it easy to select a random sample of patients from their list based on the instructions given, and the coordination of packing and posting questionnaires went well. There were no significant changes to the administration method following the pilot.

3.5 Conclusion

This chapter has described the development and piloting of a questionnaire to test hypotheses, derived from game theory, about the relationship between aspects of continuity, trust, and cooperation. The following chapter describes the methods used in the full study, and reports the full study results.

Chapter 4

QUESTIONNAIRE STUDY: FULL STUDY METHODS AND RESULTS

4.1 Introduction

This questionnaire study aimed to test the following hypotheses derived from game theory (as described in chapter 3), using a postal questionnaire administered to a total of 594 patients from three Leicestershire GP practices.

Hypothesis 1: A history of past interactions between a patient and a general practitioner (GP) will be associated with greater patient cooperation and trust.

Hypothesis 2: The more confident a patient is that past interactions were cooperative, the more likely the patient is to cooperate and trust the GP.

Hypothesis 3: The more a patient believes that the GP recalls past interactions with him/her, the more likely the patient is to cooperate and trust the GP.

Hypothesis 4: A patient's anticipation of future interactions with a GP will be associated with greater patient cooperation and trust.

Hypothesis 5: If a patient expects interactions with a GP to continue for an open-ended period of time in the future, the patient is more likely to cooperate and trust the GP.

Hypothesis 6: Patient cooperativeness will be positively associated with patient trust.

The development and piloting of the questionnaire has been described in chapter 3, and the final questionnaire can be seen in Appendix 1.3. The final questionnaire included questions about the patient's most recent consultation to assess the history of the

patient's past interaction with the GP, and his/her anticipation of future interactions, as well as interpersonal aspects of the consultation. The questionnaire also contained a scale to measure trust (the short-form ITPS, Dugan et al., 2003), a single item overall trust measure derived from the GPAS questionnaire (NPCRDC, 1999), a set of questions to measure cooperation (adherence to advice or treatment), and questions about the patient's characteristics and health status.

4.2 Full study – method

4.2.1 Administration of the questionnaire

Three Leicestershire practices, which had recently taken part in a previous research study funded by the NHS Service Delivery and Organisation research programme into continuity of care[2], were asked to take part in this study, and all three practices agreed to do so.

The three practices were chosen to represent a range of localities within Leicestershire, and characteristics of the practices are described in Table 4.1 below:

Table 4.1: Characteristics of practices participating in the survey

	Locality	**Practice size (no. GPs)**	**List size**	**Deprivation***
Pr1	Inner city	Medium (5-7)	12000+	High
Pr2	Urban	Medium (5-7)	6000-12000	High
Pr3	Market town	Large (>7)	12000+	Moderate

* Based on Townsend Score: Townsend, Phillimore & Bealtie (1988)

[2] http://www.sdo.lshtm.ac.uk/continuityofcare.htm#baker

The main analysis to be used in this study was multiple regression analysis. The calculation of sample size for multiple regression analysis has been the subject of much debate, with many researchers using 'rules of thumb' to determine sample size, many of which stipulate a ratio of subjects to predictor variables. Green (1991) investigated, based on reviews of published work, whether commonly used rules of thumb led to studies with adequate power. Although Green recommended using more complex formulae in sample size calculation, he found that the formula $N \geq 50 + 8m$ (where m = number of predictor variables) produced a study of sufficient power (0.80) to detect a medium effect size ($R^2 = 0.13$). In the current study, there were 25 possible predictor variables, including a number of variables relating to patient characteristics. This was used as a basis for a sample size calculation, although it was recognised that fewer than 25 variables would be included in the final regression analyses. Using this formula, $N \geq 50 + (8 \times 25)$, i.e. $N \geq 250$. Thus the sample size should be 250 or more. As Green recognises, this is likely to be an over-estimation of the required sample size. However, the results of the pilot study suggested that the number of patients reporting less than complete trust and adherence are relatively low. Therefore it was decided to aim for this large sample size in order that larger numbers of patients reporting less than complete trust and adherence would be included. With an anticipated response rate of between 40% and 50%, an initial sample of 600 patients was felt to be sufficient to produce the required N of 250 or more.

In each practice, a random sample of 200 patients who had consulted over the previous two weeks (weeks beginning 28th March 2005 and 4th April 2005 for practice 1, and 4th April 2005 and 11th April 2005 for practices 2 & 3), was drawn from the practice computer system, excluding patients under the age of 18 and over the age of 75, and

including parents consulting with children under the age of five. All patients consulting a GP or nurse at the practice were included, whether this was their usual GP or not. The list was checked by a practice member to identify any patients who should be excluded (for reasons unrelated to the study, e.g. recent death), and duplicate mailing was avoided by checking that parents who consulted with children under the age of five were not sent a second questionnaire if they had also consulted themselves.

The questionnaire was posted to 594 patients in total, along with a letter from a GP, an information sheet, and a reply-paid envelope for returning the questionnaire to the researcher. A single reminder including a second copy of the questionnaire was sent after 2-3 weeks to all patients who had not returned the questionnaire. Follow-up *including* a second copy of the questionnaire has been found to significantly increase response rate over follow-up *without* a copy of the questionnaire, in a meta-analysis of strategies to improve response rate (Edwards et al., 2002). One patient was removed from the sample prior to sending a reminder, as this patient was found to have left the practice.

Questionnaire data was entered into an MS Access database, and transferred to SPSS for analysis. Data was cleaned and checked for inconsistencies prior to analysis.

4.2.2 Analysis

Patients who had consulted with a nurse were excluded from the analysis, as it was considered that factors influencing trust in practice nurses might be different to those influencing trust in GPs. Only 34 (12.3%) of patients consulted a practice nurse, and this was considered to be too small a number to analyse separately.

Scale scores were calculated for the short-form ITPS, to produce scores for each responder on a 0-100 scale. A score was also calculated for each responder on the Interpersonal Care scale.

It had been intended to use questions 12a and 12b combined as a measure of adherence to treatment – these questions asked whether the patient had been prescribed medication, and if so, whether they had taken the medication as prescribed. However, very few patients reported that they had not taken their medication as prescribed. 161 patients (66.3%) reported receiving a prescription. Of these, 142 (88.2%) said they had taken the medication exactly as prescribed. Only 16 patients (9.9%) reported less than complete compliance with medication: 13 (8.1%) had not taken as prescribed (e.g. taking a lower dose) and 3 (1.9%) had not taken the medication at all. Due to the fact that only a very small number of patients reported non-compliance with medication, it was not felt to be appropriate to use this measure in analysis. Another measure of adherence had been included in the questionnaire: all patients, whether or not they were given a prescription, were asked to report on a scale of 0-10 the extent to which they had followed the advice or treatment recommended by the GP. Levels of adherence reported on this scale were high but showed more variability, so this scale was chosen as the measure of adherence to be used in analysis.

Univariate analysis was carried out to test the proposed hypotheses. Hypotheses 2-5 were tested on the basis of a series of individual questions (question 7a-j). Bivariate correlations were calculated between trust, adherence, continuity measures, and other relevant sections of the questionnaire. One-way ANOVAs were also carried out to identify significant differences in trust and adherence scores between groups of patients

with different experiences of continuity. Fisher's LSD test was used to identify significant differences between groups. For the purposes of the ANOVA, respondents were divided into 3 groups on the basis of their replies to the relevant question, and ANOVAs were used to test for significant differences in trust and adherence between the three groups. For each question, the three groups were: patients who answered 1-3 on the relevant question (i.e. indicated a negative belief about/experience of continuity); patients who answered 4 or 5 on the relevant question (i.e. indicted a positive belief about/experience of continuity); patients who selected the 'don't know' option. This third group was included on the basis that the game theory model suggests uncertainty to be an important factor in judgements of trust and decisions to cooperate. For example, it was hypothesised that patients who were unsure about the likelihood of future interactions would show more cooperation and trust than patients who did not anticipate future interactions, but would show less trust and cooperation than patients who had definite positive expectations for the future. Patients who had not seen the GP before were excluded from the analysis for hypotheses 2 and 3, as these hypotheses relate to past interactions.

Multivariate analysis (multiple linear regression) was then carried out to identify which aspects of continuity were independently associated with trust and adherence.

As a relatively large number of significance tests were being carried out in the case of the univariate analysis, findings from the univariate analysis were defined as significant only if $p < 0.001$, in order to protect against type I errors (i.e. erroneously concluding that there is an association between variables or difference between groups).

4.3 Full study – results

4.3.1 Response rate

Questionnaires were returned by 279 out of 593 patients (47%). In addition, one patient returned a questionnaire with only the section 'about you and your health' completed, and two patients responded that they were too ill to complete the questionnaire.

The response rate varied across practices; the response rate from the inner-city practice was lower than that from the urban and rural practices. The response rate for practice 1 was 36.2% (70 / 193), for practice 2 was 51.2% (103 / 201), and for practice 3 was 53.2% (106 / 199).

Two questionnaires were excluded from the analysis due to inconsistent responses. Questionnaires from patients who saw a practice nurse only (34, 12.3%) were also excluded from the sample for analysis, leaving 243 questionnaires for analysis. This figure is just below the required sample size of $N \geq 250$, although this target sample size was deliberately chosen to be larger than required.

4.3.2 Characteristics of responders

Details of the responders are given in Table 4.2. Eighty four (34.6%) were male, and 157 (64.6%) were female. Patients' ages ranged from 18 to 75 (mean 50.0). Two hundred and two (83.1%) described their ethnic group as White British. One hundred and thirty five (55.6%) had a long-term health problem, and 92 (37.9%) were in fair or poor health.

One hundred and ninety seven (81.1%) consulted for themselves in their most recent consultation, 34 (14.0%) for a child under five years, and six (2.5%) for themselves and a child. One hundred and fifty patients (61.7%) consulted the GP that they usually saw.

Table 4.2: Characteristics of survey responders (n=243)

Mean age (range, *SD*)	50.0 yrs (18-75, *15.84)*	
Sex	Male	84 (34.6%)
	Female	157 (64.6%)
Ethnicity	White British	202 (83.1%)
	White other	12 (4.9%)
	Indian	14 (5.8%)
	Pakistani	3 (1.2%)
	Black African / Caribbean	4 (1.6%)
	Other	1 (0.4%)
Employment status	Full-time	74 (30.5%)
	Part-time	43 (17.7%)
	Self-employed	9 (3.7%)
	Unemployed	4 (1.6%)
	Retired	60 (24.7%)
	Unable to work due to illness	24 (9.9%)
	Looking after family	17 (7.0%)
	Student	6 (2.5%)
Health status	Excellent	17 (7.0%)
	Very good	49 (20.2%)
	Good	81 (33.3%)
	Fair	64 (26.3%)
	Poor	28 (11.5%)
Longstanding illness	Yes	135 (55.6%)
	No	105 (43.2%)
Who consulting for?	Self	197 (81.1%)
	Child	34 (14.0%)
	Self and child	6 (2.5%)
Seeing GP usually see?	Yes	150 (61.7%)
	No	53 (21.8%)

4.3.3 Levels of trust and cooperation

Mean scores for trust and cooperation were high. The mean trust score on the short-form ITPS was 20.76 (or 79.96 on a 0-100 scale), *SD* 4.65 (23.45). Ninety four patients

(38.7%) scored 100, i.e. reported complete trust in the GP that they saw. The mean score on the adherence scale used in the analysis was 9.3, SD 1.5, and 168 patients (69.1%) reported complete adherence.

4.3.4 Univariate analysis results

The correlation coefficients for aspects of continuity, trust and adherence are shown in Table 4.3. The results of ANOVAs testing differences in trust and adherence scores between groups of patients with different experiences of continuity are shown in Tables 4.4 and 4.5. These results were inspected in order to test the proposed hypotheses. Cohen's (1988) definitions of small, medium and large correlations are used as a basis for describing the size of the correlation coefficients. Cohen defines 0.10 as a small correlation, 0.30 as a medium correlation, and 0.50 as a large correlation.

Table 4.3: Correlation coefficients for aspects of continuity, trust and adherence

	Trust	13.a Adherence	2. Reason for consulting (1=pre-existing problem, 2=new)	6.a. Seen this GP before? (1=no, 2=yes)	6.b. Is this the person you usually see? (1=no, 2=yes)	6.c. Length of time with GP	7.a. This GP remembers me when I visit	7.b. GP knows/ has checked, whether have followed past treatment / advice	7.c. GP has always given best possible treatment / advice in the past	7.g. I expect that I will see this GP next time I visit
Trust	1	0.28** (0.00)	-0.16 (0.02)	0.14 (0.04)	0.20 (0.01)	0.01 (0.86)	0.44** (0.00)	0.62** (0.00)	0.69** (0.00)	0.54** (0.00)
13.a. Adherence	0.28** (0.00)	1	-0.10 (0.12)	0.01 (0.92)	0.10 (0.17)	0.03 (0.72)	0.14 (0.05)	0.25** (0.00)	0.22 (0.001)	0.19 (0.01)
2. Reason for consulting (1=pre-existing problem, 2=new)	-0.16 (0.02)	-0.10 (0.12)	1	-0.10 (0.14)	-0.14 (0.05)	-0.18 (0.02)	-0.17 (0.02)	-0.31** (0.00)	-0.12 (0.09)	-0.15 (0.03)
6.a. Seen this GP before? (1=no 2=yes)	0.14 (0.04)	0.01 (0.92)	-0.10 (0.14)	1		0.15 (0.04)	0.30** (0.00)	0.12 (0.10)	0.10 (0.17)	0.32** (0.00)
6.b. Is this the person you usually see? (1=no, 2=yes)	0.20 (0.01)	0.10 (0.17)	-0.14 (0.05)	.	1	0.13 (0.08)	0.36** (0.00)	0.22 (0.003)	0.20 (0.01)	0.47** (0.00)
6.c. Length of time with GP	0.01 (0.86)	0.03 (0.72)	-0.18* (0.02)	0.15* (0.04)	0.13 (0.08)	1	0.20* (0.01)	0.00 (0.98)	0.04 (0.34)	0.07 (0.34)
7.a. This GP remembers me when I visit	0.44** (0.00)	0.14 (0.05)	-0.17 (0.02)	0.30** (0.00)	0.36 (0.00)	0.20 (0.01)	1	0.56** (0.00)	0.50** (0.00)	0.44 (0.00)
7.b. GP knows/ has checked, whether have followed past treatment/advice	0.62** (0.00)	0.25** (0.00)	-0.31** (0.00)	0.12 (0.10)	0.22 (0.003)	0.00 (0.98)	0.56** (0.00)	1	0.61** (0.00)	0.48** (0.00)
7.c. GP has always given me best possible treatment / advice in the past	0.69** (0.00)	0.22 (0.001)	-0.12 (0.09)	0.10 (0.17)	0.20 (0.005)	0.04 (0.64)	0.50** (0.00)	0.61** (0.00)	1	0.56** (0.00)
7.g. I expect that I will see this GP next time I visit	0.54** (0.00)	0.19 (0.01)	-0.15 (0.03)	0.32** (0.00)	0.47** (0.00)	0.07 (0.34)	0.44** (0.00)	0.48** (0.00)	0.56** (0.00)	1
7.i. I expect I will continue to see this GP for the foreseeable future	0.50** (0.00)	0.19 (0.01)	-0.22* (0.001)	0.31** (0.00)	0.53** (0.00)	0.13 (0.10)	0.41** (0.00)	0.46** (0.00)	0.49** (0.00)	0.79** (0.00)
7.j. GP will get to know if followed their treatment/ advice	0.71** (0.00)	0.29** (0.00)	-0.32 (0.00)	0.18 (0.01)	0.25 (0.001)	0.04 (0.62)	0.53** (0.00)	0.71** (0.00)	0.59** (0.00)	0.60** (0.00)
8. GP asked you to come back and see him/her? (1=yes, 2=no)	-0.39** (0.00)	-0.14 (0.04)	0.08 (0.24)	-0.26** (0.00)	-0.20 (0.01)	-0.11 (0.14)	-0.32 (0.00)	-0.39 (0.00)	-0.35 (0.00)	-0.40 (0.00)
9. GPAS interpersonal care scale	0.77** (0.00)	0.25** (0.00)	-0.15 (0.02)	0.10 (0.14)	0.20 (0.004)	0.05 (0.51)	0.49** (0.00)	0.54** (0.00)	0.61** (0.00)	0.43** (0.00)
14. Sex (1=m, 2=f)	-0.14 (0.04)	-0.12 (0.06)	0.07 (0.26)	0.01 (0.90)	-0.20 (0.01)	-0.08 (0.31)	-0.13 (0.08)	-0.08 (0.25)	-0.09 (0.18)	-0.13 (0.07)
15. Age	0.20 (0.002)	0.25** (0.00)	-0.23** (0.00)	0.04 (0.56)	0.21 (0.002)	0.26** (0.00)	0.26** (0.00)	0.34** (0.00)	0.23 (0.001)	0.21 (0.002)
19. Health past 12 months (1=excellent ... 5=poor)	-0.02 (0.74)	0.07 (0.32)	-0.21 (0.001)	0.13 (0.05)	-0.02 (0.77)	0.19 (0.01)	0.17 (0.02)	0.12 (0.09)	-0.05 (0.44)	-0.05 (0.50)
20. Long term condition in past 12 months? (1=y, 2=n)	-0.04 (0.54)	-0.13 (0.04)	0.31** (0.00)	-0.14 (0.03)	-0.08 (0.26)	-0.17 (0.02)	-0.24 (0.001)	-0.16 (0.03)	0.01 (0.85)	-0.03 (0.65)
21. Times consulted GP over past 12 months	0.09 (0.15)	0.13 (0.04)	-0.29** (0.00)	0.16 (0.01)	0.00 (0.98)	0.03 (0.69)	0.14 (0.05)	0.20 (0.005)	-0.02 (0.81)	0.09 (0.20)
17. Ethnicity (1=white, 2=other)	-0.12 (0.07)	-0.07 (0.29)	0.27** (0.00)	-0.06 (0.35)	-0.12 (0.09)	0.00 (0.96)	-0.10 (0.17)	-0.12 (0.08)	-0.23 (0.001)	-0.14 (0.04)
1. Consulting for self or child (1=self, 2=child)	-0.18 (0.01)	-0.11 (0.09)	0.14 (0.03)	-0.09 (0.17)	-0.10 (0.14)	-0.21 (0.01)	-0.22 (0.002)	-0.24 (0.001)	-0.15 (0.03)	-0.32** (0.00)

** Correlation is significant at the 0.001 level (2-tailed).

Table 4.3 (cont): Correlation coefficients for aspects of continuity, trust and adherence

	7.i. I expect I will continue to see this GP for the foreseeable future	7.j. GP will get to know if followed their treatment / advice	8. GP asked you to come back and see him/ her? (1=yes, 2=no)	9. GPAS interpersonal care scale	14. Sex (1=m, 2=f)	15. Age	19. Health past 12 months (1=excellent ... 5=poor)	20. Long term condition in past 12 months? (1=y, 2=n)	21. Times consulted GP over past 12 months	17. Ethnicity (1=white, 2=other)	1. Consulting for self or child (1=self, 2=child)
Trust	0.50** (0.00)	0.71** (0.00)	-0.39** (0.00)	0.77** (0.00)	-0.14 (0.04)	0.20* (0.002)	-0.02 (0.74)	-0.04 (0.54)	0.09 (0.15)	-0.12 (0.07)	-0.18 (0.01
13.a. Adherence	0.19* (0.01	0.29** (0.00)	-0.14 (0.04)	0.25** (0.00)	-0.12 (0.06)	0.25** (0.00)	0.07 (0.32)	-0.13 (0.04)	0.13 (0.04)	-0.07 (0.29)	-0.11 (0.09)
2. Reason for consulting (1=pre-existing problem, 2=new)	-0.22 (0.001)	-0.32** (0.00)	0.08 (0.24)	-0.15 (0.02)	0.07 (0.26)	-0.23** (0.00)	-0.21 (0.001)	0.31** (0.00)	-0.29** (0.00)	0.27** (0.00)	0.14 (0.03)
6.a. Seen this GP before? (1=no, 2=yes)	0.31** (0.00)	0.18 (0.01)	-0.26** (0.00)	0.10 (0.14)	0.01 (0.90)	0.04 (0.56)	0.13 (0.05)	-0.14 (0.03)	0.16 (0.01)	-0.06 (0.35)	-0.09 (0.17)
6.b. Is this the person you usually see? (1=no, 2=yes)	0.53** (0.00)	0.25 (0.001)	-0.20 (0.01	0.20 (0.004)	0.20 (0.005)	0.21 (0.002)	-0.02 (0.77)	-0.08 (0.26)	0.00 (0.98)	-0.12 (0.09)	-0.10 (0.14)
6.c. Length of time with GP	0.13 (0.10)	0.04 (0.62)	-0.11 (0.14)	0.05 (0.51)	-0.08 (0.31)	0.26** (0.00)	0.19 (0.009)	-0.17 (0.02)	0.03 (0.69)	0.00 (0.96)	-0.21* (0.01)
7.a. This GP remembers me when I visit	0.41** (0.00)	0.53** (0.00)	-0.32** (0.00)	0.49 (0.00)	-0.13 (0.08)	0.26** (0.00)	0.17 (0.02)	-0.24 (0.001)	0.14 (0.05)	-0.10 (0.17)	-0.22 (0.002)
7.b. GP knows/ has checked, whether have followed past treatment/advice	0.46** (0.00)	0.71** (0.00)	-0.39 (0.00)	0.54** (0.00)	-0.08 (0.25)	0.34** (0.00)	0.12 (0.09)	-0.16 (0.03)	0.20 (0.005)	-0.12 (0.08)	-0.24 (0.001)
7.c. GP has always given me best possible treatment / advice in the past	0.49** (0.00)	0.59** (0.00)	-0.35** (0.00)	0.61** (0.00)	-0.09 (0.18)	0.23 (0.001)	-0.05 (0.44)	0.01 (0.85)	-0.02 (0.81)	-0.23 (0.001)	-0.15 (0.03)
7.g. I expect that I will see this GP next time I visit	0.79** (0.00)	0.60** (0.00)	-0.40** (0.00)	0.43** (0.00)	-0.13 (0.07)	0.21 (0.002)	-0.05 (0.50)	-0.03 (0.65)	0.09 (0.20)	-0.14 (0.04)	-0.32** (0.00)
7.i. I expect I will continue to see this GP for the foreseeable future	1	0.65** (0.00)	-0.37** (0.00)	0.38** (0.00)	-0.05 (0.48)	0.28** (0.00)	0.04 (0.59)	-0.13 (0.07)	0.16 (0.02)	0.01 (0.89)	-0.24** (0.00)
7.j. GP will get to know if followed their treatment/ advice	0.65 (0.00)	1	-0.42** (0.00)	0.55** (0.00)	-0.12 (0.09)	0.31** (0.00)	0.05 (0.51)	-0.13 (0.07)	0.19 (0.08)	-0.07 (0.32)	-0.29** (0.00)
8. GP asked you to come back and see him/her? (1=yes, 2=no)	-0.37** (0.00)	-0.42** (0.00)	1	-0.35** (0.00)	0.08 (0.25)	-0.17 (0.01)	-0.04 (0.58)	0.06 (0.38)	-0.01 (0.88)	0.07 (0.27)	0.20 (0.002)
9. GPAS interpersonal care scale	0.39** (0.00)	0.55** (0.00)	-0.35** (0.00)	1	-0.11 (0.08)	0.20 (0.002)	-0.00 (0.91)	-0.07 (0.30)	0.07 (0.29)	-0.22 (0.001)	-0.14 (0.03)
14. Sex (1=m, 2=f)	-0.05 (0.48)	-0.12 (0.09)	0.08 (0.25)	-0.11 (0.08)	1	-0.34 (0.00)	-0.03 (0.61)	0.10 (0.13)	-0.02 (0.80)	0.07 (0.30)	0.16 (0.01
15. Age	0.28** (0.00)	0.31** (0.00)	-0.17 (0.01)	0.20 (0.002)	-0.34** (0.00)	1	0.19 (0.003)	-0.29** (0.00)	0.17 (0.01)	-0.19 (0.003)	-0.44** (0.00)
19. Health past 12 months (1=excellent ... 5=poor)	0.04 (0.59)	0.05 (0.51)	-0.04 (0.58)	-0.01 (0.91)	-0.03 (0.61)	0.19 (0.003)	1	-0.55** (0.00)	0.53** (0.00)	-0.02 (0.78)	-0.17 (0.01)
20. Long term condition in past 12 months? (1=y, 2=n)	-0.13 (0.07)	-0.13 (0.07)	0.06 (0.38)	-0.07 (0.03)	0.10 (0.13)	-0.29** (0.00)	-0.55** (0.00)	1	-0.46** (0.00)	0.14 (0.30)	0.27** (0.00)
21. Times consulted GP over past 12 months	0.16 (0.02)	0.19 (0.01)	-0.01 (0.88)	0.07 (0.29)	-0.02 (0.80)	0.17 (0.01)	0.53** (0.00)	-0.46** (0.00)	1	0.01 (0.83)	-0.10 (0.12)
17. Ethnicity (1=white, 2=other)	0.01 (0.88)	-0.07 (0.32)	0.07 (0.27)	-0.22 (0.001)	0.07 (0.30)	-0.19 (0.003)	-0.02 (0.78)	0.14 (0.03)	0.01 (0.83)	1	0.30** (0.00)
1. Consulting for self or child (1=self, 2=child)	-0.24** (0.00)	-0.29** (0.00)	0.20 (0.002)	-0.14 (0.03)	0.16 (0.01)	-0.44** (0.00)	-0.17 (0.01)	0.27** (0.00)	-0.10 (0.12)	0.30** (0.00)	1

** Correlation is significant at the 0.001 level (2-tailed).

a. Hypothesis 1: A history of past interactions between a patient and a GP will be associated with greater patient cooperation and trust.

There was a small correlation between whether the patient had seen the GP before, and trust ($r = 0.14$, $p = 0.04$). There was also a small correlation between whether the patient was seeing the person they usually see, and trust ($r = 0.20$, $p = 0.005$). Neither of these factors was correlated with adherence to treatment. The length of time that the patient had been seeing the GP was not associated with trust or adherence (see Table 4.3).

A one-way ANOVA showed no significant differences in trust and adherence scores between patients who saw their usual GP, patients who saw a GP they had seen before (but not their usual GP), and patients who saw a GP they had not seen before (see Tables 4.4 and 4.5).

b. Hypothesis 2: The more confident a patient is that past interactions with a particular GP were cooperative, the more likely the patient is to cooperate and trust that particular GP

Question 7c ('This GP has always given me the best possible treatment or advice in the past') was designed as a measure of patients' belief in the cooperativeness of past interactions. There was a large correlation between Question 7c and trust score ($r = 0.69$, $p < 0.001$), and a small correlation between Question 7c and adherence to treatment ($r = 0.22$, $p = 0.001$) (see Table 4.3).

Patients who did not believe that the GP had given them the best possible advice or treatment in the past had significantly lower trust scores than both other groups. There were no significant differences in adherence between groups. However it should be noted that only four patients responded 'not sure' to this question (see Tables 4.4 and 4.5).

c. Hypothesis 3: The more a patient believes that the GP recalls past interactions with him/her, the more likely the patient is to cooperate and trust the GP

Question 7a ('This GP remembers me when I visit'), and Question 7b ('This GP knows, or has checked, whether I have followed the treatment or advice recommended on past occasions') were designed as measures of patients' belief in the health professional's recall of past interactions. The coefficient for the correlation between responses to Question 7a and trust scores was medium, and there was a large correlation between responses to Question 7b and trust scores (Q7a: $r = 0.44$, $p < 0.001$; Q7b: $r = 0.62$, $p < 0.001$). Small correlations were found between responses to these questions and adherence (Q7a: $r = 0.14$, $p = 0.05$; Q7b: $r = 0.25$, $p < 0.001$) (see Table 4.3).

Patients who believed that the GP remembered them had significantly higher trust scores than patients who did not believe this (Q7a). There were no significant differences in adherence between groups. Patients who did not believe that the GP knew, or had checked, whether they had followed the treatment or advice recommended on past occasions had significantly lower trust scores than both other groups (Q7b). Responses to Question 7b showed significant differences between groups for adherence; patients who did not believe that the GP knew, or had checked, whether they had

followed the treatment or advice recommended on past occasions reported significantly lower adherence than those who did believe this (see Tables 4.4 and 4.5).

d. Hypothesis 4: A patient's anticipation of future interactions with a GP will be associated with greater patient cooperation and trust

Question 7g ('I expect that I will see this GP next time I visit'), and question 7j ('This GP will get to know whether I have followed their treatment or advice') were designed as measures of patients' anticipation of future interactions with the GP they had seen at their most recent consultation. There was a large correlation between responses to each of the questions, and trust scores (Q7g: $r = 0.54$, $p < 0.001$; Q7j: $r = 0.71$, $p < 0.001$), and a small correlation with adherence (Q7g: $r = 0.19$, $p = 0.01$; Q7j: $r = 0.29$, $p < 0.001$) (see Table 4.3).

Patients who expected to see the GP next time (Q7g) had significantly higher trust scores than those who did not, and those who believed that the GP would get to know if they followed the advice or treatment reported higher trust than both other groups (question 7j). There were no significant differences in adherence between the groups (see Tables 4.4 and 4.5).

Patients who reported that the GP had asked them to come back and see him/her specifically, reported higher trust than patients who had not been asked to come back to the same GP in the future (mean trust scores: 86.06 vs. 67.09, $t = 5.65$, $p < 0.001$). Patients who had been asked to come back to see the same GP also reported higher adherence (9.44 vs. 9.00, $t = 1.87$, $p = 0.02$).

e. Hypothesis 5: If a patient expects interactions with a GP to continue for an open-ended period of time in the future, the patient is more likely to cooperate and trust the GP

Scores on question 7i ('I expect that I will continue to see this GP for the foreseeable future') showed a large correlation with trust scores ($r = 0.50$, $p < 0.001$), and a small correlation with adherence ($r = 0.19$, $p = 0.006$) (see Table 4.3).

Patients who expected to continue to see the GP for the foreseeable future had significantly higher trust and adherence scores than patients who did not expect to (Q7i) (see Tables 4.4 and 4.5).

f. Hypothesis 6: Patient cooperativeness will be positively associated with patient trust.

There was a significant, small, positive correlation between trust score and adherence to treatment ($r = 0.28$, $p < 0.001$) (see Table 4.3).

g. Additional factors associated with trust and adherence

Several patient health and demographic factors were correlated with trust, although all correlation coefficients were small and none were significant at $p<0.001$. The following patient factors were all found to be associated with trust: age (older patients had higher trust); sex (male patients had higher trust); reason for consulting (patients consulting for a pre-existing condition had higher trust than patients consulting for a new condition); and whether the patient was consulting for themselves or a child (patients consulting for

themselves had higher trust). There was a large correlation between patients' ratings of the interpersonal care from the GP, and trust ($r = 0.77$, $p < 0.001$) (see Table 4.3).

Patient age was significantly associated with adherence, with older patients reporting higher levels of adherence. The following factors were also associated with adherence, but correlation coefficients were small and none were significant at p<0.001: whether the patients had a long-standing health problem (patients with a longstanding health problem reported higher levels of adherence), and the number of times the patient had consulted in the past 12 months (patients who had consulted more frequently reported higher levels of adherence). There was also a small correlation between rating of interpersonal care, and adherence ($r = 0.25$, $p < 0.001$) (see Table 4.3)

Table 4.4: ANOVAs relating to each hypothesis (trust)

Hypothesis	Question	Group	Mean trust score	N	F
1	6a. Have you been to see this GP before? / 6b. Is this the person you usually see?	Usual GP	83.50	150	6.29 (p=0.02)
		Seen before	73.21	53	
		Never seen	71.45	31	
2	7.c. This GP has *always* given me the best possible treatment or advice in the past	Agree	86.22_a	163	37.86 (p<0.001)
		Not sure	86.25_b	4	
		Disagree	$53.97_{a,b}$	34	
3	7.a. This GP remembers me when I visit	Agree	85.96_a	131	16.83 (p<0.001)
		Not sure	84.28	21	
		Disagree	65.50_a	50	
3	7.b. This GP knows, or has checked, whether I have followed the treatment or advice recommended on past occasions	Agree	88.04_a	145	40.77 (p<0.001)
		Not sure	78.53_b	34	
		Disagree	$58.88_{a,b}$	58	
4	7.g. I expect that I will see this GP next time I visit	Agree	85.76_a	166	15.86 (p<0.001)
		Not sure	77.04	27	
		Disagree	61.94_a	49	
4	7.j. This GP will get to know whether I have followed their treatment or advice	Agree	88.46_a	155	34.62 (p<0.001)
		Not sure	73.25	40	
		Disagree	57.66_a	47	
5	7.i. I expect that I will continue to see this GP for the foreseeable future	Agree	85.25_a	163	11.80 (p<0.001)
		Not sure	76.20	25	
		Disagree	64.42_a	52	

For each question, where the F value is significant at $p < 0.001$, differences between groups are shown. Groups marked with the same subscript differ significantly from each other at $p < 0.001$. All other differences are non-significant (Fisher's LSD test).

Table 4.5: ANOVAs relating to each hypothesis (adherence)

Hypothesis	Question	Group	Mean adherence score	N	F
1	6.a. Have you been to see this GP before? / 6.b. Is this the person you usually see?	Usual GP	9.38	147	0.88 (p=0.41)
		Seen before	9.06	52	
		Never seen	9.27	30	
2	7.c. This GP has *always* given me the best possible treatment or advice in the past	Agree	9.44	175	4.98 (p=0.08)
		Not sure	9.42	24	
		Disagree	8.66	38	
3	7.a. This GP remembers me when I visit	Agree	9.50	136	3.49 (p=0.03)
		Not sure	9.00	41	
		Disagree	9.02	58	
3	7.b. This GP knows, or has checked, whether I have followed the treatment or advice recommended on past occasions	Agree	9.52_a	143	9.30 (p<0.001)
		Not sure	9.44	32	
		Disagree	8.63_a	57	
4	7.g. I expect that I will see this GP next time I visit	Agree	9.46	164	3.52 (p=0.03)
		Not sure	9.32	25	
		Disagree	8.75	48	
4	7.j. This GP will get to know whether I have followed their treatment or advice	Agree	9.51	154	3.57 (p=0.03)
		Not sure	9.13	38	
		Disagree	8.73	45	
5	7.i.I expect that I will continue to see this GP for the foreseeable future	Agree	9.48_a	161	6.88 (p=0.001)
		Not sure	9.57	23	
		Disagree	8.63_a	51	

For each question, where the F value is significant at $p < 0.001$, differences between groups are shown. Groups marked with the same subscript differ significantly from each other at $p < 0.001$. All other differences are non-significant (Fisher's LSD test).

4.3.5 Multivariate analysis

Multiple linear regression analysis was carried out to identify predictors of trust and adherence. The sample for the regression was restricted to the 204 patients who had seen the GP before, as patients who had not seen the GP before could not answer questions about their experience of care from the particular GP in the past. Due to missing values, 159 patients were included in the regression analysis for trust, and 156 in the regression analysis for adherence. Much of the missing data was due to respondents choosing the 'not sure/not applicable' option on the continuity questions. These figures are lower than the sample size of $N \geq 250$, calculated prior to data collection using the formula $N \geq 50 + 8m$, where m is the number of variables in the regression equation. However, the sample size calculation allowed for a potential 25

variables to be included in the regression equation. In the final analysis, only eight variables were included in the regression analysis with trust as the dependent variable, and nine variables were included in the regression analysis with adherence as the dependent variable. With nine predictor variables, the sample size calculation prescribes a minimum sample size of $50 + (8 \times 9)$, i.e. $N \geq 122$. The N for the regression analyses is well above the minimum sample size.

The short-form IPTS score, and the 10-point scale score for adherence to treatment, were used as dependent variables for regression. Several questions assessing past interaction, and expectation of future interaction, were chosen from the questionnaire for inclusion in the regression analysis.

Multicolinearity was felt to be a potential problem for this data set. Multicolinearity occurs when independent variables in the regression equation are highly correlated, and overlap in explaining variance in the dependent variable. This can be a problem as it makes the regression coefficients for individual predictor variables difficult to interpret, and may lead to non significance of coefficients even when independent variables are strongly related to the dependent variable.

Multicolinearity can be assessed through looking at tables of correlation coefficients, to identify whether any of the independent variables are highly correlated. Correlations between all the variables of interest are shown in Table 4.3. Correlations between variables in the regression analysis show small to medium sized correlation with each other, with the exception of interpersonal care, which showed a large correlation with trust. Some level of correlation between variables is to be expected, as questions in the

questionnaire all addressed different aspects of continuity. However, none of the coefficients are close to 1.

The best way to check for problematic multicolinearity is through inspecting condition indices, and tolerance values for each variable, as this allows more complex interrelationships between independent variables to be taken into account. Condition indices are calculated along the lines of Principal Components Analysis; independent variables are combined to produce a set of unique components, and variance proportions can be examined to identify whether each variable loads highly on to more than one factor. The overall value for condition indices can also be inspected, and a rule of thumb is that condition indices over the value of 30 may indicate problematic multicolinearity. Tolerance values indicate the percentage of variance in each predictor variable that cannot be accounted for by the other predictors; a value under 0.20 suggests a predictor may be redundant.

Condition indices were inspected for the regression analyses presented in tables 4.6 and 4.7; the highest index was 23.03 for the trust regression, and 22.30 for the adherence regression. Tolerance levels were all above 0.39 for the trust regression and above 0.35 for the adherence regression. Hence, although independent variables in the analysis are intercorrelated to some degree, this is unlikely to cause problems in interpreting the results of the regression analysis.

a. Trust

Table 4.6 shows the results of a multiple linear regression for trust, with aspects of continuity and interpersonal care included as possible predictor variables. Patient age,

and sex were included in the multivariate analysis as these factors were found to be associated with trust in the univariate analysis. Whether the patient was consulting for him/herself or a child was associated with trust, however this variable was not included in the regression analysis as it was confounded with sex.

Table 4.6: Trust regression analysis

	Regression coefficient (*B*)	Std error	Standardised regression coefficient (Beta)	*P*	95% confidence intervals for regression coefficient (*B*)
Constant	3.06	6.62		0.6	-10.02, 16.14
7.b. This GP knows, or has checked, whether I have followed the treatment or advice recommended on past occasions	1.88	1.36	0.09	0.17	-0.81, 4.56
7.c. This GP has always given me the best possible treatment or advice in the past	3.63	1.49	0.16*	0.02	0.69, 6.58
7.j. This GP will get to know whether I have followed their treatment or advice	5.29	1.33	0.26**	0.000	2.66, 7.91
7.i. I expect that I will continue to see this GP for the foreseeable future	0.97	1.09	0.04	0.38	-1.18, 3.12
9. GPAS interpersonal care scale	0.45	0.06	0.47**	0.000	0.34, 0.56
15. age	-0.08	0.07	-0.06	0.24	-0.22, 0.06
14. sex (1=male, 2=female)	-1.22	2.08	0.03	0.56	-5.33, 2.89

Adjusted $R^2 = 0.72$
* significant at $p < 0.05$
** significant at $p < 0.001$

In multiple regression analysis interpersonal care (GPAS scale) was significantly related to trust ($p < 0.001$). One aspect of continuity of care in the future (question 7.j: This GP will get to know whether I have followed their treatment or advice) was also significantly associated with trust ($p < 0.001$). In addition, belief that the GP had acted in the patient's best interests in the past (question 7.c: This GP has always given me the best possible treatment or advice in the past) was less strongly associated with trust ($p < 0.05$).

The regression equation for this analysis, including significant predictors of trust, is:

Trust = (0.47 × interpersonal care) + (0.26 × get to know if followed advice) + (0.16 × given best treatment in past)

Additional regression modelling, including only the significant predictors of trust, indicated that adding two measures of continuity (question 7.c: This GP has always given me the best possible treatment or advice in the past, and question 7.j: This GP will get to know whether I have followed their treatment or advice) to an initial model including only interpersonal care increased the value of the adjusted R^2 by 0.10 to 0.72, compared to a value of the adjusted R^2 of 0.62 when only interpersonal care was included in the model. All predictors in the model were significant at $p < 0.001$. This indicates that these aspects of continuity, which relate to both past interaction, and future interaction, significantly add predictive value to the model over and above the predictive value of interpersonal care.

b. Adherence

Table 4.7 shows the results of a multiple linear regression for adherence, with trust, and aspects of continuity, included as possible predictor variables. Patient age was also included in the multivariate analysis.

Table 4.7: Adherence regression analysis

	Regression coefficient (*B*)	Std error	Standardised regression coefficient (Beta)	*P*	95% confidence intervals for regression coefficient (*B*)
Constant	6.90	0.50		0.000	5.91, 7.90
7.b. This GP knows, or has checked, whether I have followed the treatment or advice recommended on past occasions	-0.09	0.13	-0.08	0.49	-0.36, 0.17
7.c. This GP has always given me the best possible treatment or advice in the past	0.09	0.15	0.07	0.53	-0.20, 0.38
7.j. This GP will get to know whether I have followed their treatment or advice	-0.01	0.15	-0.01	0.92	-0.30, 0.28
7.i. I expect that I will continue to see this GP for the foreseeable future	0.06	0.11	0.05	0.61	-0.16, 0.28
10. Trust scale	0.02	0.01	0.33*	0.005	0.01, 0.03
15. age	0.01	0.01	0.17*	0.03	0.001, 0.03

* significant at $p < 0.05$
Adjusted $R^2 = 0.14$

None of the variables in the regression significantly predicted adherence at $p < 0.001$.

Trust and patient age were significant predictors of adherence at $p < 0.05$.

The regression equation for this analysis, including significant predictors of adherence, is:

Adherence = (0.33 × trust) + (0.17 × patient age)

The adjusted R^2 for the regression model was only 0.14, indicating that the factors included in the regression analysis only explained a small proportion of the variance in adherence scores.

4.4 Discussion

4.4.1 Principal findings

Patients in this study reported high levels of trust and adherence, even when seeing a health professional they had never seen before, or did not usually see.

Univariate results show that the aspects of continuity of care identified through a game theory model (both continuity in past interactions and anticipation of future interactions) are associated with higher levels of trust and adherence, as hypothesised. Hypotheses about the role of uncertainty in trust and cooperation were not supported. Patients who were unsure about the cooperativeness of past interactions or the likelihood of future interactions did not tend to differ significantly from other groups in their reported trust or adherence to treatment.

Multivariate analysis, controlling for age, sex and ethnicity, indicated that interpersonal care, belief that the GP had given the best possible advice or treatment in previous consultations, and expectation that the GP would get to know whether the patient had followed the advice or treatment, were significantly associated with trust in the GP. In the multivariate analysis, trust and patient age were significant predictors of adherence ($p < 0.05$).

Taken together, these results indicate that interpersonal care is the factor most strongly associated with trust in a GP. Continuity in past interactions (whether or not the patient had seen the GP before, length of time the patient had been seeing the GP) is not in itself strongly associated with trust. However, belief about the quality of care from the GP in past interactions (i.e. whether the patient believed that the GP had given them the

best possible care in the past) is associated with trust. Expectation of future interaction was found to be associated with higher trust. Both monitoring in past interactions and expectation of monitoring in future interactions was associated with higher trust. In the univariate analysis, whether the GP knew or had checked if the patients had followed advice or treatment in the past, and whether the patients believed they would continue to see the same GP for the foreseeable future were found to be associated with adherence. Trust was found to be weakly associated with adherence to treatment in both univariate and multivariate analysis.

4.4.2 Limitations of the study

Mean scores for trust and adherence were higher than reported in other studies using the same measurement tools. The mean trust score on the short-form ITPS was 20.76 (or 79.96 on a 0-100 scale), *SD* 4.65 (23.45). This is higher than comparative data for the short-form ITPS from a national sample of 1045 adults in the US with established primary care relationships (including non-physicians), where the mean score was 20.4 (77.0 on 0-100 scale), *SD* 3.1 (15.5), (Dugan et al., 2003). It should be noted that comparative data comes from the US rather than the UK, which may explain the difference in scores obtained in this study.

Only 16 patients (9.9%) reported less than complete adherence to medication: 13 (8.1%) had not taken as prescribed (e.g. taking a lower dose) and 3 (1.9%) had not taken the medication at all. This reported adherence is higher than that found in other studies. For example, in the study by Kerse et al. (2004) referred to in the previous chapter on the pilot study, only 78.6% of those who received a prescription reported taking the medication as prescribed. However, Kerse et al. used telephone interviews, and this

method may be more suited to identifying non-adherence than self-report postal questionnaires. Due to the small number of people reporting less than complete adherence to medication, it was not felt to be appropriate to use this measure in analysis; instead, the analysis focused on responses to the more general question about the extent to which the patient had followed the advice or treatment they had been given. However scores on this scale were also skewed towards complete adherence, with a mean of 9.3, *SD* 1.5, and with 168 patients (69.1%) reporting complete adherence.

It is possible that high reported trust and adherence might reflect social desirability bias, or general positive attitudes towards GPs, rather than particularly high levels of trust or adherence. Self-report questions on adherence, in particular, are likely to be subject to social desirability bias, leading to higher reporting of adherence than is perhaps the case in reality. Lack of variance in reported adherence may be problematic for identifying predictors of adherence, and may have contributed to the findings of few significant predictors of adherence in this study. More objective ways of measuring adherence, such as pill counts, have been used in previous research, but these were beyond the scope of this study.

It should also be noted that the patients in this study were selected from the general practice population, and included patients consulting for a wide range of reasons, including resolution of minor acute problems. Acceptance and adherence may thus be expected to be higher than for specific patient groups, for example, groups of patients with chronic conditions. Additionally, some patients may have been consulting for reasons for which issues of adherence to treatment or advice are irrelevant, for example,

a blood test, or a vaccination. Less than two-thirds of patients in the study (174, 62.8%) reported receiving a prescription.

The revised measure of adherence, adapted from that used by Kerse et al (2004), could not be used in the analysis as very few patients reported less than complete adherence to treatment on this measure. This meant that the adherence analysis was reliant on a single global item as a measure of adherence – the simple question 'To what extent have you followed the treatment or advice recommended by the GP/nurse on this occasion?'. Using this single item to measure a key dependent variable is problematic. Ideally, beliefs, attitudes, and behaviours should be measured using multi-item scales rather than single questions. This is because individual questions are more likely to be subject to random variation due to, for example, the particular wording of the question. This single item may not be sensitive to variation in adherence, and there is no evidence that this self-report question is a valid and reliable measure of patients' adherence behaviour.

Although scores on the adherence item showed more variation than the revised measure, scores were positively skewed. Parametric analysis (such as correlation and regression analysis) assumes that variables have a normal distribution, and violation of this assumption can lead to distortion of results and significance tests. It may have been more appropriate to transform the data, for example, using the log or square root of scores, prior to using the data in parametric analysis, or alternatively to use non-parametric tests.

For these reasons, the validity of the findings from this study on the association between aspects of continuity and adherence, should be called into question.

A further problem with using a single item, self-report measure of adherence is that this does not allow one to identify reasons for non-adherence. Patients may adhere, or not adhere, to treatment for a range of reasons including issues to do with the GP-patient relationship; for example, Benson and Britten (2002) found that patients' decisions about whether or not to take anti-hypertensive drugs were influenced by a range of factors including positive experiences with doctors, perceived benefits of medication, and pragmatic considerations. Comments on some of the questionnaires indicated a range of reasons for non-adherence to treatment or advice (e.g. not using medication because the condition had cleared up, not having instructions on how to take the medication, not following advice because of a lack of trust in the health professional), but without more detailed questioning this measure of adherence remains insensitive.

In this questionnaire, each aspect of continuity was measured using only one or two questions, and responses to individual questions were analysed separately. The problems. Ideally, beliefs and attitudes should be measured using multi-item scales rather than single questions. This is because individual questions are more likely to be subject to random variation due to, for example, the particular wording of the question. However, given the constraints of time and funding in this study, it was not feasible to develop and psychometrically test measurement scales. Using individual questions was felt to be acceptable because the individual questions were designed to address hypotheses about specific components of continuity, rather than broad attitudes towards continuity. Each question was subject to extensive piloting in order to assess face validity; interviews with a range of people during the piloting stage probed understanding of the meaning of each question, and wording was refined to improve face validity. A further consideration was the issue of questionnaire length. Including a

series of questions to measure each variable would have made the questionnaire much longer, and would have been likely to significantly decrease response rate.

Although significant findings emerged on the relationship between continuity, trust and adherence it should be noted that this is a cross-sectional study, and it is not possible to infer causality from the findings. In fact, it is likely that relationships between these concepts are recursive.

4.4.3 What does this study add to previous research?

This study adds to previous research into the relationship between continuity, trust and adherence to treatment by using a particular theoretical perspective from which to generate hypotheses about specific aspects of continuity and their relationship to trust and cooperation. Also, the definition of trust used in this study helps to conceptually distinguish trust from interpersonal continuity. The study has generated new findings which add to the to the literature on trust, adherence to treatment, and the association between continuity, trust, and adherence in primary care.

a. Trust

The measures of longitudinal continuity used in this study (how long the patient had been seeing the GP, and whether or not this was their usual GP) were found to be only weakly associated with trust in univariate analysis, and did not emerge as significant in the multivariate analysis. This concurs with previous literature (see section 2.5). However, specific aspects relating to past interactions were strongly associated with trust. Positive past experience with a specific GP (belief that the GP had given the patient the best possible treatment or advice in the past) was found to be strongly

associated with trust in the univariate analysis, and emerged as significant in the multivariate analysis. This suggests that it is not repeated interactions per se that is associated with trust, but the evaluation of the care given in these interactions. This concurs with the suggestion of Caterinicchio (1979), that longitudinal continuity is only important in that it can provide the opportunity for encounters in the past to be judged as successful. That successful, positive past experiences are important in the development of a trusting relationship is also demonstrated by Mainous, Goodwin and Stange (2004), who found that although positive attitudes to the GP-patient relationship increased over a four year period, and that there was a significant effect of patient-reported shared experiences – with positive attitudes increasing significantly with increasing amounts of shared experiences. Stewart (2004) cites research suggesting that the types of shared experience that contribute to positive attitudes include evidence of thoroughness (e.g. a full physical examination) and care in the case of personal problems and serious illness.

Additionally in the univariate analysis, GP recall, and whether the patient believed that the GP knew that they had followed the treatment or advice recommended on past occasions, were associated with trust (although these factors did not emerge as significant in the multivariate analysis). This association may reflect patients' general beliefs that the GP knows them, and may mean that the patient has affective reasons for trusting the GP (see McAllister, 1995). However, this may also reflect issues of patient reputation – a key factor outlined in the literature on game theory and trust. If a patient believes that the GP recalls them as a cooperative patient, then the patient has a reason for believing that the GP will act in their best interests.

Trust is understood as 'forward looking and reflect[ing] a commitment to an ongoing relationship' (Calnan & Rowe, 2004, p. 5), and this future orientation of trust has been used as a means of conceptually distinguishing between trust and satisfaction. However, this study is the first empirical study to look at the association between anticipation of future interaction and trust. Patients who expected to see the same GP again the next time they consulted, and who expected an open-ended relationship with the GP, were found in univariate analysis to have higher levels of trust.

Anticipation of future interactions may promote trust, but it is also possible that patients who trust the GP may be more likely to want to see the GP in the future, and hence be more likely to anticipate future interactions. However, it is notable that patients who reported that the GP asked them to come back and see him/her personally in the future reported significantly higher levels of trust (and slightly higher levels of adherence) than patients who reported that the GP did not ask them to come back and see him/her personally. In the multivariate analysis, a belief that the GP would get to know whether the patient had followed the advice or treatment was found to be strongly associated with trust. This strongly suggests that an expectation of future interactions promotes trust, particularly where the GP has expressed commitment to see the patient again, and the patient believes that the GP will monitor their care in the future. When the GP asks the patient to come back to see them personally, this means that the patient then expects interactions to continue in the future (a cognitive basis for trust, McAllister, 1995), but also, this may lead the patient to believe that the GP is personally committed to them and cares about what happens to them in the future (an affective basis for trust, McAllister, 1995). The relationship between anticipation of future interaction and trust

is likely to be circular, and there would be value in qualitative longitudinal studies to unpick this relationship.

b. Adherence

In the univariate analysis, patients' beliefs about whether the GP knew that they had followed the treatment or advice recommended on past occasions, was associated with adherence (although these factors did not emerge as significant in the multivariate analysis). This association may reflect patients' general beliefs that the GP knows them, a factor that has been found in previous studies to be associated with adherence to treatment (Ettlinger & Freeman, 1981). Expecting to continue to see the GP for the foreseeable future was also associated with adherence in the univariate analysis, as predicted.

Trust was found to be associated with adherence in univariate and multivariate analysis. This finding concurs with other published studies (e.g. Kerse et al. 2004, Thom et al. 2002).

4.4.4 Conceptual Issues

This section will discuss conceptual issues arising in relation to the concepts of trust and adherence to treatment.

a. Trust

There are two conceptual issues concerning the measurement of trust. The first concerns the relationship between interpersonal care and trust. Interpersonal care was strongly associated with trust in both univariate and multivariate analysis, and was the

strongest predictor of trust in the regression analysis. This suggests that patient trust is based partly on evaluation of the interpersonal aspects of the consultation, consistent with the literature reviewed in the first chapter. However, there may be some conceptual overlap between trust and interpersonal care, as measured. This thesis has used a theoretically based definition of trust as an attitude or belief in the positive (or cooperative) motivations and intentions of an interdependent other. Judgements of trustworthiness are hypothesised to be influenced by a number of factors, including a range of cues to potential trustworthiness, such as reputation, personal characteristics, and verbal and non-verbal communication. Thus it is important to distinguish between trust as an attitude, and cues to trustworthiness. Interpersonal care (which in the case of the GPAS scale encompasses the amount of time spent with the patient, patience, and caring and concern) could be seen as a cue to trustworthiness, and is treated as such in this study. However, trust scales, including the ITPS, include questions about aspects of interpersonal care as components of trust. This lack of conceptual distinction between interpersonal care and trust may cause problems in looking at the association between interpersonal care and trust, or when considering both interpersonal care and trust as independent predictors of adherence.

The second conceptual issue concerns degrees of trust. The measure of trust used in this study produces scores along a continuum from very low trust to very high trust. However, it has been argued that there may be discrete dimensions of trust, and that distrust may be qualitatively different from trust, rather than existing at the opposite end of a continuum (Ullmann-Margalit, 2002). Further empirical work into trust and distrust, particularly the factors associated with distrust, would be valuable.

b. Trust and adherence

A relationship between trust and adherence to treatment was hypothesised. A medium sized correlation between trust and adherence was found, and trust emerged as a significant predictor of adherence in the regression analysis, although the regression model did not explain much of the variance in adherence. This supports the proposed hypothesis to a degree. No association was found between aspects of continuity and adherence. Problems with the measurement of adherence have been discussed above. However, these results also prompt a discussion of the relationship between trust and adherence. The relationship between trust and cooperation is mediated by an individual's willingness to cooperate – this is a key point made in the behavioural game theory literature, and is also developed by Dibben et al. (2000). An individual may cooperate even when trust is low if their willingness or motivation to cooperate is high (for example, a patient may adhere to a medication that they believe is essential even if their trust in a specific GP is low), or fail to cooperate even though trust is high, if their willingness to cooperate is low (e.g. a patient may not wish to take medication due to anticipated side-effects). If both trust and willingness to cooperate are high then it is likely that cooperation will occur (unless there is an error or an insurmountable barrier). If both trust and willingness to cooperate are low then cooperation is unlikely.

In this study, adherence to treatment was found to be high, and this may reflect a high willingness to adhere to treatment in this general patient group, many of whom were consulting for resolution of minor acute problems. In addition, levels of trust were high. The relationship between levels of trust and adherence to treatment is likely to be stronger when a patient's willingness to cooperate is lower, or there is more risk or uncertainty associated with treatment. Other studies have found stronger relationships

between trust and adherence to treatment in specific groups of patients (e.g. HIV positive prisoners: Altice, Mostashari, & Friedland, 2001). Factors such as uncertainty, risk, and problem severity are likely to influence willingness to cooperate; these factors were not included in the current study. Future work should aim to explore the relationship between trust and adherence to treatment in more detail, in particular, taking patient willingness to cooperate, and other factors such as uncertainty and risk, into account.

4.4.5 Further research

Some suggestions for future research have been described above, including the need for qualitative longitudinal studies to unpick the relationship between trust and anticipation of future interaction, and further research into the factors associated with distrust. Future empirical work on adherence to treatment, within a game theory framework (which suggests that trust, willingness to cooperate, and other factors such as risk and uncertainty promote cooperation) would be particularly valuable.

In addition to future research suggested above, there are several other issues that may be worth exploring. Firstly, it has been suggested (e.g. Lewicki & Bunker, 1996) that the basis for trust may change over the course of a relationship. If this is the case, then structural and interpersonal aspect of the consultation may have more or less importance for promoting trust depending on the nature of trust between the two individuals at a particular point in time. There would be value in qualitative studies into the nature of trust, particularly based on testing theoretical frameworks, and exploring the changing nature of trust over time. This need is addressed to some extent by the research described in the following chapters of this thesis. In addition, empirical studies of the

factors influencing trust both outside the context of an ongoing relationship, and at different stages of a relationship would be valuable. Jeffries' (2002) study using a student sample indicated that influences on trust and cooperation changed with increasing experience of the other individual, and a similar study would be valuable in the context of the GP-patient interaction.

This study has highlighted some problems with existing trust scales. One key issues is that, because patient trust in physicians has been seen as situated within ongoing relationships, all existing trust scales are designed to measure trust in the context of an ongoing relationship, i.e. trust in a patient's 'usual' GP. There may be value in developing or revising trust scales in order to develop a measurement tool consistent with the narrower conceptual definition of trust, that would allow researchers to distinguish between trust, interpersonal care, and other cues to trustworthiness, and that was tested for use in measuring trust in any health professional that patients see, whatever the context, not just their 'usual' GP. This would be useful in service evaluation, personal development for GPs, GP training (is a GP registrar able to engender trust in a single consultation through their communication skills?), and research (e.g. it will be possible to look at the development of initial trust, and how trust might be affected by specific events in care).

The finding that anticipation of future interaction is associated with higher patient trust suggests that an intervention study to test the impact of ensuring future continuity on trust and adherence may be useful. Ensuring that the GP asks the patient to come back to see him/her again personally, and that practice systems are in place to ensure that this is made easy for the patient (e.g. flexible appointment booking systems), might be

effective ways of promoting patient trust and adherence to treatment. Researchers should be cautious about interventions to improve trust; as noted in chapter 2, intervention studies aiming to improve trust based on improving GPs' interpersonal skills have so far proved unsuccessful (Thom, 2000; Thom, Bloch, & Segal, 1999). However, it may be easier to address structural rather than interpersonal aspects of consultations in order to promote trust and cooperation.

4.5 Conclusion

This chapter reports findings from a survey that aimed to test hypotheses derived from game theory principles about the relationship between continuity, trust and adherence to treatment. The survey identified that interpersonal care was strongly associated with trust. Aspects of continuity were also found to be associated with patient trust; belief that the GP had given the best possible advice or treatment in previous consultations, and anticipation of future interaction (in particular, expectation that the GP would get to know whether the patient had followed the advice or treatment) were also associated with higher levels of trust. This study adds to the literature by defining continuity in terms of theoretically based aspects of repeated interactions, and providing evidence that these aspects are associated with patient trust. Although trust has been conceptualised as a 'forward-looking' process (Calnan & Rowe, 2004), this is the first study to test the association between anticipation of future interactions and patient trust. Trust was found to be associated with adherence to treatment as hypothesised, although this association was not strong. The possible reasons for this have been discussed. In particular, it is likely that for many people in the study, willingness to cooperate is a

more salient factor than trust. Also, the measures of cooperation used in the study are likely to be rather insensitive.

The chapters that follow (5, 6 and 7) go on to describe qualitative investigations into patients' and GPs' experiences of trust and cooperation in primary care. The qualitative work aims to investigate the relationships between continuity, trust and cooperation in more detail, and also to explore in more depth some of the findings of the survey as described above. In particular, the survey identified interpersonal care as the strongest predictor of trust, and the qualitative studies provide an opportunity to investigate the role and place of interpersonal aspects of the consultation in promoting trust, in the context of a game theory perspective.

Chapter 5

QUALITATIVE METHODS AND METHODOLOGY

5.1 Introduction

This chapter and the two that follow it describe a qualitative investigation into trust and cooperation in the GP-patient relationship from the perspectives of patients and GPs. The qualitative analysis aimed to explore patients' and GPs' views of trust and the development of trusting relationships, and the relationship between trust and cooperation, from a game theory perspective. The qualitative analysis also aimed to develop and build upon findings from the survey, by further exploring how past and future interactions, and interpersonal aspects of the consultation, impact on trust and cooperation

The qualitative studies involved secondary analysis of interview data collected by the researcher (author of this thesis) and colleagues as part of a study exploring the meaning of personal care in general practice. The study was funded by NHSE Trent Policy and Practice R&D Programme from 1 January 2000 to 30 June 2001 (Tarrant, Windridge, Boulton, Baker, Freeman, 2003). The secondary analysis was carried out on a carefully selected sub-sample of 32 interviews (20 with patients, and 12 with GPs), selected to ensure a range of socio-demographic characteristics. The analysis was undertaken using a deductive qualitative analysis approach, which involved using game theory as an organising framework to inform the analysis.

This chapter sets out the methods and aims of the two qualitative studies, and discusses the principles and limitations of secondary analysis of data and of a deductive analysis approach.

5.2 Aims and propositions

5.2.1 Aims and propositions for the analysis of patient interviews.

The analysis of patient interviews aimed to explore patient trust in GPs, taking into account the issues raised in the review of research into patient trust in primary care. The key principles from game theory, notably that trust and willingness to cooperate are key factors in understanding cooperation, and that trust and cooperation are developed and maintained over time through repeated positive interactions and anticipation of future interaction, were used to reflect on and organise the data throughout the process of analysis. The analysis was organised around the following questions:

1. Do patients place trust in unfamiliar GPs, and if so, on what is this based?
2. Does trust develop over repeated interactions, and if so, what factors promote trust?
3. Is trust associated with an increased willingness to cooperate?

5.2.2 Aims and propositions for the analysis of GP interviews

The analysis of the GP interviews also aimed to investigate patient trust, but this time from the perspective of the GP. However, the GP interviews also provided an opportunity to explore the issue of trustworthiness, or the extent to which the GP was willing and able to act in the patient's best interests – the other side of the trusting

relationship. Game theory suggests that repeated interactions promote both trust and cooperation, and the analysis of the GP interviews aimed to explore whether repeated interactions were associated with GP cooperation, in other words, the extent to which they were willing or able to act in the patient's best interests. Finally, the analysis explored issues around GPs' perceptions of patient cooperativeness and how this impacted on the GP-patient relationship. The analysis was organised around the following questions:

1. What are GPs' views on the development of patient trust?
2. Do repeated interactions make GPs more likely to be willing and able to act in the patient's best interests, and if so, what factors promote GP cooperation?
3. How do GPs' perceptions of patient cooperativeness impact on the GP-patient relationship?

The following sections will firstly describe in detail the methods used in the original study (the Personal Care study) from which the interviews involved in the secondary analysis in this thesis are drawn. The details of the secondary analysis will then be described.

5.3 Primary study: the meaning of personal care in general practice

5.3.1 Aim

The Personal Care Study aimed, firstly, to explore the meaning of personal care to primary care providers and patients, and secondly, to explore how important personal care is to providers and patients.

5.3.2 Methods

a. Practice recruitment

The study involved interviews with patients and practice staff from a total of six practices possessing a range of characteristics in terms of: community context (inner city, suburban, small town, rural), size (number of partners and list size), deprivation measured by Townsend score (Townsend, Phillimore & Bealtie, 1988), proportion of patients from ethnic minorities, and organisation of practice list.

Initially, twelve practices were selected from a list of all practices in Leicestershire, using a sampling frame based on practice location (inner city, suburban, small town, rural) and number of partners (single handed; between two and four partners; five or more partners). Further information about the characteristics of these twelve practices (including list size and deprivation) was obtained from Leicestershire Health databases. The senior partner of each practice was contacted by letter. This was then followed up by a phone call to provide further information about the study and to ascertain whether the practice was interested in taking part. Eight practices expressed an interest, and three practices that varied in terms of size and location were recruited for the first round of interviewing.

The project aimed to recruit six practices that represented a range on all of the attributes listed above. The attributes of the three practices recruited were assessed, and the need was identified to recruit inner city practices, practices with relatively deprived populations and practices with a high proportion of ethnic minority patients. Recruiting practices with these characteristics was more difficult. Practices fitting these criteria

that had been selected as part of the initial sample declined to take part due to time pressures, so three more practices that fitted the required criteria were identified from the list of all practices in Leicestershire. The senior partner of each identified practice was contacted to ascertain whether they would be interested in taking part, and two practices were visited at their request, and informal presentations on the project given. All three practices eventually consented to take part and the senior partner in each case signed a consent form to this effect. The characteristics of the practices taking part in the original study are given in Table 5.1 below.

Table 5.1: Characteristics of practices participating in personal care study (n=6)

Practice number	**Locality**	**Practice size (No. of GPs)**	**List size**	**Deprivation***
1	Rural	Single-handed (1)	< 6000	Low
2	Suburban	Small (2-4)	< 6000	Low
3	Rural market town	Large (> 7)	12000+	Moderate
4	Inner city	Medium (5-7)	6000-12000	High
5	Inner city	Small (2-4)	< 6000	High
6	Suburban	Medium (5-7)	6000-12000	High

* Based on Townsend Score: Townsend, Phillimore & Bealtie (1988)

Practices varied in the extent to which patients were encouraged to see their own GP, or were effectively seen as 'shared' between the partners. This issue was hard to quantify because accounts of practice policy from different individuals associated with each practice sometimes differed. In one practice, staff described a policy of encouraging patients to see their own GP, whereas some patients from this practice described difficulties in seeing their own GP.

b. Practice staff recruitment.

The study aimed to include GPs with a range of different characteristics; age, sex, ethnicity, time in practice, full or part time, place of training, and to include GP registrars. The study also aimed to include both practice and community nurses with a range of different characteristics, including role and time in practice.

Having obtained written consent from the senior partner to interview members of the practice, the recruitment method for practice staff depended on the organisation and preferences of each practice. In some cases practice staff were approached by the practice manager or senior partner, in other cases the senior partner or practice manager asked researchers to contact staff directly. Practice staff received an information leaflet about the study, were encouraged to ask questions about the research, and were told that participation was voluntary, and that they were free to withdraw at any time. Between one and four GPs were recruited from each practice, depending on the size of the practice, as well as between one and three nurses (practice and community nurses), and one receptionist or practice manager. The characteristics of the GPs participating in the original study are given in table 5.2 below:

Table 5.2: Personal care study – characteristics of GP interviewees (n = 13)

Sex	Male	Female		
	8	5		
Age	< 30 years	30-50 years	> 50 years	
	3	2	8	
Ethnicity	White UK	Asian	White other	
	8	4	1	
Time in practice	Registrar	< 10 years	10-20 years	> 20 years
	2	5	4	2

c. Patient recruitment

Practices were asked to select up to 50 patients aged 18 or over at random from their practice list, and to ensure that the selected patients fulfilled a loose quota sample, in order that a range of patients in terms of age, sex, frequency of attendance and health status (presence or absence of chronic illness) were included. If requested, a researcher visited the practice to explain the procedure. A GP checked the list of patients to ensure that there were no reasons why each should not be contacted.

These instructions were adapted during the course of the study, to ensure that the views of a wide range of patients were included. For example, as the study progressed, it was noted that younger and male patients were less likely to respond. Practices participating later in the study were asked to select and contact a higher proportion of younger and male patients, to compensate for the lower response rate from these groups.

Practices posted information about the study to patients, along with a letter from their GP, and a consent form which they could sign and return to the researchers to indicate their willingness to be interviewed. Patients who returned consent forms were contacted by telephone or by post to arrange a date and time for the interview. Interviews were arranged for a time to suit the patient, including evening and weekends so that those who worked full-time or had child-care responsibilities were not excluded. Most patients were interviewed in their own home, but some patients preferred to be interviewed elsewhere (e.g. workplace, University department).

Patients from the two inner city practices proved difficult to recruit, with only 3 patients responding to a mailing of 50 letters from one of the inner city practices, and no patients

responding to a similar mailing from the second inner city practice. The postal approach may not have been particularly appropriate in these areas, particularly as some of the patients from these practices did not read or write English, although they could speak it, and there were high proportions of patients whose life circumstances made replying to letters a very low priority (for instance family problems, drug dependency or mental health problems). Ethical approval was obtained for patients to be informed about the study face-to-face by their GPs during consultations. Receptionists, having first checked that there were no reasons why they should not be approached, gave interested patients information directly. This led to another 3 patients volunteering to be interviewed. Overall, between three and 10 patients were recruited from each practice, and a total of 40 patients with varying characteristics were interviewed. The characteristics of patients participating in the original study are given in Table 5.3, below.

Table 5.3: Personal care study – characteristics of patient interviewees (n = 40)

Age	16-20 5	21-40 11	41-60 12	61+ 12
Sex	Male 15	Female 25		
Ethnicity	White UK 29	Asian 9	Afro-Caribbean /West Indian 2	White other 1
Health Problems	None/Acute 15	Chronic/multiple 25		
Location	Rural 14	Town 8	Suburban 9	Inner city 9

d. The interview topic guide

A topic guide was developed to provide a structure for the interviews and to ensure that relevant issues were covered. Initial topic guides for patients and for health professionals were developed based on the aims of the study, and revised through discussion in team meetings. A pilot interview was carried out for both the health professional topic guide and the patient topic guide prior to use. The wording of the topic guide was revised several times during the early stages of interviewing, but the overall content and structure remained the same throughout. Interview questions were open-ended and involved minimal input of information from the interviewer. The topic guides for the patients and practice staff were designed so as to be comparable, as far as was possible. The topic guide for patients covered:

- background information about the participant
- exploration of the meaning of personal care
- the effects of receiving (or not receiving) care that was personal
- exploration of their relationship with the GP
- the development of the GP-patient relationship, and the meaning of a 'good' relationship
- the importance of personal knowledge
- the importance of personal care
- barriers and facilitators of personal care.

The topic guide for health professionals covered:

- background information about the participant; exploration of the meaning of personal care
- the effects of personal care and the strategies that could help make care personal

- the importance of personal knowledge
- the development of the GP-patient relationship, and the meaning of a 'good' relationship
- the wider context of personal care
- the importance of personal care
- barriers and facilitators of personal care

Copies of the topic guides used for patient and health professional interviews are included in Appendix 2.1.

e. Conduct of the interviews

All of the interviews were carried out by one of the project researchers – either Carolyn Tarrant or Kate Windridge, and lasted between 30 and 90 minutes, with most interviews lasting around 40 minutes. The interviews were tape recorded with the consent of the participant, with the exception of two interviews: one patient and one GP refused to be taped recorded, and in the case of these interviews the interviewer took written notes, as agreed with the interviewee. Reflexive diaries were kept for all interviews – each researcher recorded the context of the interview, their thoughts and feelings about the interview, and any salient issues arising from the interview, immediately after carrying out the interview. Tapes were transcribed verbatim, with the researchers transcribing a proportion of their own interviews. This was felt to be an important process, helping the researchers to revisit the interviews and reflect on interview content. The remaining interviews were transcribed by administration staff in the then Department of General Practice, University of Leicester. Transcripts that were transcribed by department

administration staff were reviewed by the researchers, who listened to the tapes again whilst reading and checking the transcripts to ensure accuracy.

5.4 Secondary analysis: continuity, trust and cooperation in primary care

5.4.1 Selection of patient and GP transcripts for secondary analysis

Transcripts from 20 patient interviews were selected for detailed secondary analysis, and 12 of the 13 GP interviews were included in the analysis. One GP interview was excluded because much of the tape-recording of the interview was inaudible due to a malfunction of the tape-recorder, and the available written notes were insufficient to allow analysis. The size of the patient sample was chosen to provide a manageable number of interviews for analysis, whilst ensuring that the views and experiences of a wide range of patients (with different experiences of using primary care) were included.

The subset of patient interview transcripts was carefully selected to ensure a range of patient characteristics, including age, sex, ethnicity, locality (e.g. inner city, rural), and health status in the sub-sample. In the study from which these interviews were drawn, one practice (practice 6) was used to recruit additional male participants towards the end of the study, as male participants were under-represented in the samples from other practices in the study. In order to get a balanced sub-sample for the secondary analysis, more patients were drawn from practice 6 than from other practices. Details of the patients included in the secondary analysis are presented in chapter 6 of the thesis, and details of the GPs are presented in chapter 7.

5.4.2 Analysis

In the case of both the GP and patient interviews, coding and analysis was aided by the use of the Atlas.Ti software package (Muhr, 1997). Analysis of GP and patient interviews was carried out in separate databases.

The analysis was undertaken using a deductive qualitative analysis approach, as described by Gilgun (2005). This approach involves using a prior theoretical framework to inform and organise the analysis. The approach is described in more detail in section 5.5.1.

A game theory based definition of trust, as a belief in the likely trustworthiness or cooperativeness of the other, was used to anchor the analysis. In the context of the patient analysis, text segments that indicated patients' beliefs about the extent to which the GP would act, or was acting, in their best interests were coded as patient trust. Text segments in which patients described willingness to share information, or accept advice or treatment were coded as patient cooperation. In the context of the GP interviews, patient trust and cooperation was identified in a similar way. Text segments in which GPs talked about their beliefs about the extent to which patients could be trusted, or were likely to cooperate were coded as GP trust, and text segments in which GPs talked about acting in the patient's best interests by giving good quality care were coded as GP cooperation.

In addition, in both the GP and patient interview analysis, text segments were coded as relevant to trust when the terms trust or confidence were used, and as relevant to cooperation when the terms cooperate, comply, or adhere were used.

a. Analysis of patient interviews

Six patient interviews were chosen for initial coding. A range of patients in terms of age, sex and locality was chosen in order that a wide range of diverse experiences might inform the initial coding stage. These first six patient interviews were read, and each segment of text was coded using open codes. The codes were generated and named to reflect the meaning in each text segment, and no structure was imposed on the coding at this stage. Key concepts identified from the game theory literature (such as anticipation of future interaction) acted as 'sensitizing concepts' during this stage (Blumer, 1969), i.e. acted to inform judgements about which segments of the text were relevant to the analysis. However, care was taken to ensure that the sensitizing concepts did not act to constrain the coding, or lead to the exclusion of data that did not fit with the game theory understanding of trust and cooperation. Thus the process of open coding allowed for unanticipated or potentially conflicting issues to be identified and incorporated into the analysis.

Text coded under these initial open codes was then repeatedly read using the method of constant comparison (Glaser, 1965), and segments that had been coded with more than one code were examined to identify links between codes. Memos were written, particularly noting links between codes, and emerging themes. A summary of the themes identified through initial coding was then written. This initial summary was read by the two supervisors, and a meeting held with the author of this thesis, and supervisors, to discuss the themes in detail. This resulted in the generation of a set of specific themes to organise the full analysis.

Following this, the open codes were reviewed again, and grouped, combined or expanded around the framework provided by the three propositions. The researcher actively considered how each segment of coded text might act to inform, reinforce, or develop understanding in each organising theme, and how each of the themes related to the initial question. This resulted in a set of codes organised into a coding frame, which consisted of key themes relating to trust in the GP-patient interaction, each of which had a series of codes associated with it.

This coding frame (See Appendix 2.2) was then used to code the remaining patient interviews. Care was taken to seek negative cases, in particular, cases where patients described lack of trust, actively avoided maintaining continuity, or did not see interpersonal trust as important. The coding process reached theoretical saturation (Strauss & Corbin, 1998), that is, the point at which no further themes or sub themes are generated from the data, by the 17th interview. The remaining interviews were coded using the final coding frame.

Following this, the coded text was analysed using the approach of writing storylines for identified themes (Strauss & Corbin, 1998), and drawing concept maps (Daley, 2004) to aid understanding of the relationships between sub-themes and to explicate processes (see Appendix 2.3 for an example of a storyline, and 2.4 for an example of a concept map). The coded text was then re-read, in conjunction with the concept maps and key literature. This was used as the basis for the final structuring of the data presented in chapter 6.

Additional analysis was carried out on the patient data to further explore when different types of trust were needed, and to explore the distinction between trust and confidence, as the need for further exploration of these issues was identified during the initial analysis.

b. Analysis of GP interviews

The same approach was taken to the analysis of the GP interviews, the only difference being that the initial coding was carried out using four transcripts. The coding frame used for the final coding of the GP interviews is included in Appendix 2.4. Additional analysis was also carried out on the GP data to follow up an unanticipated issue: the disadvantages to GPs of trusting relationships.

The analysis of the GP interviews was limited to an extent by sample size. Although it was felt that the final two interviews coded added little in the way of new codes to the coding frame it was not possible to be certain that theoretical saturation had been reached in coding the GP interviews. Because of this potentially limiting factor, the GP analysis should be seen as exploratory, but as valuable in suggesting themes and ideas for further work.

5.5 Qualitative methodology

This section will describe and discuss methodological issues relating to the qualitative research process used in these two studies. Firstly, the use of a deductive approach to

qualitative analysis will be discussed, and secondly, issues around the secondary analysis of qualitative data will be explored.

5.5.1 Deductive Qualitative Analysis

Qualitative research encompasses a wide range of ontological and epistemological perspectives, and a variety of methodologies, and as such is difficult to define. Many definitions centre on the distinction between qualitative and quantitative research, for example, Murphy Dingwall, Greatbatch, Parker, & Watson (1998) describe qualitative research as involving 'the collection, analysis and interpretation of data that are not easily reduced to numbers' (Murphy et al. 1998, p. iii). Qualitative social research often involves exploring the meaning that people put upon experiences, with the recognition that the researcher is not independent from the data; rather, the interaction between researcher and participants, and the researcher's interpretations, are an integral part of the data.

Qualitative analysis is generally seen as involving an inductive approach, in other words, beginning with data and working towards a theory or conclusion based on the set of data. Glaser and Strauss (1967) were critical of early social research that tended to focus on scientific principles and rigorous theory testing. They emphasised the value of qualitative research for theory generation, and argued that researchers should aim to derive theories from data, rather than imposing pre-existing theories. This perspective has been strongly influential, creating a tendency for qualitative analysis as to be seen as inherently inductive. Glaser and Strauss set out the technique of grounded theory which they described as inductive, although it has been argued that the constant comparative method used in grounded theory involves both induction (theory generation) and

deduction (theory testing) (Strauss & Corbin 1990), and that most qualitative work is both inductive and deductive (Murphy & Dingwall 2003).

Murphy and Dingwall (2003), and Murphy et al. (1998) argue that qualitative research should not be seen as exclusively inductive. They suggest that although qualitative research has much value in theory generation, there is also value in using qualitative research to test hypotheses based on pre-existing theory, particularly where there is well-grounded theory in the area of interest. More fundamentally, the grounded theory approach has been criticised for the proposition that researchers can and should put pre-existing theories or hypotheses aside when they analyse qualitative data; Gilgun (2005) argues that researchers who have developed theoretical models cannot start anew, putting aside their prior knowledge, beliefs and experiences, when analysing qualitative data.

Murphy et al. (1998) cite a study by Silverman, Bor, Miller, and Goldman (Murphy et al., 1998, p. 72) as an example of a qualitative study that is explicitly deductive, in that hypotheses generated from a pre-existing theory are tested in a new context, generating useful conclusions. Halliday's 2004 study, described in chapter 2 of this thesis, uses a deductive approach to test propositions about 'placed trust' between midwives and pregnant women, although Halliday does not explicitly refer to her analysis as 'deductive'. Deductive qualitative analysis is becoming more widely used in health services research, particularly with the development of the 'Framework' method (Richie & Spencer, 1994). Murphy and Dingwall (2003) note that the increasing use of deductive approaches in qualitative research means that there is an opportunity for

cumulative work, in which theories from other contexts can be applied and built upon or further developed in a way that helps to advance knowledge and understanding.

Gilgun (2005) outlines a methodology for deductive qualitative research, based on the stance that qualitative research often involves hypothesis testing, either implicitly or explicitly. The key principle of deductive qualitative analysis is that the researcher's initial conceptual model, which may be drawn from previous research or theory and/or from personal or professional experience, should be articulated prior to carrying out analysis of data. Gilgun's initial conceptualisation of deductive qualitative analysis (Gilgun, 1995) derived from the method of analytic induction and involved repeatedly testing and revising hypotheses on a case-by-case basis, with a particular focus on searching for disconfirming evidence. She used this approach to test hypotheses based on a loose framework of concepts about care and justice from the moral philosophy literature, with the aim of understanding the moral dimensions of incest from the point of view of incest perpetrators. In her 2005 paper on qualitative methods, Gilgun sets out the process of deductive qualitative analysis. The first step involves setting out an initial conceptual model. This conceptual model can range from a formal theoretical model that generates specific testable hypotheses, to a set of ideas or beliefs that acts as a general framework for the analysis. The coding, analysis and interpretation of data can then proceed in a range of ways, including through using the 3-level codes described by Strauss and Corbin (1998), with the aim of testing, refining or reformulating concepts arising from the initial conceptual model. The search for negative cases is particularly important as part of the analysis process, to avoid simply selecting evidence to support pre-existing hypotheses or imposing pre-existing theory onto the data.

In the case of this thesis, the researcher had a clearly defined prior theoretical framework for the research (game theory), and the aim of the thesis was to apply, test, and develop the understanding provided by this theoretical framework in a different context (GP-patient interactions). As such, a deductive approach to the qualitative analysis was felt to be appropriate and justifiable. Gilgun's (2005) deductive qualitative research methodology formed the basis for the deductive analysis carried out in this thesis.

5.5.2 Secondary analysis of qualitative data

Qualitative research usually involves the collection of primary data such as interviews, observations, or text, for analysis. However, qualitative data can also be amenable to secondary analysis. Secondary analysis of data involves re-using existing data sets in order to address new research questions, or to explore issues from the original study in more depth. Although secondary analysis of quantitative data is well established and has a defined methodological approach, qualitative data is less often subject to secondary analysis, possibly due to the methodological and ethical issues that arise when qualitative data is reused.

The topic has increasingly been a subject of debate in recent years, stimulated partly by the establishment of Qualidata by the ESRC (Corti & Thompson, 1998), which aims to compile an archive of social science qualitative datasets for secondary analysis. There have been several reviews and discussion papers on the methodological and epistemological issues surrounding this approach (e.g. Hinds, Vogel, & Clarke-Steffen, 1997; Mauthner, Parry, & Blackett-Milburn, 1998; Thorne, 1998) and a book exploring philosophical, methodological and practical issues in secondary analysis of qualitative

data (Heaton, 2004). A recent issue of the online journal *Forum: Qualitative Social Research* (2005) was devoted to secondary analysis of qualitative data, and included a series of papers covering methodological issues and presenting case studies.

The study reported in this thesis involved the use of the researcher's own data to address new research questions. Thorne used the term 'analytic expansion' to describe researcher's use of their own data 'to answer new or extended questions' (Thorne, 1998, p. 548), and Heaton (2004) refers to analysis which 'transcends the focus of the primary study….examining new empirical, theoretical or methodological questions' as 'supra analysis' (p. 38).

It was decided to carry out a secondary analysis of data for this thesis, as interview data from the Personal Care study was available to the researcher (author of this thesis). The data was assessed and felt to be relevant to the research questions addressed in the thesis, and secondary analysis of existing data was felt to be time and resource efficient. However, there are several methodological issues around the secondary analysis of data, which will be discussed in this section.

One of the main methodological issues in the secondary analysis of qualitative data is that secondary analysis is often carried out on data collected by others. When this is the case, the researcher undertaking the secondary analysis does not have access to the context of the original data or to the processes involved in the developing and exploring of concepts over time in the original research study, and this can be problematic. This contextual information is available to a researcher from the original research team, although Heaton (2004) suggests that researchers re-using data from studies in which

they were involved as a member of a team still face the problems of interpreting the data collected by the other members of the team, and of becoming distant from the material due to the passage of time since data collection. In the primary study on which this study is based, data were collected by the researcher alongside another researcher (Kate Windridge – KW). The primary analysis was carried out in tandem by the researcher and KW allowing familiarisation with interviewees and transcripts. Reflexive diaries were kept for all interviews which described the context of the interview, and the interviewer's feelings, reflections and ideas about the interview and its content; these were available for use in the secondary analysis, and allowed insight into the context of interviews carried out by KW, as well as providing a reminder as to the context of interviews carried out by the researcher. It is therefore a strength of this secondary analysis that the researcher was a member of the original research team and had access to the original reflexive diaries which document the context in which the primary data was collected.

Although re-analysis of qualitative data by a member of the original research team is less problematic than other approaches to secondary analysis, there are still methodological and ethical considerations to be addressed. Importantly, the compatibility or fit of the data set to the planned secondary analysis needs to be assessed. This depends to some extent on the relevance of the data to the research question being posed, and this is particularly an issue where the secondary analysis has a new perspective or conceptual focus, as in this current study.

The first issue to consider is the extent of missing data – does the data set include data on the issues relevant for the secondary analysis? Heaton (2004) suggests that this may

be more of a problem when using primary studies that have rigorously applied grounded theory (Glaser & Strauss, 1967), in which the nature of the data collected evolves with ongoing analysis. This might be the case in interview-based studies where the topic guide is continually modified as the research proceeds to reflect emerging themes. In contrast, the study on which this secondary analysis is based used a consistent topic guide across interviews to ensure similar issues were explored with all interviewees, so data coverage is reasonably complete across the patient and health professional samples.

A second factor is the degree of convergence between the original research questions and the questions being addressed through the secondary analysis, particularly where the secondary analysis is a supra analysis. The primary study in this case focused on exploring and understanding personal care in general practice. This involved semi-structured, exploratory interviews in which the interview topic guide was used flexibly so as to allow participants to 'tell their own story'. Interviews revolved around participants' descriptions of their general practice surgery, and their experiences in recent consultations. Much of the interview focussed on health professional-patient interactions and relationships, and this means that the interviews provide a rich and varied data set relevant to questions about health professional-patient interactions. In particular, trust emerged as a theme in the primary analysis of the data, although this concept was not systematically explored nor were its properties defined in the original study.

An important ethical issue is that of whether informed consent should be obtained when qualitative data is re-analysed. This can be problematic, particularly when the researcher doing the secondary analysis was not involved in the original study. Heaton (2004),

however, argues that if supplementary analysis is being carried out by the same researcher in order to follow up an issue from the primary research in more depth, then gaining further consent may not be necessary. The purpose of the secondary analysis for this study was felt to be close to the aims of the original study, and hence gaining further approval from participants was felt to be unnecessary. In addition, gaining further consent would have been impractical given the time between data collection and secondary analysis, which was approximately five years. Confidentiality was not an issue in the current study as the data was being used by a researcher who was a member of the original research team. All data used in the secondary analysis (transcripts and reflexive diaries) was anonymised. Hinds et al. (1997) discuss the issue of gaining ethical approval for secondary analysis of data, and recommend that researchers use their professional judgement in deciding whether this is necessary. Ethical approval for the original study was obtained from Leicestershire Research Ethics Committee during 1999. As the aims of the secondary analysis were similar to the initial analysis, and there were no confidentiality issues, no further ethical approval was sought for the secondary analysis of the data.

5.6 Conclusion

This chapter describes the methods used in the qualitative study of patients' and GPs' views of trust and cooperation in primary care, and discusses methodological issues around deductive qualitative analysis and secondary analysis of qualitative data. The findings from the analysis of patient interviews are presented in the following chapter, and the findings from the GP interviews in chapter 7.

Chapter 6

QUALITATIVE FINDINGS FROM THE PATIENT INTERVIEWS

6.1 Introduction

This chapter presents the findings from the analysis of the patient interviews, which aimed to explore patients' views of trust and the development of trusting relationships, and the relationship between continuity, trust, and cooperation, from a game theory perspective.

6.2 Characteristics of participating patients

As described in the previous chapter, the analysis was based on interview transcripts from a sub-sample of 20 patients, selected from patients interviewed as part of the personal care study. Patients were purposively selected for inclusion in the secondary analysis in order to include a range of age, sex, locality, health status, and experience of consulting in primary care. The characteristics of the 20 patients are summarised in table 6.1:

Table 6.1: Characteristics of patients involved in secondary analysis (n = 20)

Sex	Male 8	Female 12		
Age	< 21 2	21-40 7	41-60 6	60+ 5
Ethnicity	White UK 13	Asian 6	Black Caribbean 1	
Health Problems	None 9	Chronic non-limiting 5	Chronic limiting 6	
Locality	Rural 3	Town 4	Suburban 8	City 5

To protect the anonymity of participants, all names and other identifying information have been removed from the quotes used in this chapter and in chapter 7. The identifying code at the end of each quote indicates the practice from which the patient or GP was recruited. For example, the code *pr5pt1* would indicate that the quote was from the first patient recruited from practice 5 (see table 5.1. for details of practices).

6.3. Findings from the analysis of the patient interviews

The analysis of the interviews is structured around the three organising questions outlined in the previous chapter, and describes patients' experiences of trust, or lack of trust, in GPs.

6.3.1 Placed trust

The first question was: do patients place trust in unfamiliar GPs, and if so, on what is this based? The first part of the analysis presented here explores patients' descriptions of placed trust, and the basis for this trust.

a. What is placed trust and why is it important?

Patients' accounts indicated that they were generally willing to place trust in unfamiliar GPs, and described this in terms of 'having confidence' in unfamiliar GPs, in the absence of personal experience of care from that particular GP.

Patients recognised that they could often be in a vulnerable position, having to rely on a GP to give them the care that they need:

They are doctors…they say what's happening to you. I'm no doctor (pr5pt1).

There are many situations where patients consult unfamiliar GPs, (for example, when they first join a practice, or see an unfamiliar GP in a large practice), or do not have a choice of who they see (for example, in emergency situations), so having to place trust in an unknown professional was seen as essential in order to access care.

Interviewer: If you were ill and you went to see a doctor would you have confidence in them just because they were a doctor, or would you want to know them first?
Patient: I think I would have confidence in a doctor - say if something severe happened and I had to have surgery or something, I'd have to have that confidence in a doctor for

them to do it because I'm not gonna know that surgeon cause I'm not gonna have seen them before, and I'd have to have that confidence with them (Pr6pt1)

There were circumstances under which patients did not describe placing high levels of trust in their initial consultation with an unfamiliar GP, but instead described how their trust was built as a result of positive experiences of the GP as caring in their first one or two consultations. These were patients who had their first consultation with a GP at a time where they were particularly anxious or vulnerable, for example, first pregnancy, or experience of miscarriage. Under these circumstances patients had more at stake in trusting a GP, and it is reasonable to assume that where there is more risk involved in trusting, patients will engage in more active monitoring in order to judge trustworthiness.

I was quite anxious … because I had just become pregnant and I had received five years fertility treatment…So it was quite an important time for me, to have a change of doctor... It was fine but you don't know that and it makes you quite uneasy …'what's he like?' (pr1pt1)

<u>b. On what is placed trust based?</u>

Placed trust is, by definition, conferred prior to having experience of consulting with an unfamiliar GP. When consulting an unfamiliar GP, the patient cannot draw on past experience of care from this GP in order to judge trustworthiness, so must rely on other information on which to base judgements of likely trustworthiness. On what basis is this trust conferred? Patients described a range of factors that lead them to justify placing trust in an unfamiliar GP.

Group membership

The first, most general basis for placed trust was information about group membership. Patients held rational beliefs about the likely competence and motivation of GPs based on their professional role. Patients saw the status of a GP, with the training and qualifications associated with this, as giving them assurance that the person they saw would give them the care they needed.

You have to have that confidence in them because…they wouldn't be a doctor, they wouldn't have the qualifications that, you know, everything that goes with being a doctor, they wouldn't have all that. They'd have to have got there somehow (pr6pt1)

Confidence in GPs in general was informed by past experience:

I have not really had a bad experience with a GP, and I have every confidence in them, you know (pr2pt5).

Trust was also placed on the basis of the practice or organisation to which the GP belonged. Patients described trust in GPs from their practice, to a greater extent than in other GPs. Conversely, patients described unwillingness to place trust in certain doctors, based on organisational membership. Again this was often based on past experience. In particular, some patients described having negative experiences of care from 'out of hours', or emergency, doctors, and this led them to lack confidence or trust in out of hours doctors in general.

Patient: I can go to these emergency doctors and they're all the same, they don't know, I mean there used to be this service, after hours, I mean what they do is they go and visit the patients, and they can not diagnose it properly

Interviewer: And why do you think that's the case?

Patient: Because I've been experienced. (pr6pt2).

Being a GP, and specifically, being a member of an organisation in which a patient had more or less trust, were sources of information that patients used as a basis for placing trust in an unknown GP. Mechanic (1996) described this as s*ocial or institutional trust* (i.e. trust in collective institutions/bodies such as the health care system, the medical profession, or an organisation such as a practice), and suggested that this contributes to the development of interpersonal trust. Past experience of care from GPs generally, and from members or particular organisations, such as a particular practice, contributed towards beliefs about the likely future trustworthiness of unfamiliar GPs, based on their membership of this professional group or organisation.

Patients also drew on other information about group membership to judge likely trustworthiness. People hold beliefs and expectations about specific groups in society, and use this information in judging the likely trustworthiness of unknown GPs. Professional standing, age, sex and ethnicity all influenced patients' prior judgements of trust in unfamiliar GPs.

The more senior partners there…I don't know whether competence is the right word but I know they're more effective (pr6pt3)

I feel that if I went to a female doctor I'd get a different response (pr6pt1)

Knowledge of specific GP

Secondly, patients drew on any knowledge they had of the specific GP, which could come from a range of sources. Some patients described knowing the GP professionally prior to becoming their patient or consulting with them, which seemed to provide assurance of the GP's professional competence. Other patients described knowing a number of GPs as part of their community, which seemed to provide assurance that these GPs were 'nice' people. Both these sources of information gave patients more confidence in a GP, even though they did not have personal experience of consulting with that particular GP.

The GPs reputation, based on what friends, family, or other patients had to say about the GP, was also a valuable source of information about likely trustworthiness.

There's a doctor I don't know…but they all speak very highly of him (pr2pt7)

Information about the specific GP seemed to be particularly important where there was more at stake, for example, where there was a choice to be made about whom to consult, or where there was more invested in the choice e.g. in the initiation or early stages of a relationship with a GP (for example, in deciding which GP to register with, with the intention of developing an ongoing relationship). So drawing on or seeking knowledge about the individual GP was often linked with a 'higher' level of placing trust i.e. placing trust not for the sake of a single consultation, but with the intention of initiating a relationship.

6.3.2 The development of interpersonal trust

The second question was: does trust develop over repeated interactions, and if so, what factors promote trust? Accordingly the second part of the analysis presented here explores patients' descriptions of the development of trust over the course of a relationship.

Patients recognised that they have to rely on their GP's knowledge and expertise to get appropriate care and to negotiate the NHS on their behalf, and patients wanted to feel confident that the GP would act in their best interests. They felt that developing a trusting relationship was important in feeling confident in relying on the GP to act on their behalf. Patients' descriptions of their trust in their usual GP, and how this had developed, gave an insight into the process of developing trust over the course of an ongoing relationship between a patient and a specific GP.

<u>a. Initial placed trust</u>

Initially, patients placed trust in an unfamiliar GP as described in section 6.3.1 – this was seen as essential in order for patients to consult in the first place, in other words, trust acted as an initiator to the consultation. Placed trust was usually high and relatively robust. A willingness to place some degree of trust in a GP was seen as essential in beginning to build a relationship with a GP, and it was recognised that an individual patient's general propensity to trust could influence the development of interpersonal trust:

I suppose that depends on how trusting you are. You've gotta trust somebody before you can start building the relationship…some people are trusting and some people ain't (pr6pt8)

b. The initial consultation

In their initial consultation, patients did not tend to describe actively seeking information on which to base their judgements of trust, or actively evaluating the GP. Rather, initial trust was often simply validated by the patient's initial impression of the GP, and tended to be based on the GP's interpersonal skills. Patients maintained their trust if the GP seemed to listen and take them seriously, and if they felt 'comfortable'.

I think from [the] first visit I think it is OK because I just knew … that he was approachable and it was just fine (pr2pt2)

Some patients did describe 'sizing up' the GP in the initial consultation, but notably these were patients with more experience of consulting different GPs.

Patients pointed to the importance of perceived effective care from a GP, along with good interpersonal skills, in reinforcing trust in initial consultations. These factors reinforced trust both by affirming the GP's competence, and by providing evidence that the GP was motivated to act in their best interests.

If you go and see any doctor for the first time…if you get the proper treatment…if he has got a listening ear, if he's calm, if he asks the patient politely 'what's wrong?'…and

after that you get the medication, and if you are cured, you reinforce your trust in him (pr6pt2)

If initial trust in a single consultation was reinforced, patients often wished to maintain continuity with the GP, i.e. trust as evaluated in an initial consultation could be an initiator of the development of a trusting relationship. Patients also described effective trust in single, one-off consultations, based on the factors described above.

However, initial trust was not always supported. In particular, initial trust could easily be undermined in the consultation by evidence that the GP was not motivated to act in the patient's best interests. If the patient felt that the GP did not listen or take them seriously, or did not seem to care, then this often acted to undermine trust. Several patients also described GPs who wrote prescriptions out without listening to or checking the patient, and this in particular seemed to be taken as evidence that the GP was not motivated to act in the patient's best interests. If initial trust was undermined then trust was unlikely to be recovered, instead patients tended to avoid consulting the same GP again in the future.

His general attitude I felt wasn't a pleasant attitude, and he wanted you to leave as quickly as possible, just to get you out as quickly as possible…it was just an instant thing …I just felt that he really wasn't bothered at all…I remembered feeling 'I don't ever want to see that man again' (pr3pt7)

c. The development of trust over time

Although initial trust tended to be high, trust was not described as a fixed, dichotomous variable, but more as a construct which changed in intensity and nature over the course of the relationship, developing as the patient consulted the GP repeatedly, and becoming more stable and resilient. This section focuses on how patients described the development of trust in a GP over time, and the factors that could undermine this trust.

Validation of the GP – motivation

It was found that, in the early stages of the relationship, evidence suggesting that the GP was motivated to act in the patient's best interest acted to strengthen trust. Anticipation of future interaction, in particular evidence that the GP was willing to invest time in the patients and was committed to future care, reinforced and strengthened initial trust:

He spent a long long time, despite the fact it was in the middle of a surgery… he said 'well come back and see me in' I think 3 months time or whatever, 'and I'll have a think about it and we'll see if we can do anything else', you know, a prevention rather than a cure for him, and so right from the outset he had interest…the feelings were generally there and they have just strengthened really (pr1pt10)

Patients felt that GPs would be more motivated to act in their best interests if they were likely to see them again in the future. In some cases patients described lower trust in GPs whom they would not see again, believing that they would be less motivated to take time to find the most appropriate treatment for the patient.

You may see [GP] again or something … it's not the sort of feeling – 'oh I'll give him a pill and go' (pr2pt5).

Patients said that their trust in the GP built and was strengthened with repeated interactions. In the same way as in the initial consultation, patients referred particularly to interpersonal aspects of subsequent consultations. Patients talked about the importance of feeling comfortable in their interaction with the GP, and of having a GP who puts them at ease, and emphasised the importance of the GP taking time to ask questions, and listen to the patient.

A lot of doctors especially are pretty dismissive, without listening totally…Dr X, he could have a surgery full of people and he would take as long as it takes to listen to you and deal with you (pr1pt10)

Perceptions of conflicts of interest for the GP, and how they were managed, influenced the development of trust in a GP. As described above, evidence that a GP took time with a patient despite being in the middle of a busy surgery showed the patient that the GP was willing to act in the patients best interest at some cost to himself, i.e. a delay in completing the surgery. However, some patients described how believing that there were conflicts of interest for a GP could undermine their trust in a GP – when the GP seemed rushed or unwilling to spend time with the patient then patients often felt that time was a priority for the GP, rather than dealing with the patient's problems. In addition, patients described beliefs that a GP's financial or personal priorities could conflict with acting in the patients best interests, leading to lower trust in the GP.

All they are concerned about is profit…my doctor he seems more business-like rather than patients come first (pr6pt8)

It seems that he was more interested in when he were retiring, than [in] my missus (p3pt6)

Validation of the GP - good medical care

As well as beliefs about a GP's motivation, trust involved beliefs about a GP's competence. Generally patients started with the assumption that, as a GP, the person they saw would be competent to give them the care they needed (see placed trust, above). This trust in competence tended to be maintained on the basis of lack of evidence to the contrary.

When patients talked about the quality of their medical care in relation to trust, this tended to be in the context of justifying their trust in the GP by using examples of good care in critical moments, rather than through evaluating the quality of their medical care overall. Patients often cited examples of good care in critical moments, or a pivotal diagnosis, as validation of their trust in their GP:

Well very much having confidence in the doctor… You see, he discovered this angina, well I don't say he discovered it but I mean he immediately sent me to hospital (pr1pt2)

I think that's what made me have confidence with the doctor we've got now because he found my asthma (pr6pt1)

Correspondingly, a critical experience of misdiagnosis or poor management acted to invalidate and destroy trust, particularly when this happened in the early stages of the relationship.

I've been to a particular doctor at the practice who has misdiagnosed [me]…I wouldn't have any confidence in him (pr6pt3)

A key issue in maintaining trust was the evidence that the GP knew the limits of his/her expertise and was honest about this. This was evidenced in quick and appropriate referral, and GP willingness to admit they don't know everything:

Knowledgeable [but] not afraid to say 'I don't know but I'll find out'…that gives me more confidence (pr6pt3).

Awareness of the limits of their expertise seemed to be important in affirming to patients that the GP was medically competent, but it is also possible that this influenced patients' judgements of the GP's motivation to treat in the patient's best interest. Where GPs were honest with patients about their limits, patients interpreted this as an indication that the GP would try to treat the patient in their best interests and to the best of their ability, and that any errors or problems were not due to lack of caring or non-cooperative intentions. Patients recognised that GPs were only human, and like everyone else could make mistakes. If beliefs about a GP's positive motivation were maintained, and errors were not attributed to a lack of effort or motivation on the GP's part, then patients were often willing to forgive mistakes and accept a GP's limits. This was evidenced by the experiences of one patient, who had been sent to hospital when his GP had been unable to diagnose his problem, however, his trust was reinforced both by confirmation by the hospital that his GP would not necessarily have been expected to diagnose his problem, and by the GP apologising to the patient for failure to diagnose.

I think 'cor, good of the bloke', that he's found time to ring me up and say - well actually more or less apologise to me on the phone that he didn't diagnose what I had got. But from knowing what I got and knowing more about it from down the hospital, then I don't see that he would necessarily have been able to diagnose that….I would have been very, very disappointed if I'd gone into hospital and they said you know 'well, you've got so and so your doctor should have known that. (pr2pt5)

Maintaining a trusting relationship - patient reputation

Maintaining a trusting relationship involved mutual and reciprocal trust. As well as validation of the GP as trustworthy, maintaining a trusting relationship required that patients felt validated in the eyes of the GP as a legitimate, or trustworthy patient. Trust was strengthened by GP recall of personal knowledge, as patients felt that being known by the GP as a result of repeated positive interactions helped them to build a reputation as a legitimate and valid patient. Maintaining this identity as a valid user of the service, and as a cooperative patient, was important, as patients believed that the GP would then be more likely to take them seriously, and treat in their best interests (i.e. to reciprocate this cooperation by acting in a trustworthy way).

Oh I think it's essential that he knows your whims and your foibles and whatnot, and you know he understands that if you're complaining about something you've jolly well got something and you're not sort of making it up or wasting his time (pr1pt2)

[Dr X] was very brusque with people if he thought that they were, um, malingering, but he had all the time in the world for you if – I mean I nursed my mother in law for six months when she was dying of cancer and no-one could have been better than Dr X. (pr3pt3)

Patients recognised that GPs hold views about patient cooperativeness, and worked to demonstrate their reputation as a valid patient, being particularly concerned to not be seen as wasting the doctor's time.

I do not go to the doctor unless I really have to, I'd hate to waste his time on something that's not too serious (pr3pt8)

Interpersonal aspects of the consultation indicated to patients whether the GP viewed them as valid and legitimate patients (for example, listening, taking their concerns seriously, giving a full examination). When patients did not feel the GP saw them as valid and cooperative patients, they were less likely to believe that the GP was motivated to act in their best interests.

I thought I'd just take [daughter] in to the doctors and see if he could give me something a bit stronger to relieve the pain and he just told me…'If you come to the doctors and its for someone who's really in pain and suffering then, you know, you should come and ask for prescription. But for minor things like this it's up to the parents to look after them' … With Dr X he's just, you know, puts you off …I don't think he cares (pr4pt2)

Repeated interactions reduced uncertainty

As described earlier in this chapter, trust is seen as essential in medical care because patients are vulnerable and need to risk relying on the GP to act in their best interests. Repeated positive interactions, in which the patient perceives their care to be effective (or at least does not have any reason to believe that their care is less than effective)

acted to reduce uncertainty and perceived risk for patients. Where patients had experience of interacting with a particular GP, they were able to enter consultations with less uncertainty about the responses they would get, and were able to predict with more certainty that they would receive good care in the future, making the risk involved in trusting lower.

As time goes on you get more confidence and you feel more comfortable with them, and you know how they are going to be with you, the sort of responses you are going to get from them, and that makes you feel more comfortable and secure in going to see them (pr6pt3)

In comparison, some patients described being more actively aware of trust issues when consulting an unfamiliar GP, as illustrated by this patient's description of his feelings about consulting an unfamiliar GP:

…I know you should trust the doctor as such but as I was saying you don't tell just anyone certain information basically. It feels the same with the doctor as well, again as I say it can't be helped but you feel on guard (pr3pt8)

Patients tended to say that their trust strengthened over time, particularly when they consulted more frequently or had more serious illness.

Patients who had developed a trusting relationship with a GP valued this relationship, and wanted to maintain continuity.

Even if I have to wait a couple of weeks to get to see her, I'll just wait and make sure I have an appointment with her (pr4pt3)

Change in trust over time – move from rational to affective

Key to the development and maintenance of trust was the patient's perception of the GP as a caring doctor, with whom they could openly discuss problems, and this was based to a large extent on interpersonal aspects of the consultation.

the moment I go in the doctor says 'so what's the problem'. It's just straight, one bang, tell me what's wrong. Rather than 'oh so how are you today [name] what seems to be the problem?' [Spoken with concern and expression]… More warm in a way I suppose, yeah more warming, cause … they're carers aren't they doctors. And if they're not giving you the care, then you're not gonna feel wanted or cared for (pr6pt1)

Repeated interactions could provide a context in which this perception of the GP as caring was reinforced. With repeated interactions, patients felt that GPs could develop personal knowledge of them. This development of personal knowledge meant that patient felt that that they mattered to the GP as a person not just another patient. The result of this was that patients were likely to believe that the GP had affective reasons for acting in their best interests. Many patients felt that, as they got to know the GP and the GP got to know them, their trust in the GP developed to a higher level, where they believed that their GP took their interests to heart, and hence was intrinsically motivated to care for them.

You go in and you see a doctor what is so caring …you know that you're not a number and you're not a patient, once you're in his surgery door. You are that

person, you are what he knows you as. 'Ah well what's [name] come for and what can I do for [name]' (pr6pt10)

Patients validated their trust with examples of how the GP had been particularly caring, or had 'gone the extra mile' to help them.

She was really good to me. I came home and she took time out, even in the weekend like on a Saturday, she rang me at home to see if I was OK, if I was feeling better (pr4pt3)

In contrast to this some patients described instances where a GP had not shown caring in a sensitive situation, and this acted to destroy their trust. Where trust was violated by perceived lack of caring, patients had strong negative emotional responses to this; perceived lack of caring was highly likely to lead to the destruction of a relationship.

I said 'she's got no hope', 'yes' he said 'but I'm not supposed to tell you on the phone'... I said 'I can't come down there'. …But 'can't you come [to the practice] so I can tell you that she's terminally ill'. Now how pathetic. And from then on I lost all confidence in that bloke (pr3pt6)

Not all patients described their relationship with their GP as having developed to an affective level. Although this could not be examined systematically due to the secondary nature of the data, the analysis suggested that patients were more likely to experience this if they had been with the GP for some time, if they consulted frequently, if they consulted for the care of all their family (e.g. for themselves as well as their children or an elderly parent), and if they had experience of a critical diagnosis or care

in emotionally difficult times. Patients who consulted less often, and who consulted for minor problems, were less likely to describe such a relationship.

6.3.3 The outcomes associated with interpersonal trust

The third question was: is trust associated with an increased willingness to cooperate? Accordingly the analysis explored the outcomes associated with trust, particularly whether trust was associated with the patient reporting higher levels of willingness to cooperate with a GP, in terms of willingness to accept advice and treatment.

It was clear from the analysis that trust developed over repeated interactions, in which uncertainty and anxiety about the unknown was reduced, made the risk involved in trusting behaviour (i.e. making oneself vulnerable to the actions of another) lower. Patients who described a trusting relationship felt that they were more willing to disclose personal information or anxieties, or to discuss difficult issues with the GP.

You open up a lot more. You don't feel 'well I can't say this' or 'I can't say that' or ' I would be embarrassed to ask this'. If you feel comfortable then you tend to be, I think, well I certainly do, I tend to be a lot more open (pr3pt7)

Although patients often described being made to feel comfortable by unfamiliar GPs, most patients felt that a trusting relationship made it easier to raise difficult issues.

If you had a personal problem, perhaps you wouldn't divulge that to someone you didn't know rather than someone that you did (pr1pt10)

With another doctor I would feel really uncomfortable to even let it out (pr4pt8)

Patients were more willing to accept potentially vulnerable situations where trust was high. For example, although female patients tended to prefer a female GP when they needed a personal examination, this female patient felt comfortable receiving a personal examination from her usual male doctor, with whom she had a long-standing, trusting, relationship:

Sometimes when it's something personal that needs checking, you know, and you like to see a lady doctor, you know, cause you're a bit embarrassed with the man doctor, but with Dr X …he'll make sure you're not feeling a bit embarrassed, cause he'll say to me 'oh I'm sorry about this, I need to check this' ...and he'll just do a quick check and that's it (pr4pt2)

Where patients had past positive experiences of care, they had more confidence that they would get the right treatment from their trusted GP.

You don't come out thinking 'don't know I still ain't sure if he's given me the right stuff or what'…this bloke will tell me if it's right or wrong (pr3pt6)

The result of this was that patients were more likely to take the GP's advice seriously, and to accept and adhere to treatment or advice, even if they would prefer not to:

If you're feeling comfortable about your treatment… you're more likely to listen to what they're asking you to do as well, less dismissive of things they say to you or suggestions they make to you (pr6pt3)

Sometimes you get annoyed with him because again he doesn't always prescribe you something if you're ill… but in a way he is right…he is making sense (pr3pt8)

Trusting relationships which had been developed over time were robust; GPs were able to push patients to address difficult issues and GPs and patients were able to negotiate and reach mutually acceptable compromises on difficult issues such as non-compliance, without disrupting the relationship.

If he thinks you've been silly then he will tell you…there is glaucoma in the family, and I hadn't done anything about it…so he's on the phone 'right, now go, so I've made the [optician] appointment for you now go'… so off I trotted' (pr1pt1)
You see, she could say to me 'well it's no good coming to me if you don't take what I tell you'... but she doesn't (pr2pt7)

6.3.4 Additional analysis – when is placed trust sufficient?

Patients did not always prioritise seeing their trusted GP. As described in section 6.3.1, placed trust could exist without any prior experience of care from the particular health professional. The analysis explored the situations under which patients described placed trust as sufficient in order for them to choose to consult an unknown GP, and the situations when patients wanted to consult a known and trusted GP. This primarily depended on the reason for consulting. Patients who were consulting for minor, acute, physical problems, for children's minor problems, or in some cases for routine checkups, where simply medical knowledge was required, often felt that placed trust was sufficient.

If it was an injury type thing that you needed to go to the doctor for, then it wouldn't matter to me who I saw because I'd feel confident that even if it was a locum, the junior doctor, a first day there, I would feel confident that they have had the experience of how to deal with a strained muscle or something like that (pr2pt5)

Patients also often did not feel the need for high levels of trust when they themselves knew what they wanted (e.g. the same antibiotics for recurrent infection), particularly when there were other priorities such as quick access. This patient described being willing to consult a GP in whom she did not have confidence, in order to achieve a very specific outcome from a consultation where she knew what was needed.

If I know it's an ear infection I go and say 'I want this antibiotic' and he'll give it to me, I'll have it (pr6pt3)

The situations under which patients did not prioritise seeing a trusted GP seemed to be those in which the levels of uncertainty and risk involved were low. This was more likely when problems were straightforward and purely medical, where only competence or medical expertise was needed, and the motivation or intentions of the GP was unlikely to affect the care received. Also it is possible that patients could better judge the outcome of these types of consultations, having clear expectations about the outcome, unlike in other circumstances such as seeking a diagnosis.

Patients generally liked to see their trusted GP, but felt it was especially important to see their trusted GP for more serious problems, or when they were potentially vulnerable. Examples of when seeing a trusted GP was particularly important included

personal problems, serious illness such as cancer, and problems such as depression, and drug abuse.

If it's something really personal I like to talk to him, and then I would ask for Dr X' (pr4pt2)

If they turned around and said 'oh well we've found that you might have breast cancer' or, you want that personal relationship then because you're obviously scared because this is life-threatening and this is something that's gonna affect you…quite deeply (pr6pt1)

Consulting a trusted GP was viewed as essential by a mother of a daughter with learning disabilities who was particularly vulnerable.

She'll only see the one doctor…with her being mentally handicapped I've had to get her trust right up (pr6pt10)

6.3.5 Additional analysis – trust and confidence

The aim of the analysis of patient interviews was to explore the development of patient trust, but it was noted that patients used the words 'trust' and 'confidence' in their accounts to describe similar concepts or experiences. Additional analysis was undertaken to explore how these words were used, and to what extent they reflected the same concept. Conceptual distinctions have been made in the literature about trust and confidence. According to Smith (2001), confidence is based on 'those everyday interactions where we assume relative certainty and security provided by abstract systems—role expectations, commonly shared norms, expert knowledge, law and so on'

(p. 293). In these terms, confidence is based on reliance on systems and organisational structures to ensure trustworthiness and protect patients' interests, such as the assurance provided by the accepted professional status of a GP. Thus, patients rely on systems to give them confidence in an unfamiliar GP. In contrast trust exists between individuals and is necessary where there is vulnerability or uncertainty. Additionally, Luhmann (2000) suggests that trust implies choice i.e. that you are willing to engage in a cooperative action despite the possibility of adverse outcomes, and that you choose this action over other possible actions. Confidence implies that there is no alternative but to rely on the other.

Further analysis was undertaken to identify the meanings attached to these words in patients' accounts.

Confidence was consistently used to describe initial trust in a GP prior to a consultation, based on beliefs about the expertise of GPs as qualified medical professionals. This fits with Smith's (2001) definition of confidence. However patients also described confidence in a particular GP developing over the course of a relationship, and involving judgements about the GP as a 'good doctor'.

Part of the relationship is having the confidence in them being a good doctor whatever that means to you (pr6pt1)

This was evidenced by patients' beliefs that their treatment had been effective, critical diagnoses, and evidence of the GP trying to get to the cause of their problems rather

than just treating the symptoms. Confidence was expressed in beliefs about the expertise of a GP, such as:

He knows what he's talking about (pr3pt3)

However, being a good doctor also involved interpersonal aspects of the consultation, such as being encouraging and supportive, and relationship building. Patients described losing confidence through misdiagnoses as well as through evidence of a lack of caring on the GP's part.

Where patients used the word 'trust', they also described how this was built through evidence of effective medical care, but were more likely to refer to interpersonal aspects of the consultation, and to caring, as leading them to believe the GP would act in their best interests. Trust was expressed in terms of feeling safe that the GP would give the right diagnosis, and feeling willing to rely on the GP to give appropriate care.

To some extent the words trust and confidence were used interchangeably, but confidence was more likely to be used when patients were referring to beliefs about the medical expertise of the GP, particularly prior to consulting the GP. When patients described confidence as developing over the course of a relationship, they described this as a reduction of uncertainty about whether their GP was a 'good doctor', both in terms of their medical expertise and their relationship building with patients. This meant that patients felt less uncertainty about whether they could rely on the diagnosis or treatment to be right for them. Similarly, trust involved patient beliefs about whether their GP would give them appropriate care. Trust was more likely to be described as being based

on evidence that the GP was motivated to act in the patient's best interests. This evidence was gained from past experience of effective care, from interpersonal aspects of the consultation, and evidence that the GP cared about giving the patient the best treatment. Trust was more likely to be described in affective terms, and the word 'trust', rather than 'confidence', tended to be used in the context of willingness to be vulnerable, e.g. disclosing of personal information.

Developing confidence was described as part of developing a trusting relationship, and clearly confidence was essential for trust. Although the terms seemed to be used relatively interchangeably by patients, conceptually confidence could be seen as an element of a broader trusting attitude.

6.4 Discussion

6.4.1 Principal findings

The findings of the study illustrate how trust is initially placed in a GP, and how this trust can be built and strengthened over repeated interactions. The first part of the analysis explored whether patients place trust in GPs, and on what this placed trust is based. The findings of the study show that patients were generally willing to place trust in unfamiliar GPs prior to consulting with them. This placed trust was primarily described as 'confidence', and involved rational beliefs about the likely competence and motivation of GPs based on their professional role. This placed trust was necessary for the patient to feel able to consult a GP in the first place. However, patients also described drawing on any information available to them about the specific GP prior to consulting such as group membership, personal knowledge and reputation, and in some

cases this influenced their choices about who to consult, for example, a choice of a female rather than male GP. Information about the specific GP seemed to be particularly important where there was a choice to be made about whom to consult, or where there was more invested in the choice e.g. choosing which GP to register with (i.e. placing trust in order to build and develop a relationship).

The second part of the analysis explored how trust develops over repeated interactions between a patient and a GP. The findings from the study indicated that initial placed trust was evaluated based on initial experiences with the GP. Patients talked about how trust was strengthened or undermined as a result of the consultation experience, mainly through evaluation of cues to the GP's motivation and evidence of good and effective care (or lack of evidence to the contrary). Early in the relationship, anticipation of future interactions provided assurance that the GP was committed to act in the patient's best interests. As the relationship progressed, patients sought evidence of effective medical care, and cues that indicated the GP was motivated to act in their best interests to validate their trust, and in turn worked to maintain their reputation as cooperative and valid patients. Over time, repeated interactions allowed for reduction of uncertainty for patients, lowering the perceived risk involved in trusting behaviour (i.e. making oneself vulnerable to the actions of another). If there was evidence that the GP remembered the patient as a person, and evidence of caring, this cemented trusting relationships, leading patients to believe they 'mattered' to the GP. This led to a stage where patients felt they could rely on the GP to act in their best interests, and where patients and GPs felt able to discuss and negotiate sensitive issues. At this level the trusting relationship was robust, and mutually acceptable compromises could be reached on difficult issues such as non-compliance, without disrupting the relationship.

The third part of the analysis explored whether trust was associated with willingness to cooperate. The findings suggested that, as the trusting relationship strengthened, this led to positive outcomes. Reduction of uncertainty meant patients were less anxious, and had more confidence in their treatment. Thus patients were more likely to feel able to disclose information to the GP (particularly sensitive information), more likely to take advice and treatment seriously, and more likely to follow treatment through.

6.4.2 Limitations of the study

This study involved the secondary analysis of a carefully selected sub-sample of interviews, carried out in 2000/2001, as part of the Personal Care Study. This leads to two issues for discussion. Firstly, the advantages and limitations of carrying out a secondary analysis, and secondly, the issue of the extent to which the data retained its relevance when re-analysed several years after the original study data was collected.

Secondary analysis of data has the obvious advantage that no new interviews need to be carried out. Qualitative interviews are time and resource demanding, and secondary analysis enables new questions to be addressed without extra demand on patients' time, or additional cost. In this study the researcher had collected and analysed the original data. This meant that the researcher was already familiar with the content of the interviews and their context, making the secondary analysis more time efficient.

In addition, secondary analysis allows maximum value to be obtained from data that has already been collected and analysed for a specific purpose. It is a common experience when analysing qualitative data for a specific purpose (such as a funded project with clear research questions) to find that there are many interesting issues raised in the

course of interviews that are not directly relevant to the research questions of the primary study. Secondary analysis enables the researcher to approach the analysis with a different set of questions, and explore some of the issues that were not the focus of the original analysis.

The main disadvantage of secondary analysis of interview data, in the context of this study, was felt to be the fixed nature of the original data. The data used in this study were assessed for relevance to the new research questions, and it was felt that there were extensive data on patients' views of trust and trust development, which justified the use of these interviews for secondary analysis. The sub-sample was selected to ensure a breadth of experience, so that different perspectives on trust would be captured. However, the very nature of secondary analysis means that it is carried out on a completed set of interviews. Primary analysis of qualitative data is usually (but not always) carried out alongside the interviewing stage of the study, which means that as the analysis progresses, gaps in the data or interesting new ideas can be identified and pursued in subsequent interviews, and hypotheses can be tested by detailed questioning in interviews or seeking out of negative cases relating to specific positive experiences. Secondary analysis is constrained in that the analysis is reliant on the content of data that has already been collected.

In this study the secondary analysis explored the concept of trust in the accounts of those patients who described having experience of developing a trusting relationship with GP, and as such the study represents a thorough and valid description of the development of a trusting relationship. Care was taken to seek negative cases, that is, examples or instances where trust had been undermined, where patients did not

experience the development of trust, or where trust was not relevant in their interaction with GPs. However, the analysis was limited by the extent to which these experiences were described in the original data. Although clear evidence about factors that undermine trust was identified, it was not possible to systematically explore the conditions under which trust did or did not develop over time to the stage of robust 'affective' trust, and future research should aim to explore this issue.

The second issue for discussion is that of the timing of data collection, given that the data was collected in 2000/2001.

Around this time there were several high profile cases of medical misconduct which could potentially undermine people's general trust in the medical profession (institutional trust), including the case of the retention and use for research of children's organs without parental consent at the Alder Hey Hospital, and the cover up of high mortality figures in children's heart surgery at Bristol Royal Infirmary (both stories first broke in 1999). The case of gynaecologist Rodney Ledward, struck off for medical errors, remained high profile in 2000 (BBC News, 2000). Most significantly for primary care, the GP Harold Shipman was arrested and accused of murder in 1998, and in 2000 was found guilty of murdering 15 of his patients. Later evidence suggested he might have killed at least 236 of his patients over a 24-year period (Baker, 2000). The Shipman case led to calls for tighter monitoring and regulation of drugs and doctors, although there has been recent criticism of the extent to which action has been taken to prevent this happening again (Baker, 2006; Elwyn, 2006). The Kent GP Gerald Walmsley was jailed in 1999 for sexual abuse of patients, and in July 2000, a local Leicestershire GP (Dr Peter Green) was convicted of nine cases of indecent assault on

patients, representing a clear case of the potential for GPs to abuse patient trust. The case was investigated by the Commission for Health Improvement, and was given a great deal of attention in the local press. These cases led to the discussion and questioning in the national media of patient trust in doctors. It could be argued that the study interviews were undertaken taken during a period where trust in the medical profession was undergoing a significant cultural change.

It is notable that, despite these high profile cases, public trust in doctors has remained high, with doctors consistently emerging from the annual MORI poll as the most trustworthy profession (BMA, 2005). The MORI poll indicates that between 1999 and 2005, trust in doctors remained high, with around 91% of the public saying that they trusted doctors to tell the truth. This dropped slightly to 87% in 2000, but increased again in following years to around 91% (BMA, 2005). This is much higher than levels of trust in doctors reported in the first MORI poll in 1983, where 82% trusted doctors. Although the interviews did not attempt to explore how these cases had impacted on patient trust, the consistently high level of trust in doctors suggests that the timing of the study is unlikely to have made a big difference to patients' accounts of trust in their own GP.

Additionally, interpersonal trust is located within the context of the specific interaction between two individuals, and is based on personal experience that is specific to the dyad. This experience will be given greater weight than external information about other GPs. If there were to be an effect, it would be expected that patients would be less willing to be unconditionally trusting of unfamiliar GPs, or would more actively monitor GPs in the early stages of the relationships. However, patients overwhelmingly

seemed willing to place trust in unfamiliar GPs, (partly because they perceived that they had little choice but to trust GPs), but also engaged in little initial monitoring other than assessment of the extent to which they felt 'comfortable' with the GP.

6.4.3 What does this study add to previous research?

a. Placed trust

There has been little previous work exploring trust in unfamiliar GPs. This study found that patients are generally willing to place trust in unfamiliar GPs based on the assurance provided by the professional status, training and qualifications associated with being a GP. Patients recognised the vulnerability associated with the role of patient i.e. that they were reliant on the skills and medical expertise of the GP, and recognised that being able to place trust in the role of GP was essential if they were to choose to consult a GP in the first place and to receive care. This concurs with Halliday's (2004) findings that women placed trust in midwives on the assurance of competence provided by their qualification, and beliefs about expertise.

This initial trust has been described by others as 'blind' or 'naïve' trust (Thorne & Robinson, 1988), and as involving an expectation that the GP would share the patients' values and be able to provide the answers to the patient's problem. In this study, although it was found that initial trust was generally high, this initial trust was often of a form that could be better described as 'informed' trust. That is, as well as basing trust on the role of the GP, patients sought and used any other available information that might be a cue to the likely trustworthiness of the unfamiliar GP. This was particularly the case when patients described choices about which GP to consult. This may be

because patients are motivated to reduce uncertainty and risk, and information gathering is a way to do this – if the patient has any evidence (in addition to the assurance provided by the role of GP) to suggest that the specific GP is likely to be trustworthy, then this reduces uncertainty. Information seeking was particularly the case when more was at stake (e.g. choosing a new GP to start a relationship, or consulting at a particularly vulnerable time, such as a first pregnancy).

b. The development of trust over time

This study provides a description of the maintenance and development of trust over the course of a GP-patient relationship. The key findings are: that patients place relatively high levels of trust in the GP in their first consultation; that this initial trust is evaluated once that patient has experience of consulting the GP, based primarily on cues to the GP's motivation; that in the early stages of the relationship cues to motivation including interpersonal skills and the structural aspects of the consultation (e.g. anticipation of future interaction) are important for the maintenance of trust; and that over time experience of consulting the same GP leads to a reduction of uncertainty and monitoring, and a move to an affective basis for trust. This provides a similar description to that outlined by Lewicki and Bunker (1996), in which they suggest that the basis of trust in an interaction changes over time. Their model suggests that initially trust is calculative, involving the weighing-up of the risks associated with trusting. With repeated interactions trust becomes knowledge-based, where a history of interactions allows each individual to predict the other's actions. Eventually emotional bonds mean that individuals have a high level of identification with each other, and trust is 'identification-based'. This study provides support for the changing nature of trust

over time. However, it was not possible in this study to explore when and why the bases of trust changed (or did not develop).

c. Trust and technical care

Over the course of a relationship with a GP, particularly during the early stages, patients sought to validate their trust in the GP. It might be expected that patients would seek evidence for effective care in order to validate their initial levels of trust, and in interviews patients cited examples of good care in critical moments as validation of their trust in a GP. There was also evidence in the interviews that trust could be undermined by clear evidence of poor care such as misdiagnosis. However, there was no evidence that patients actively sought information about their GP's medical knowledge or competence; rather they tended to assume competence (based on beliefs about the role of GP as a professional) unless there was clear evidence to the contrary.

It has been noted by other researchers that judging the technical quality of care may be problematic for patients. In his 1963 paper Arrow argues that it is difficult for patients to judge the quality of their care as the outcomes may not be a direct reflection of the GP's action (for example, the patient may get better whatever GP does). Patients may also feel that they are not qualified or well-informed enough to make judgements about the technical quality of their care. Chapple, Campbell, Rogers, and Roland (2002) found, based on in-depth interviews with patients, that patients defined medical knowledge in a range of ways, based on their own experience of illness and of consulting other health professionals, beliefs about professional training, and media representation. Few patients had enough knowledge to be able to make informed judgements about their own general practitioners' medical knowledge or the quality of

the technical care they experienced. Rao, Clarke, Sanderson, and Hammersley (2006) found that older people's ratings of the technical quality of their care had low, or no, correlation with the quality of their care as assessed through objective, records based, measures. They also found that patients did not distinguish between the technical quality of their care and other aspects of quality, supporting Mechanic and Meyer's (2000) conclusions that patients' judgements of technical quality were primarily based on interpersonal cues or reputation.

This study found that patients relied heavily on their evaluation of cues to the GP's motivation to act in a trustworthy way, rather than on an evaluation of the technical quality of their care. So patients validated their trust in a GP through evaluation of the GP's interpersonal skills, especially indications that the GP was listening to them and taking them seriously, evidence that the GP was committed to their future care, and beliefs about lack of conflict of interest. As the relationship progressed, evidence that the GP cared about them as a person further reinforced trust.

However, the problem with basing trust on interpersonal cues to trustworthiness is that these cues can be misleading, so that a GP who has good interpersonal skills may not necessarily be providing good technical care. This issue is discussed further in the following chapters of the thesis.

d. Patient validation

An important theme that emerged from this study was the need for mutual validation in the development of a trusting relationship. As well as judging the trustworthiness of the GP, it was important that patients felt they were trusted by the GP. This involved feeling validated by the GP as a 'good' and deserving patient. When patients did not

feel validated by the GP (for example, if they felt that the GP did not take their problems seriously), then they were less likely to believe that the GP would be motivated to act in their best interests, and hence their trust was undermined.

Stokes (2002) reviewed a range of studies providing evidence that doctors make judgements about the validity or legitimacy of patients, and notes that patients who are seen as undeserving (particularly where patients are judged as being uncooperative, manipulative or untruthful) may receive poorer quality of care (see also Gilson, 2003). This suggests that it is reasonable for patients to expect lower quality of care if they perceive that they are not trusted by the GP.

This relationship between being trusted, and trusting, has been identified in previous studies. Mechanic and Meyer (2000) noted in their study that patients who did not feel validated by the doctor felt more vulnerable, and were more likely to actively test the trustworthiness of their doctors, and Thorne and Robinson (1988) found that when patients felt they were trusted to manage their own care, this increased their trust in their GP.

This study adds to previous research by identifying that patients assess the extent to which they are validated by the GP primarily using verbal and non-verbal cues in the consultation, and that this evaluation has an impact on the patient's trust in the GP.

Although mutual validation has been identified in previous research as essential to the development of a good GP-patient relationship, game theory allows this concept to be viewed in the context of a broader understanding of the mechanism by which a cooperative relationship is maintained. Firstly, maintaining a cooperative reputation is

important in to eliciting cooperation from the other (if one player has a cooperative reputation, this reduces the uncertainty and risk associated with cooperation for the other player). Secondly, if one player knows that the other views them as cooperative, then that player has a reason for believing the other will be motivated to cooperate (i.e. if a patient feels that there is evidence that the GP views them as a cooperative and valid patient, then the patient has reason to believe the GP will act in their best interests – and vice versa). So, evidence that one is trusted is a good reason for trusting in turn.

e. The factors that undermine trust

The findings from this study suggest that patients generally enter consultations with relatively high levels of trust, and that this trust tends to be maintained in the absence of evidence suggesting that trust is not justified. This echoes the points made by Gambetta (2000) that 'trust is a peculiar belief predicated not on evidence but on the lack of *contrary* evidence…trust begins with keeping oneself open to evidence, acting *as if* one trusted, at least until more stable beliefs can be established on the basis of further information' (p. 235). Gambetta also notes that it is easy to find clear evidence of untrustworthiness, but difficult to find evidence of trustworthiness. Trust can be easily undermined by evidence of untrustworthiness, particularly when patients are consulting a GP with whom they are unfamiliar, or during the early stages of a relationship with a GP.

Previous research has tended to focus on the factors associated with patients' trust in doctors (e.g. Thom & Campbell, 1997). However, there is as much, if not more, value in understanding the factors that undermine patient trust in GPs. There has been concern that media reporting of negative events in health care may undermine patient trust, but,

as discussed above, this issue does not seem to have had a strong influence on patients' trust in individual GPs. Rather, this study suggests that the dynamics of the interaction between the GP and the patient is of prime importance in the extent to which trust is maintained, and that problems within this interaction are the main causes of trust being undermined and destroyed.

This study points to some of the key factors in the GP-patient interaction that can undermine trust, which mostly relate to beliefs about the GP's motivation to act in the patient's best interests. Patients most commonly described their trust being undermined through interpersonal cues that were interpreted as indicating that the GP was not motivated to act in their best interests (including feeling that the GP was in a hurry, was not listening, or was not taking them seriously). Trust was also undermined by evidence of conflicts of interest (such as time pressures, or financial issues). Patients also were less trusting if they did not expect to see the GP again in the future, as they felt that GPs who were not going to see them again would be less motivated to invest time in giving them the best quality of care.

Errors such as misdiagnosis or failure to diagnose could undermine or destroy trust particularly if these were either serious errors, or simple errors which patients believed the GP really should not have made. In these cases a patient's confidence in the GP's expertise could be undermined. However, in many cases patients were able to accept errors and mistakes on the GP's part, particularly in the context of an ongoing relationship. The trusting relationship involved a mutual acceptance of the boundaries of the GP's skills and knowledge, where patients accepted that the GP was 'only human', and that there were limits to their expertise. This was supported where patients

felt that the GP had clear understanding of the limits of their expertise, often evidenced by appropriate and timely referral. One patient described an event that could be interpreted as a failure: his GP did not diagnose a serious problem that was later diagnosed in hospital. However the patient's trust was not undermined, for two key reasons: one was that the hospital confirmed that this diagnosis was probably outside of the limits of the GP's expertise, and the second was that the GP went out of his way to check up on the patient, to apologise for failing to diagnose, and to reassure the patient. This second point reinforced to the patient that the failure was not due to a lack of caring or a lack of motivation to act in his best interests. Maintaining a belief that the GP was caring and motivated to act for the patient was central to trust, particularly in the context of an ongoing relationship. If this belief was violated by evidence of lack of caring, then patients' reactions to this tended to be strong and emotional, and the relationship destroyed. These findings concur with Lewicki and Tomlinson's (2003) discussion of trust violation, in which they argue that in the context of identification-based trust (developed over time, grounded in perceptions of interpersonal care and concern, and involving an emotional bond between individuals), the relationship is relatively resistant to trust violations that do not challenge the underlying basis of the relationship. However, the relationship can be destroyed by violations of the emotional dimension of trust.

6.4.4 Further research

As described above, the findings of this study indicated that the basis for trust changes over time, but it was not possible to explore when and why this happened or did not happen. Lewicki and Bunker (1996) have developed a hypothesised model of the changing basis of trust – described in chapter 2 of this thesis (although, as Dibben et al.,

2000, note, this model is only relevant to understanding trust in the context of a relationship that has already begun). They suggest that, over time some relationships are maintained at a stable level of calculus-based trust, that many relationships develop to the stage of stable knowledge-based trust, and that a few relationships develop to the stage of stable identification-based trust. This model could be tested in future research. Firstly there would be value in empirical research to test the hypothesised model – what percentage of GP-patient relationships develop to each stage, and what are the factors associated with each level of trust? Additionally, there would be value in qualitative work to fully explore the development of the different stages of trust, in particular, exploring when and why the bases of trust change, and the situations under which, for example, trust remains at the stage of being calculus-based. From this current study it would be possible to tentatively suggest that trust would be more likely to develop to the stage of being identification-based when there was more longitudinal continuity, when patients consulted for their family as well as themselves, when patients consulted for conditions that were more complex and had emotional components, although there may be other important factors. Shared experiences may be particularly important: Stewart (2004) notes that shared experiences are associated with more positive perceptions of the GP-patient relationship, and cites findings from an unpublished master's thesis by Dr. Ron McCord, which found that the types of shared experiences associated with positive ratings of the GP-patient relationship included a complete physical examination, delivery of a child, care of children, personal problem, family problem, and serious illness.

This study also raises questions about the measurement of trust, in addition to those raised in the previous chapter. If, as suggested by the findings from this study, patients

enter relationships with a relatively high level of trust which is maintained unless there is evidence to the contrary then it would be expected that questionnaires measuring the *level* of patient trust (which tend to include questions on general issues of trust including competence and integrity) would find uniformly high scores even in the early stages of a GP-patient relationship. Patients consulting an unfamiliar GP may have no reason to distrust him/her, so may score 100% on a trust scale. Instead, this study suggests that it is the nature or basis of trust that changes over time – becoming more likely to be identification-based, and hence more stable and robust. It may be suggested that it is the changing nature of trust that leads to increasing positive outcomes over the course of the relationship, meaning that patients are more likely to be willing to risk vulnerability by disclosing information and cooperating with advice or treatment. More sensitive measures of trust may be needed to pick up the changes in the nature of trust, and assess the relationship between developing stages of trust and positive outcomes.

6.5 Conclusion

This qualitative study of patient's views of trust and cooperation in primary care identified that patients place trust in GPs in order to access care; this placed trust is based on general trust in GPs as well as any information about the characteristics of the specific GP or the GP's reputation. Initial trust can be undermined by evidence that the GP is not motivated to act in the patient's best interests; this is often based on patients' evaluation of the interpersonal aspects of the consultation. Initial trust is evaluated and reinforced by repeated interactions in which patients experience good care and anticipate future interactions. The development of trust involves mutual validation, in which the patient both validates the GP as a 'good' GP, and in turn feels validated

themselves as a legitimate patient. Over time, repeated interactions can lead to reduced uncertainty, and a move towards an affective basis for trust. Trust is associated with an increased willingness on the part of the patient to accept vulnerability and to cooperate with the GP, through disclosing information, and accepting advice and treatment.

This study has added to the literature by providing a detailed investigation of patients' views of initial trust and the development of trust over the course of an ongoing relationship, based on a game theory perspective, as well as supporting prior research evidence of a relationship between trust and cooperation. The following chapter will describe the findings of the analysis of GP data, which focuses on GPs' views on the development of patient trust, GP trustworthiness, and patient cooperativeness.

Chapter 7

QUALITATIVE FINDINGS FROM THE GP INTERVIEWS

7.1 Introduction

This chapter presents the findings from the analysis of the GP interviews, which aimed to explore GPs' views of patient trust and the development of trusting relationships, and the relationship between continuity, trust and cooperation, from a game theory perspective.

7.2 Characteristics of participating GPs

As described in the chapter 5, the analysis was based on interview transcripts from 12 of the GPs interviewed as part of the personal care study. The characteristics of the 12 GPs are summarised in table 7.1:

Table 7.1: Characteristics of GPs involved in secondary analysis
(n = 12)

Sex	Male	Female	
	7	5	
Age	< 30 years	30-50 years	> 50 years
	3	5	4
Ethnicity	White UK	Asian	White other
	7	4	1

Time in practice	GP Registrar[3]	< 10 years	10-20 years	> 20 years
	2	5	4	1
Locality	Rural town	Suburban	City	
	4	4	4	

The analysis of the interviews is structured around the three organising questions outlined in chapter 5, and describes GPs' understanding of patient trust; GPs' accounts of factors that motivate them to act in a patient's best interests; and issues around GPs' perceptions of patient cooperativeness.

7.3 Findings from the analysis of the GP interviews

7.3.1 GPs' views on the development of patient trust

The first question was: what are GPs' views on the development of patient trust? The first part of the analysis presented here explores GPs' accounts and views of the development of patient trust, and their perceptions of its value.

a. Placed trust

GPs recognised that that patients placed trust in them:

That patient puts a lot of trust even on the first visit (pr5gp1),

and recognised that patients' general trust in GPs could be influenced by patients' confidence in the service provided by the practice as a whole, and by the portrayal of GPs in the media. However, placed trust did not emerge as a key feature in GPs'

[3] A GP registrar is a fully registered medical practitioner who is being trained in general practice. The two GP registrars involved in this study were on training placements with participating practices.

accounts of their interactions with patients. Instead, GPs tended to talk about trust in terms of interpersonal trust: a trusting relationship between the individual patient and GP.

b. The development of interpersonal trust

The initial stages of developing trust

GPs felt that interpersonal trust was initiated in the initial consultation, and became established over time.

I think that first consultation for them would be the first step in building up a better relationship for the long term (pr3gp1)

GPs were aware that patients made judgements based on their initial impressions of a GP, and that patients would choose not to consult the same GP again if they were not happy with the GP:

People will come and see you, come and see me, and then depending on what they think of me depends on if they come back or not (pr3gp2)

GPs talked about how they could act to promote patient trust, particularly in initial consultations with an unfamiliar patient, or during the early stages of establishing a relationship with a patient. GPs described the use of interpersonal skills as the key, such as: listening, taking time with the patient, letting the patient know that they were there to help them, being friendly, welcoming and open. They also described the

importance of being prepared for the patient, perhaps because this indicated to the patient that the GP was willing to invest time in them.

As was the case in the patient interviews, GPs recognised the importance of future interactions in developing a trusting relationship, and identified circumstances where trust was less likely as there was perceived to be less likelihood of future interactions:

I don't think you can get any - very far without a decent relationship with a patient and temporary one's aren't as effective as more permanent ones, and patients like to know you're gonna be here for some time …[otherwise] they'll start petering away and going elsewhere because you're not gonna be there to follow them up (pr3gp2)

Several GPs described how they invited patients to come back and see them personally again, and felt that showing willingness to see the patient again in the future indicated that they were motivated to act in the patient's best interests.

I always give them a possibility next time … to see me again, I mean, no good to say 'well you saw me today because your own doctor was not available and you will never see me again', that's not the message I'm trying to send to the patients. (pr3gp4)

GPs also felt that giving full explanations when patients' expectations were not met was important. Making the reasons for a particular course of action clear (for example decisions about whether to prescribe or refer), and involving patients in the decision could be a way for the GP to show that he/she was trying to act in the patient's best

interest rather than refusing to cooperate, and could help GPs and patients to find mutually agreeable ways of dealing with a problem.

Say you came in you said 'I've got a chest pain', and I ask you about your chest pain. And then you say 'I think it's my heart'. I say 'it's anxiety' and I explain why, and then I put it back to you so you feel you're part of the decision making about where to go (pr3gp2)

The development of interpersonal trust over time

GPs had strongly-held beliefs that a secure level of patient trust took time to establish, and depended on repeated consultations with successful outcomes.

I think it's a question of something that's built on with time…it probably takes several consultations and probably with a reasonable outcome as well. If it happened to be the consultation in which you make that immense cock-up (laughs) that won't build for a better relationship will it? (pr3gp1)

I would say four or five consultations, and should be good enough. Yeah, a good outcome out of those as well (pr6gp1)

GPs recognised that patients liked the GP to remember them, and were more likely to trust the GP if they felt the GP knew them as a person – i.e. knew about their history and their personal circumstances. Some GPs also felt that the patient getting to know the GP as a person helped patients to trust the GP (for example, knowing about the GP's family, or knowing them as part of the community).

They want to know about your family, what you do, where you live…you're then part of the community, aren't you, they particularly like the fact that I grew up around here…I just think they can trust you, you know, a bit better (pr3gp3)

However, most GPs did not tend to describe patients as getting to know them in this way. Rather, they saw the trusting relationship as being built upon the patient's evaluation of the GP's interpersonal skills, and of the outcomes of their consultations.

I don't think the patient has got to know the doctor that well. I feel the patient has got to like the doctor and feel comfortable and feel that they're treated properly by the doctor…they just need to trust the doctor (pr3gp4)

This asymmetry in the extent to which each party shares information is a particular feature of the GP-patient relationship, although not unique to this relationship.

Validation of the GP – effective medical care

GPs recognised that patient trust built over time when patients experienced positive outcomes from consultations and from their treatment, and that poor outcomes could undermine trust. However, one GP raised concerns about the extent to which patients were able or willing to judge the technical quality of their medical care.

[Patients] are quite happy for me to manage their cases as long as they feel I'm competent at it, but they don't test that competence in any objective or sensible way (pr3gp3)

He emphasised that patients were more likely to rely on interpersonal aspects of the consultation as an indicator that a GP was good and trustworthy, and he pointed out that interpersonal aspects of the consultation were not necessarily accurate indicators of the extent to which a GP could be trusted to act in the patient's best interests.

If you're a nice cuddly lovey doctor who'd do anything for them…they'll love you however bad you are (pr3gp3)

In contrast, a GP registrar described patients explicitly testing his medical knowledge using information that they had found on the Internet.

Some people use [information from the internet] to try to test me, which is a bit irritating. [Laughs, imitates protesting GP] 'I don't need to know about this, it's uncommon, I will look it up if you want me to' (pr3gp2)

It may be that patients were less willing to place trust in him due to his registrar status which meant that he was not a fully trained and qualified GP.

GPs felt that being honest about the limits of their expertise was important in giving patients realistic expectations. Also, because GPs recognised that it could be difficult for patients to judge the quality of their care, ensuring that patients had the opportunity to consult other GPs was seen as important in providing a way in which patients could validate their usual GP:

I do think it is important that patients can have the opportunity to move to somebody else…as a one off just as a confirmation that you are doing OK (pr2gp1)

Validation of patients

As described in the previous chapter, it was clearly important to patients that they were not seen as 'time wasters', in order that they would be seen as deserving of the GP's time and effort. In interviews, some patients worked to demonstrate how they felt they were reasonable users of primary care services who did not over-consult, and it was noted that patients needed to feel validated in the eyes of the GP in order for the trusting relationship to be maintained. Some GPs also recognised this, pointing to the need to maintain the patient's view that the GP trusts them, in order to maintain the relationship.

We do get people where, famous phrase is 'are economical with the truth'. So, and that is a more tricky situation because you don't want to give the impression that you know the patient has been economical with the truth because you don't want to destroy the relationship (pr5gp1)

Repeated interactions reduced uncertainty

Over time, repeated interactions were seen as reducing uncertainty, both for the GP and for the patient. GPs felt that familiarity in itself put patients at ease, and that becoming familiar with each other was as important in building mutual trust.

There is still quite a lot of people who prefer just to see a familiar face really. I suppose it is partly to do with trust and just to do with, we all feel more comfortable if we know somebody (pr2gp1)

We sort of get used to each other's ways, and you can build up a sort of mutual trust (pr3gp1)

GPs recognised that patients usually wanted to maintain continuity with their trusted GP, having more confidence in their trusted GP than in other GPs. For example, GPs noted that their own patients would often come back to see them for confirmation of their diagnosis or treatment if they had previously seen another GP.

They've…waited for me to come back off my holiday and they come in and they tell me they've seen Dr X or Dr Y and they've had his opinion, well they thought they would come and see me, and that's partly because I might have seen them through some illness in the past or whatever (pr3gp3)

c. Outcomes of interpersonal patient trust

When GPs talked about the outcomes associated with a trusting relationship, they raised similar issues to those raised by patients. GPs felt that seeing a patient within the context of a trusting relationship helped the consultation process, and correspondingly, allowed the GP to practise more effectively.

GPs felt that patients were more likely to feel at ease when consulting with a known and trusted GP, and to be willing to disclose information and raise new problems, particularly personal problems or problems they felt anxious about. They also felt that patients would be less likely to delay consulting, particularly with embarrassing symptoms, which could mean earlier diagnosis of serious problems.

[Developing patient trust] can be important in future episodes…if something serious happens you know they might be more likely to come earlier, they might be more likely to think "oh this bleeding problem that I've had from my bottom you know um I'll go and see so and so" cause, you know, they won't feel so embarrassed (pr4gp1)

GPs felt that a trusting relationship meant that patients would be more easily reassured by the GP, and be more likely to accept their advice or treatment:

Because I have built up that relationship of trust or whatever, they may well be guided by my advice a bit better than if they hadn't (pr3gp3)

The better acceptance of advice expected in the context of an ongoing relationship was seen as particularly important for effective health promotion:

Nowadays there is a lot of stress given on stopping smoking, and improve their lifestyle by doing exercise and all that…all the sort of things are important for them improving their health. So if the patient has got good relation with the doctor he will try to take into consideration what he says but if you don't know the patient then he might ignore it (pr6gp3)

d. When is placed trust sufficient?

Again GPs concurred with patients in that they felt placed trust was sufficient for acute minor illness and physical problems; they recognised that patients with emotional or psychological issues (e.g. depression), serious illness (e.g. cancer), or other complex problems such as drug use, were more likely to want and need to see their trusted GP.

[Patients will see another GP if] it's either that they've got an acute illness…they are running out of pills or they need something…it's usually nothing personal so you'll find the patients with depression won't come (pr3gp2)

7.3.2 The GP as trusted: do ongoing relationships promote quality of care?

The second question was: Do repeated interactions make GPs more likely to be willing and able to act in the patient's best interests, and if so, what factors promote GP cooperation? Accordingly the second part of the analysis presented here explores ways in which ongoing relationships promote GP cooperation.

a. Ongoing relationships and quality of care

The analysis of the GP interviews demonstrated several ways in which an ongoing relationship promoted mutual cooperation, and enabled better outcomes for patients. As noted in chapter 6, patients believed that GPs with whom they had an ongoing relationship would be both more able, and more willing, to act in their best interests, and analysis of the GP interviews supported this, providing evidence that repeated interactions both enabled and motivated GPs to give patients better quality of care.

The first and most obvious finding was that GPs felt that repeated interactions with the same patient helped them to provide more effective and appropriate care, in that getting to know a patient's history helped diagnosis and treatment, avoided inconsistency of treatment, meant the patient did not have to retell their story to different GPs, and helped GPs to avoid unnecessary treatment or referral. So, GPs often felt that knowing the patient meant that they were better equipped to act in the patient's best interests. Because of this, GPs felt that patients would be justified in having more trust in a GP

who knew them having the capacity to act in their best interests, and correspondingly lower levels of trust in a health professional who did not know about them or their medical history and who might act in a way that was not in the best interests of the patient:

If I'd got a chronic illness that would be the last thing I wanted… [to] see a different person each time. Who'd go "oh my god I don't know anything about you, or your disease" and... think a bit about it and then use a diversionary tactic which would be a blood test, would be a wait and see (pr3gp2)

Alongside this, GPs recognised that a potential downfall of seeing the same patient repeatedly could be a decrease in monitoring and a possibility of missed diagnoses.

The second finding was that GPs felt that repeated interactions made mutual cooperation more likely. In particular, as described above, they recognised that trust developed in the context of an ongoing relationship. In this context, GPs felt that patients would be more likely to cooperate by sharing information, and by accepting advice and treatment, and that this in turn made it easier for the GP to act in the patient's best interests.

Because GPs believed that patients who trusted them were more willing to accept their advice and treatment, GPs often felt able to deal with problems without unnecessary medication or investigations:

If they have faith in you … I may treat just by talking to a patient not giving a prescription, and there the advice is accepted easily as well (pr6gp1)

Hence, a belief that patients were more likely to cooperate in the context of an ongoing relationship enabled and encouraged the provision of better quality of care.

As discussed earlier in this thesis, as well as involving beliefs about the other's ability to act in one's best interests, trust also involves beliefs about the *motivation* or *intention* of the other to act in one's best interests. Clearly GPs have moral, ethical, and professional reasons for acting in the best interests of all the patients that they see. However, the findings from the interviews indicated that the dynamics of the trusting relationship provided additional intrinsic motivation or incentives for GPs to act in the patient's best interests, and this idea emerged in several guises from the interviews.

Firstly, GPs recognised that being trusted by patients placed a responsibility and obligation on them to respond in a trustworthy way.

They'll trust your judgement better and that brings a big responsibility for me (pr4gp1)
I feel really privileged in having a patient have so much trust in me… and obviously I endeavour to maintain that trust (pr5pt1)

Several GPs described the relationships that they developed with patients over time as central to their identity as a GP, and to their enjoyment of their work. GPs felt a loyalty to their own patients, based on knowing the patient as a person.

I know this is an awful thing to say…because they're registered with my practice, but I just do not feel the same loyalty for other patients as I do for my own…partly because I've seen them, I see them around town or whatever (pr3gp3)

Ongoing relationships provided intrinsic motivation for GPs to act in patients' best interests, as GPs were able to anticipate beneficial outcomes in the future. One source of motivation was the GP's satisfaction in seeing a problem through and solving problems for patients.

You sort people's problems out and they tend to be grateful to you. You tend to feel you've achieved something positive (pr3gp1)

GPs were frustrated when they invested time and effort in planning a course of treatment or management strategy for a patient who did not come back to see them in the future, and thus lost the opportunity for mutually beneficial outcomes.

If you are dealing with somebody with a particular problem and you have a plan in your mind as to what you are going to do … it's frustrating when sort of after two or three visits perhaps if they're not getting better they go and see somebody else, because you have lost that opportunity to take that illness through (pr2gp1)

GPs also described sometimes feeling upset when patients did not return to see them, being concerned that they may have done something wrong to undermine trust, suggesting that GPs sometimes make an emotional investment, as well as investments in terms of time and effort, in their patients.

Relationships with patients, particularly where the GP anticipated future interactions, provided an internal motivation for the GP to invest effort in managing the patient, as described above. However, anticipation of future interactions was also associated with more tangible incentives to invest time and effort in patients. One GP illustrated clearly how anticipation of future interactions with patients meant that he could anticipate future payoffs for himself in terms of saving time in the future, and this acted as a motivating factor. This GP felt that he was less likely to prescribe unnecessarily, and more likely to invest time educating his own patients, as he anticipated mutual benefits in the future. However, he was not willing to invest this time in other GPs' patients, as he did not feel there would be sufficient payoff in the future, particularly in the context of his current practice where he perceived that other GPs were not acting in a similarly cooperative way (i.e. were likely to inappropriately over-prescribe). Because of this he felt that any time he invested in other GPs' patients would be wasted:

I spend a lot of time talking to my patients telling them for example why they don't need antibiotics, and I don't mind if I'm sat here 15 minutes talking of the pros and cons…this is my patient I'm investing in…and really I want to get some of the benefits of that, cause the next time they get a cold they might not come in, or if they do I won't spend as long reiterating the advice about the antibiotics…it's gonna save me some time...you do need incentives like that, otherwise you might as well just say "here, amoxycillin" as soon as you see them coming through the door …I don't wanna be investing that sort of time in other doctors' patients when… [other doctors] dish them out like smarties (pr3gp3)

b. Barriers to acting in the patient's best interests

The analysis also identified some barriers to GPs in acting in the patient's best interest. The key barriers seemed to be lack of time and feelings of overload or burden. GPs were particularly likely to say that they were less willing or able to engage in dealing with emotional or difficult problems when they lacked time or felt overloaded, and described themselves as being more likely to avoid dealing with these problems under these circumstances. Hence lack of time and dealing with emotional overload could be conflicts of interest for GPs in acting in a patient's best interests and could undermine the trusting relationship.

Sounds dreadful but when you are half an hour behind and … they come in and their heads are down and their shoulders are down and they are obviously down…you don't always ask the right questions and create the right openings (pr2gp2)

I've known days when I think … I can't cope with any more problems, I can't cope with anybody else telling me that their you know the relationship's awful or whatever, and then I won't ask… or I'll concentrate on looking down on my notes. (pr4gp1)

Emotional response to a patient (e.g. not liking the patient) could also be a barrier to acting in patients' best interests, and GPs recognised that they needed to be self aware to avoid this:

You won't get on with everybody, and sometimes you won't even like everybody, but … you try not to let it affect the care that you give them, in terms of you try and treat them in the same way (pr4gp1)

However GPs felt that this could sometimes make it impossible for a cooperative relationship to develop, and in these cases they felt it was best to suggest to patients that they should see another GP.

7.3.3 GPs' views of patient cooperativeness

The third question was: how do GPs' perceptions of patient cooperativeness impact on the GP-patient relationship? The analysis of the GP interview data indicated that GPs were more likely to talk about patient non-cooperativeness than cooperativeness. It may be that GPs are more aware of issues around cooperativeness when cooperation is difficult to achieve. This question was revised and developed to ask: what are GPs' views and experiences of patient non-cooperation, and what strategies do GPs use to manage patient non-cooperation?

GPs described a small minority of patients who they felt acted in a way which could be described as non-cooperative, whether by intention or not; misusing their services by consulting for trivial problems, over-consulting, or making inappropriate requests (for example, requesting sick notes or medication when these were not indicated):

Some patients will abuse [the system] and some patients can be quite demanding and insistent (pr2gp2)

In some cases patients were seen as deliberately manipulative or exploitative. GPs felt very negative about patients who they perceived as using the system inappropriately, whilst recognising that their perceptions were subjective, and that a different GP might see the same patient differently.

GPs were anxious not to find themselves in the position of investing time and effort in non-cooperative patients, to their own cost, when they did not feel that this would produce a beneficial outcome. GPs were aware of the need to monitor patients' use of services, and to be sensitive to the likely cooperativeness of patients, in order to avoid wasting time and effort and to work towards ways of achieving cooperation. However, GPs recognised that it could be difficult to spot patients who were using the service inappropriately. In particular, GPs felt they were more vulnerable to manipulation, and less able to spot or avoid problematic service use, when they did not have a history of past interactions with the patient. One GP explicitly stated that he was less trusting of patients he did not know.

I suppose it's a question of trust really, I mean, why I say I'm unhappier with the patient I don't know…They could be asking me for various things that I may feel they perhaps, if I knew them better they wouldn't need really…it's distrust, not distrust but the actual fact you don't know them and they could be hood-winking you (pr4gp2)

Without a history of past interactions, GPs could find it difficult to judge the likely cooperativeness of patients, although this GP noted that judgements based on first impressions could often be relied on.

People who come in and ask for certain things, you can almost immediately, it's this first impression thing you get quite astute at and it's not usually wrong (pr4gp2)

GPs felt that patients sometimes used the strategy of consulting a GP who did not know them, in a one-off encounter, in order to get what they wanted. In this situation the GP

would not have information from previous encounters with which to judge the patient's intentions. One GP described a manipulative patient who consulted her rather than the doctor he usually saw at the practice in order to get what he wanted, then didn't see her again. In this context, the GP did not have any history on which to base a judgement of the patient's trustworthiness, and the patient was able to get what he wanted without retribution in future consultations:

[He] wanted to get out [of his job] on health grounds …and the doctor he usually sees in the practice, would probably have [refused]. I did not realise this till afterwards but I wondered why he'd started to see [me] …After he'd got out, he never saw me again. So I am quite sure that he targeted me, and wept, and manoeuvred me …and I feel I was done really and I did not recognize it soon enough (pr2gp1)

In order to practise effectively, GPs wanted to identify and discourage patients from misusing the service, and to work towards achieving mutual cooperation where possible. Having a history of past interactions with a patient was seen as valuable in that GPs were better able to spot and manage over-demanding patients, for example, through being aware of patterns in a patient's consulting behaviour:

I know that is how her psychiatric symptoms present themselves [so] I can talk to her and say "look I don't think this is a problem for you, don't you think it is because you're feeling like this"…Whereas if she came to see one of my partners who does not know that then they would probably deal with that presenting complaint, they would organise scans, they would get her seen, and she actually does not need that because that just perpetuates the problem (pr2gp1)

This quote illustrates the importance of continuity in managing a difficult patient: because the GP knows the patient's history, and the patient trusts the GP, the GP can manage the problem more effectively than an unfamiliar GP, with the benefit that the patient is more likely to accept and cooperate with her advice.

In fact, GPs explicitly described continuity as an important tool for managing inappropriate use of service, such as high levels of requests or unresolved problems.

We have manipulative patients…the patients who'll come in and try and get one thing off one doctor and if they don't do it then they'll go and see somebody else and see if they can get it, and sometimes it's good to … get some kind of continuity going so that you can sort something out for them (pr4gp1)

Relationship building was seen as a way of engaging patient cooperation, and GPs felt that it was sometimes more important to work on developing a trusting relationship than dealing with immediate problems. This was important when patient trust was low, for example, in the case of patients who had consulted several different GPs without their problems being resolved, or when patients had been uncooperative in the past:

If they've been swapping around a bit…that's usually a good indicator that there's something else going on and they're not happy. And that's when building a strong doctor-patient relationship at the beginning - maybe not addressing the problem …[is] more important (pr3gp2)

In the context of an ongoing relationship, the anticipation of future interactions gave GPs more flexibility in dealing with patients who were unwilling to cooperate. GPs described making compromises in what they wanted to achieve in a single consultation in order to achieve a successful short-term outcome, and to leave the way for dealing with the problem in the future.

They may have a fixed agenda when they come to see you and they want that agenda sorted out and they want to disappear after that they may not like you sort of probing around …There's very little you can do besides …say "well there's no point at this consultation, maybe next time" (pr5gp1)

GPs felt that patients would not accept confrontation or the addressing of difficult issues outside of a trusting relationship:

You can't confront someone the first time you see them, cause they'll just tell you to sod off and go elsewhere! (pr3gp2)

Once a trusting relationship was established, GPs felt that it was possible for them to address difficult problems, and to challenge patients, as patients would be more willing to be vulnerable, and more willing to take on board the issues and suggestions raised by the GP.

I will try to be fairly open with them, I reflect things back to them which they find quite challenging…so if you are going to do that …they have got to be able to trust you, and know that you're gonna be there for them next time (pr3gp3)

Overall, this meant that GPs sometimes invested time and effort in the short term, with the expectation that, in the long term, a trusting relationship would enable more effective care and mutually beneficial cooperation.

One GP recognised that, when patient trust or willingness to cooperate was low (for example, if the patient had had difficult experiences, or had been uncooperative in the past), it could be difficult to build a relationship. In these circumstances, this respondent felt that it was important for GPs to explicitly demonstrate their trustworthiness in order to build a trusting relationship with a patient. This particular GP described a strategy of initially giving patients more, in terms of time or investigations, than they needed, with the expectation that the patient should reciprocate this cooperation initially extended by the GP. The GP emphasised that the initial cooperation extended by the GP was conditional, placing an obligation on the patient to reciprocate (i.e. I will cooperate with you but I expect cooperation in return). The GP felt that his initial investment would have long-term payoffs as he would then be able to tackle difficult issues and gain compliance from the patient as a result of building the relationship:

To an extent – I will give something to you…so I will give you that fact that you maybe want an ECG and I will do that. But I only give so much, and as a result they should give some as well (pr3gp2)

However, it was not always possible for GPs to establish relationships with every patient. As noted above, GPs recognised that their cooperation with a patient was conditional, and that, for a relationship to develop, the patient should be willing to

reciprocate this cooperation. In general, developing and maintaining a trusting relationship involved the expectation on the GP's part that the patient would be willing to engage in cooperation by using the system appropriately, being open, listening, engaging in negotiation, and accepting advice. If a patient was not willing to engage in cooperation with the GP, then this was a barrier to establishing a relationship.

Interviewer: Do you ever find that there are some patients that you can't establish a relationship with?
GP: Very few yeah. But there are some sort of patients like that who…just ignores the doctors advice or whatever it is … Whatever the doctor says to him, you know, if he doesn't follow the instructions then he's not going to improve (pr6gp3)

Although GPs emphasised the value of continuity in establishing a trusting and mutually cooperative relationship, they also recognised that there was a tension between the value of continuity, and the importance of allowing patient choice - with the idea that a trusting relationship is voluntary.

Interviewer: Is it important to you that you do see your own patients exclusively?
GP: Well I leave it exactly to the patient … because it is very difficult to have a partnership and then to impose this view – we might as well not have a partnership then (pr5gp1)

7.3.4 Additional analysis – disadvantages of the trusting relationship

GPs clearly felt that a trusting relationship had significant benefits for patients and for GPs themselves. However, in an attempt to explore negative cases, the analysis also

aimed to identify disadvantages and problems associated with trusting relationships. Caring and motivation to act in the patient's best interest were important for maintaining a trusting relationship, however, this caring could be a burden on GPs, who found they could become personally involved, and emotionally overloaded:

I take patients home with me. I think about them and worry about them and chase them up and try and find out what's happened …and sometimes I put too much on myself (pr4gp1)

Also, some GPs felt that an ongoing relationship could have downsides in that patients were more likely to become dependent, use the system more than necessary, take up extra time in the consultation with too much chat, or make inappropriate demands that were difficult to refuse.

It becomes too cosy and too easy, and therefore, demands are made which are inappropriate but which when a more informal way of dealing with things has developed it is harder to say no (pr2gp1)

Thus a trusting relationship could lead to patients expecting higher levels of cooperation from the GP, and to the GP finding it difficult to refuse to cooperate, even when cooperation was not in the best interests of the GP and the patient.

GPs described some strategies they used to deal with the higher levels of demand associated with the ongoing relationship. Firstly, GPs described the importance of

professionalism and setting clear boundaries – this helped the GP to avoid getting too emotionally involved.

The thing is making sure you keep those boundaries between doctor and patient, and that people don't get too pally, and I'm quite conscious that shouldn't happen (pr4gp1)

GPs also recognised that they could refer to their professional position, and the boundaries associated with this role, in explaining to patients why they were refusing to acquiesce with requests.

Sometimes you have to tell them [what] you think as a doctor…and be very professional (pr3gp4)

Committing to future interactions was also seen as an effective strategy, allowing the GP to deal with demand effectively without destroying patient trust. By committing to future interactions, GPs could show their willingness to care for the patient, while managing the demand within their workload.

I can say to patients 'I am interested in your problem but I haven't got time to deal with it today. Come back'… I can do that without offending people and they will come back, most of the time (pr4gp1)

7.4 Discussion

7.4.1 Principal findings

The first section of this analysis (section 7.3.1) described GPs views on patient trust. GPs recognised that patients placed trust in them, and felt that they could help to promote patient trust in initial consultations through being friendly and open with the patient and giving the patient enough time, and through letting the patient know that they would be willing to see them again in the future. However, GPs tended to talk about trust in the context of a trusting relationship. GPs felt that a trusting relationship takes time to develop, and depends primarily on the patient experiencing good outcomes from their consultations over time. However, there was recognition that patients may not be willing or able to objectively judge the technical quality of their care but instead may rely more on their subjective or emotional evaluation of the GP. Liking and feeling comfortable with the GP, and becoming familiar with the GP were also seen as important for patient trust. GPs felt that developing and maintaining a trusting relationship involved both the GP acting in the patient's best interests, and in turn, an expectation on the part of the GP that the patient should be willing to cooperate.

The second section of the analysis (section 7.3.2) concerned whether repeated interactions promote GP cooperation. The findings suggested that the dynamics of ongoing relationships both enabled and motivated GPs to give patients better quality care. Firstly, GPs felt that getting to know the patient's medical and personal history enabled them to give more appropriate care. Secondly, GPs concurred with patients in their belief that a trusting relationship made patients more likely to cooperate with the GP. GPs felt that patients would be more willing to accept vulnerability – to consult the GP with sensitive or embarrassing problems, and to disclose personal information. GPs

also strongly felt that patient trust was associated with better patient acceptance of advice or treatment. Because GPs felt that patients who trusted them would be more likely to cooperate with them, GPs reported being more willing and able to act in the patient's best interests in the context of a trusting relationship especially where there was a risk of wasting their time and effort, for example, taking time giving advice rather than prescribing, or addressing difficult issues. Thirdly, ongoing relationships were seen as providing intrinsic rewards for good quality care in term of satisfaction for the GP in resolving, or managing, a patient's problem. Finally, there was also a suggestion that ongoing relationships were associated with the expectation of tangible rewards, in particular, the opportunity to save time in the future by investing time and effort in a patient *now*, and this acted as an incentive for good quality care. Lack of time and emotional overload could act as barrier to acting in patients' best interests.

The third section of the analysis (section 7.3.3) described GPs' views on patient non-cooperation, and their strategies for managing non-cooperation. GPs recognised that patients were not always willing to cooperate with them, and that a small number could be manipulative and misuse the service. GPs felt that they were more vulnerable to manipulation by patients who consulted outside the context of an ongoing relationship, and recognised that patients sometimes used the strategy of consulting an unfamiliar GP to get what they wanted. Correspondingly, encouraging continuity and building a trusting relationship was seen as a way of engaging patient cooperativeness and managing difficult patients. GPs recognised that it may be important to initially demonstrate their willingness to cooperate with a patient, in order to build patient trust, and that it was difficult to build relationships if patients were not willing to engage in cooperation.

As trusting relationships were overwhelmingly viewed as beneficial for patients and GPs, additional analysis aimed to explore whether there were any disadvantages or problems associated with trusting relationships. GPs recognised some possible negative aspects of trusting relationships, the first being that relationships could be an emotional burden on GPs, and the second being that trusting relationships could be associated with raised patient expectations. GPs described strategies for dealing with these problems, including professionalism, setting boundaries, and committing to future interactions.

7.4.2 Limitations of the study

This study involved the secondary analysis of interviews, carried out in 2000/2001, as part of the Personal Care Study. The advantages and limitations of carrying out a secondary analysis were discussed in the chapter 6, and the advantages and limitations apply equally to the analysis reported in this chapter. However, an additional limitation for the analysis of the GP interviews should be noted – the number of interviews available. In the original study, only 13 GP interviews were carried out. One of these interviews was not available for inclusion in the current study as the interview was not tape recorded, and the written notes were not detailed enough to allow inclusion. Out of the 12 remaining interviews, no transcript was available for one further interview as the GP refused to allow the interview to be taped. In this case fuller notes were available, and these were reviewed as part of the analysis. However, as note taking is necessarily selective, the notes focussed primarily on issues relevant to the aims of the primary study, and the notes were felt to contribute minimally to this analysis.

The small number of interview transcripts available is more problematic in the context of a secondary analysis, as there is often a smaller amount of information in each

interview relevant to the aims of the secondary analysis than to the primary analysis. Although it was felt that there was sufficient information in these GP interviews to allow an exploration of GPs' views of patient trust and cooperation, the breadth and depth of the data available was limited. The analysis identified some interesting themes in relation to GPs' views of patient trust, GP motivation, and patient cooperation, which produced a coherent and plausible picture. However, some issues were raised by only one or two GPs in the sample, and this means that the possibilities for developing and testing themes were limited. For example, the descriptions of GPs' views of patient trust are less well developed in this analysis than the descriptions of patient's views of trust presented in chapter 6. Also, issues around the factors identified as motivating GPs to act in patients' best interests emerged spontaneously in interviews, but this issue was not explored or prompted for in the original interviews, meaning that this issue was not raised in all of the GP interviews. As such, rather then being seen as definitive these findings should be seen as suggestive of areas to be explored and tested through further research.

7.4.3 What does this study add to previous research?

a. Patient trust

The literature review carried out for this thesis identified that there was much research into patient's views on trust, but little previous research on GPs' views of patient trust. This might be expected, as a better understanding of a concept comes from exploring its meaning to those who experience it. However, it is valuable to explore GPs' views of patient trust, as their beliefs about how patient trust is produced, and the outcomes associated with patient trust, is likely to impact on their practice. GPs tended to focus

on trust development as an integral part of developing a GP-patient relationship, and the findings from this study concurred with those of Mainous et al. (2003), who found that GPs described relationship-building, and initial friendliness and rapport, as important in building patient trust.

Overall, GPs' views of patient trust concurred with the views expressed by patients in chapter 6. However, GPs were clear in their beliefs that it took several consultations to establish trust, and to some extent this differs from patient's descriptions of trust in the previous chapter. Patients tended to describe high levels of initial trust, which was validated and reinforced by their experiences with their GP. This suggests that GPs understand patient trust primarily in terms of secure trust established in the context of an ongoing relationship. GPs seemed to be less likely to consider trust outside of the context of an ongoing relationship. This may in part reflect the differing experience of patients and GPs of the GP-patient interaction. Patients experience trust as an internal cognitive or emotional phenomenon and can reflect on their own experiences and levels of trust, in both unfamiliar and familiar GPs and at different stages of a relationship. However, trust is experienced by GPs only at a second level in terms of its manifestation, and as such GPs may only be aware of trust where it has an impact on the GP-patient interaction or on patient behaviour. Following on from this, trust is most likely to be evident when it is particularly low or high, and in these cases may be evidenced by higher willingness, or unwillingness, to cooperate. Unless trust is particularly well developed, or particularly low, it is unlikely to be evident to the GP as an important factor in the interaction, and this is reflected in the fact that GP accounts tended to focus on beliefs about the benefits of a trusting relationship, and the need to build trust when patients were unwilling to cooperate.

b. Repeated interactions and quality of care.

It has been argued from a range of perspectives that ongoing GP-patient relationships are associated with better quality of care, and there is some empirical evidence for this, in that continuity has been found to be associated with lower levels of referral and hospitalisation, and greater experience of preventative services (Cabana & Jee, 2004; Saultz & Lochner, 2005). The main reason suggested for this is that the GP's increased knowledge of the patient makes diagnosis easier, and allows the GP to give more appropriate and effective care. Hjortdahl found that GPs felt that the accumulated knowledge associated with seeing a patient over time was clinically useful for diagnosis and management (Hjortdahl, 1992a), and was associated with saving time in the consultation, the use of fewer tests, more expectant management, less prescribing, more use of sick certification, and more referrals (Hjortdahl & Borchgrevink, 1991). Hjortdahl (1992b) also found that GPs' sense of responsibility towards their patients increased with the duration and frequency of visits. Improved patient compliance with, or adherence to, treatment in the context of a trusting relationship is also believed to be an important factor (e.g. Bonds et al. 2004). Ridd, Shaw, and Salisbury (2006) also concluded from their qualitative study that GPs felt that personal continuity enabled them to give better quality of care, as a result of their personal knowledge of the patient, increased patient trust, and the therapeutic effects of the relationship. The value of ongoing relationships to GPs in terms of getting to know a patient, which facilitated diagnosis and treatment making it easier for GPs to act in the patient's best interests, and in turn promoting patient acceptance of advice or treatment, was identified by the GPs in this study.

These values of ongoing relationships are highlighted by Balint (1964), who suggested that the doctor-patient relationship can build into a 'mutual investment company', in which there is valuable capital invested in the relationship for both the patient and the doctor. He suggested that the mutual understanding developed over time means that the doctor is able to act more effectively for the patient, achieving a deeper diagnosis of the patient's problems, and acting as a therapeutic agent or 'drug doctor', and in turn the doctor can educate the patient and shape the patient's responses in terms of acceptance of advice or treatment. These payoffs from the GP's and patient's investment in the relationship mean more effective care.

Similarly, Gutek (1999) argues that ongoing relationships between service providers and their customers/clients are unique contexts in which 'high quality delivery of service can be maintained simply by the dynamics of the relationship' (Gutek et al., 1999, p. 219). This study identifies additional mechanisms inherent in repeated interactions that, from a GP's point of view, both enabled and motivated them to give better quality of care.

Firstly, GPs felt that they were more willing to invest time and effort in managing a patient in the context of a trusting relationship because they felt that the patient would be more likely to accept their advice or treatment in this context. Although this has not been explored in previous research into the GP-patient relationship, the initial review of game theory research suggested that cooperation is influenced by beliefs about the likely cooperativeness of the other, and this finding suggests that the expectation of higher levels of patient cooperation in the context of a trusting relationship may have an impact on the care given by the GP.

Secondly, GPs recognised that being trusted by patients placed a responsibility on them to respond in a trustworthy way, as pointed out by Arrow (1963), and identified by Ridd et al. (2006).

Thirdly, the anticipation of future interactions associated with an ongoing relationship provided an incentive for the GP to act in the patient's best interests. GPs gained intrinsic rewards from the satisfaction of seeing problems through, and this was a motivating factor. Also, there was a suggestion that GPs could anticipate tangible payoffs in the future, in particular, the possibility of saving time in future consultations. Both Gutek (1995) and Batifoulier (1997) point to anticipation of future interaction as a key factor in incentivising service providers to provide good quality care. They argue that anticipation of future payoffs for trustworthy behaviour, or recrimination for untrustworthy behaviour, are incentives for service providers to provide good quality care. This theme was not well developed in the analysis of the GP interviews, as it was not an issue which was explored or probed in the original interviews, however, the finding is echoed in patients' reports of lower trust in GPs whom they did not expect to see again, and beliefs that in this situation GPs had fewer incentives to act in the patients best interests. The impact of anticipation of future interactions on quality of care would be a valuable avenue for future research.

In summary, it has been argued in the past that ongoing relationships can be intrinsically therapeutic for patients, and can enable better quality care through the GP's development of personal knowledge about the patient, and promoting patient adherence to treatment. The findings from this study also suggest that repeated interactions have dynamics which act as motivators or incentives to GPs to give patients better quality of

care. Both the investment involved in building the trusting relationship, and the anticipation of future payoffs, act as incentives for GPs to act in patients' best interests.

c. Uncooperative patients and continuity

Previous research has touched upon GPs' trust in patients, noting that in general there is less vulnerability associated with GPs' cooperation with patients, hence GP trust in patients is less of a concern than patient trust in GPs (Govier, 1998). However it has been recognised that doctors may have a range of valid reasons for distrusting patients (Rogers, 2002). It is clear from this study that there can be a level of risk for GPs, in that GPs were aware that patients could be uncooperative, and could misuse and exploit the system. Cooperating with the patient could potentially mean being exploited, or wasting time and effort on uncooperative patients. GPs wanted to avoid this, and to work to achieve mutual cooperation.

One problem GPs particularly identified was that they were less well able to judge patient's intentions when they had not consulted with the patient before, and were aware that patients sometimes exploited this by choosing to see different doctors in order to get what they wanted. This phenomenon has been referred to as 'doctor-shopping'[4], in the context of patients actively abusing the system to achieve prescription drugs, and more broadly as 'doctor-hopping' (e.g. McAlister & McPartlin, 2002) which also refers to patients who move from GP to GP due to dissatisfaction with their management. One GP explicitly described having lower trust in patients he did not know.

[4] http://en.wikipedia.org/wiki/Doctor_shopping

GPs recognised that continuity provided an opportunity to build patient trust, and could be used as a tool to engage patient cooperation. GPs felt that building a relationship when patient trust or willingness to cooperate was low could require the GP to work to demonstrate their trustworthiness to the patient, but also involved an expectation that the patient should be willing to reciprocate this cooperation. They recognised that it could be difficult achieve a good outcome if patients were not willing to cooperate to any extent with the GP.

d. Negatives of the trusting relationship

GPs in this study felt strongly about the value of, and the positive outcomes associated with, ongoing relationships with patients, and described using continuity as a tool to manage difficult patients. Although trusting relationships with patients were valued by GPs, GPs also felt that there could be negative aspects of trusting relationships. As noted by Arrow (1963), trust places an obligation on the trusted to respond in a trustworthy way. The findings from this study suggest that patient trust places obligations on the GP to reciprocate this trust with cooperation, and this could be a positive force, motivating GPs to act in the patient's best interests. However, this obligation to respond to trust could also lead to raised patient expectations of cooperation from the GP, and in turn could mean that it was more difficult for GPs to refuse to cooperate with patients in the context of a trusting relationship.

Chew-Graham, May, and Roland (2004) describe more problematic examples of this collusion, based on a number of qualitative studies of patients consulting with complex chronic problems (see May et al. 2004). While recognising that the development of satisfactory doctor-patient relationships can be positive and beneficial for many patients, they argue that the doctor-patient relationship is not always therapeutic. They

find that, in the case of patients with complex chronic problems, GPs can feel powerless, and can become locked into collusion with patients in maintaining unproductive patterns of interaction. They caution against elevating the doctor-patient relationship to a goal or outcome of every consultation. Stokes, Dixon-Woods and McKinley (2003) also emphasise that ongoing GP-patient relationships can be problematic if a patient places high and inappropriate levels of demand on a GP, or if difficulties within the relationship cause the GP to lose their sense of affective neutrality.

A second, negative aspect of the trusting relationship was also identified by GPs. A supportive, caring relationship is clearly beneficial for patients, but could place high levels of emotional demands on GPs. GPs described becoming emotionally involved with their patients, and worrying about them outside of consultations.

The findings from this study suggest that, while recognising the beneficial aspects of GP-patient relationships, it is important that GPs are aware of the negative aspects, and have strategies to manage these in order to practise more effectively.

7.4.4 Further research

There is a dearth of research into GP's views of their relationships with patients – in particular, research on continuity and trust has tended to focus on the meaning and value of these concepts to patients. The literature review did not identify any papers exploring GPs' understandings of patient trust, and this gap in the literature was also identified by Calnan and Rowe (2004). One paper was identified which explored how GPs work to develop patient trust (Mainous et al., 2003), and further research in this area would be

of value. As discussed above, there are issues around how GPs might assess patient trust, as they do not experience trust first-hand. There would be value in further qualitative research into GP's understanding and experience of trust, with a particular focus on how GPs recognise patient trust, or lack of it, and how they respond to this.

The key finding of this interview study was that GPs highlighted ways in which the dynamics of relationships with patients provide motivation and incentives to act in patients' best interests. Of particular interest was the suggestion that anticipation of future interaction can act as a motivating factor for GPs. This was also suggested in patient interviews, and hypothesised from the review of game theory literature. However, as noted above, this theme was not explored in depth in the original interviews, and there would be value in further qualitative research into the extent to which, and the mechanisms by which, the dynamics of the GP patient interaction impact on GPs' ability and motivation to provide good quality care.

7.5 Conclusion

This qualitative study of GPs' views of trust and cooperation in primary care identified that GPs hold similar views to patients on the development of patient trust, however GPs tend to understand trust in terms of secure interpersonal trust developed as part of an ongoing relationship. GPs recognised that good care outcomes, and interpersonal aspects of their interactions with patients, influenced patient trust. GPs valued ongoing relationships with patients, and described a number of ways in which ongoing relationships both enabled and motivated them to act in the patient's best interests, and

helped to achieve mutual cooperation. Maintaining continuity was a strategy that GPs used to engage patient cooperation. However, GPs also recognised negative aspects of ongoing relationships, primarily the difficulties of raised patient expectation, and the potential for greater emotional demand on the GP.

This study has added to the literature by describing GPs' views of patient trust, by identifying mechanisms by which repeated interactions can lead to better quality of care, and identifying that GPs use continuity as a strategy to engage patient cooperation.

The following, final, chapter will discuss the findings of the thesis as a whole in the context of the literature reviewed in chapters 1 and 2, discuss the implications of the findings for policy and practice, and outline additional suggestions for further research.

Chapter 8

DISCUSSION

8.1 Introduction

The aim of this thesis was to explore the relationship between continuity, trust and cooperation in primary care, and to develop a model of trust and cooperation in the GP patient relationship, and the role of repeated interactions in producing these outcomes.

The thesis argues that, in the context of GP-patient interactions, repeated interactions tend to facilitate the development of trust and mutual cooperation. In chapter 4, a survey is reported that tests game theory predictions about the relationship between aspects of continuity and patient trust and cooperation. The survey findings illustrate the value of a game theory model and generate new findings, particularly in relation to continuity and trust. Chapters 6 and 7 present an analysis of qualitative data that builds on the findings of the survey. Patients' experiences of trust, and the relationship between trust and cooperation, are explored in chapter 6, and patient trust and aspects of mutual cooperation are explored from GPs' points of view in chapter 7.

In this final chapter, the findings of the studies are brought together. Section 8.2 includes a discussion of methodological issues. The contribution of this thesis to the current literature on the GP-patient interaction is discussed in section 8.3 in which a model of the relationship between continuity, trust, and cooperation in primary care is presented, and the application of game theory as a model of the GP-patient interaction is

discussed. Implications of the findings of the study for policy and practice are outlined in section 8.4, and suggestions for further research in section 8.5. This chapter concludes by summing up the contribution of this thesis.

8.2 Methodological issues

This thesis includes a literature review, a quantitative study involving a survey of patients to test preliminary hypotheses derived from the literature review, and two qualitative studies of patients' and GPs' view on trust and cooperation, and this final chapter brings together the findings from all these aspects of the thesis to inform a tentative model. This section will firstly discuss the philosophical debate surrounding the use of complementary quantitative and qualitative data, and clarify the rationale for incorporating both quantitative and qualitative aspects into this thesis. Secondly, issues around the measurement of the key concepts of trust and cooperation in context of the survey will be discussed, and thirdly the methods of secondary analysis of qualitative data and the deductive analysis approach used in the qualitative analysis will be briefly evaluated.

8.2.1. Using both qualitative and quantitative data

Murphy et al. (1998), in their review of qualitative research in health technology assessment, draw on the work of Hammersley (1997) and outline two polarised views of qualitative and quantitative research: the 'paradigm' approach and 'methodological eclecticism'. The 'paradigm' approach assumes that qualitative and quantitative research are based on fundamentally different paradigms, with different basic

philosophical assumptions about reality, knowledge and truth. It has been argued that quantitative research is based on the assumptions of scientific realism (i.e. that reality exists independently of the observer, and that it is possible to establish universal truths or laws about reality), whereas qualitative research rests on essentially idealist or constructionist assumptions (i.e. that multiple, socially or individually constructed realities exist, and the idea of universal truths or laws is rejected). Taking this 'paradigm' perspective, qualitative and quantitative research are seen as incompatible.

The second 'methodological eclecticism' perspective argues that the choice of qualitative or quantitative methods should be made on purely instrumental and pragmatic grounds. Murphy et al. (1998) put forward a strong argument that qualitative and quantitative research are not necessarily characterised by different philosophical assumptions or dichotomous logical approaches. Hammersley (1997) himself considers the 'paradigm' approach unhelpful and argues for the perspective of 'subtle realism', which recognises that reality exists outside of the observer and can be knowable, but that knowledge is socially constructed and that multiple non-competing descriptions and explanations of the same phenomenon are possible. This perspective could be seen to underlie both qualitative and quantitative research, and taking this perspective, qualitative and quantitative research can be viewed as potentially complementary 'mutually enriching partners' (McKinlay 1993, p. 118), rather than being diametrically opposed.

In this thesis, a pragmatic perspective on the use of qualitative and quantitative methods is taken, in which it is recognised that each contributes in different but valuable ways to the development of the game theory model of the doctor-patient interaction. This

approach can be broadly referred to as 'mixed-methods'; Cresswell, Fetters, & Ivankova (2004) describe mixed methods research as research in which qualitative and quantitative data will be integrated, related, or mixed at some stage of the research process.

The rationale for including both quantitative and qualitative aspects in this thesis centres on the complementary nature of the two approaches. It is argued that different types of methodology are best suited to different types of research questions, and using both broadens and deepens the research. The survey enabled quantitative testing of some of the broad principles derived from game theory, in the context of the GP-patient interaction. As well as generating some valuable findings on the relationship between aspects of continuity and trust, the survey contributed to the thesis as a whole in two further ways. Firstly, the findings from the survey acted to confirm the validity of key game theory principles in the context of the GP-patient interaction, supporting the use of game theory principles to build a model of continuity, trust and cooperation in primary care. Secondly, findings from the survey prompted a focus in the qualitative study on exploring the processes behind the significant relationships identified in the quantitative survey. In particular, exploring the relationship between anticipation of future interactions and trust, and the role of interpersonal skills in promoting trust. The analysis of the qualitative data helped to refine and add depth of understanding to themes based on game theory, and made a significant contribution to the development of the model presented in this chapter.

8.2.2. The measurement of trust and cooperation in the survey

The survey reported in chapter 4 aimed to operationalise the central concepts identified

from game theory (continuity, trust, and cooperation), and to test hypotheses about the relationship between these concepts. The value of the survey findings hinges on the adequacy of the way these concepts were conceptualised and measured. Some of the problems with the way in which trust and adherence were measured in the survey are discussed in section 4.4.2. In particular, specific limitations of existing trust scales, and the problems associated with using a simple global measure of adherence were highlighted, and it was noted that these problems limit the value of the findings from the survey. This section will discus broader issues relating to the limitations of the way trust and cooperation were operationalised and measured in the survey.

a. The measurement of trust

The first issue relates to the scales currently available to measure trust. There were difficulties in selecting a trust scale to use in the questionnaire. In the pilot study, the Patient Trust in Physician Scale (Thom et al., 2002) was chosen. However, pilot results from this scale were highly positively skewed and showed a high proportion of missing responses on some questions. The Patient Trust in Physician Scale was developed in the US, and it was felt that the measure might not be as appropriate for the UK context, especially the question relating to putting medical needs above costs. As it was felt that this scale was not performing well, an attempt was made to identify a more suitable scale. The Wake Forest Interpersonal Trust in a Physician scale (ITPS) (Hall et al., 2002) had been shown to have better psychometric properties than other trust scales, and was available in a short 5-item version. Although this questionnaire was also developed in the US, the questions in this scale seemed more appropriate to a UK context, so this scale was selected for use in the full study. However, trust scores obtained in the full study via the ITPS were still positively skewed.

These problems highlight two concerns with the use of existing scales in future research in UK primary care. The first relates to the applicability of scales developed in the US to the context of UK primary care, particularly because of the fact that in the UK primary care is free at the point of provision, whereas this is not the case in the US. Secondly, existing trust scales tend to produce relatively uniformly high scores, and this may be due to limitations in the way trust has been conceptualised and operationalised. Some specific issues relating to the limitations of trust scales have been described in chapter 4, including the lack of distinction between interpersonal care and trust, and the focus on measuring trust solely in the context of an established relationship. The qualitative analysis of the development of patient trust, described in chapter 6, points to a more fundamental criticism of existing trust scales.

Existing trust scales such as the Patient Trust in Physician Scale (Thom et al., 2002), and the ITPS (Hall et al., 2002) are designed to measure broad, attitudinal aspects of trust. However, the findings from patient interviews on the development of patient trust highlight the complexity of trust, and the inadequacy of considering trust purely as a broad and stable attitude. The findings suggest that initial levels of trust tend to be high, even when patients consult unfamiliar GPs. However, the nature or basis of trust may change over time, from being initially rational and relatively fragile, through to being affect-based, robust and stable. The study suggests that it is the changing *nature* of trust that can lead to positive outcomes, and highlights the need for further research into developing trust scales which are sensitive to the complexity of trust. This issue is discussed further in section 8.5.1.

The fact that trust scales focus on broad trusting attitudes means that only limited

conclusions can be drawn from the survey, although it can be concluded that aspects of continuity are associated with a patients' broad attitude of trust in a GP.

b. The measurement of cooperation

The second issue to be discussed relates to the operationalisation of the concept of cooperation in the survey. The game theory perspective, which underpins this thesis, revolves around the notion of mutual cooperation as the overall best outcome. In the survey, it was decided to operationalise patient cooperation in terms of adherence (the patient's acceptance of the GP's advice or treatment) in order to provide a focus for data collection. However, it is important to recognise that there are limitations to the use of adherence as a proxy for cooperation. Firstly, there are questions around whether self-reported acceptance of advice or treatment genuinely reflects cooperative behaviour by the patient. Secondly, patient cooperation clearly encompasses broader issues than just adherence to treatment, including legitimate and valid use of services, (honest) disclosure of information, and willingness to engage in negotiation and discussion with the GP, and these issues were highlighted in the analysis of both the patient and the GP interview data. Thus the survey is limited in that it focuses only on one aspect of patient cooperation – that of adherence.

8.2.3. Secondary analysis of qualitative data and the deductive analysis approach

The two studies presented in chapters 6 and 7 of this thesis involved secondary analysis of data collected by the researcher and colleagues as part of an earlier study into personal care in general practice. The benefits and limitations of a secondary analysis have been discussed in detail in chapters 5, 6 and 7. Secondary analysis has two main benefits. Firstly, as no data collection is involved, the use of time and resources is

greatly reduced in comparison to a study involving the collection and primary analysis of qualitative data. Secondly, primary qualitative analysis often focuses only on specific aspects of collected interview data, and secondary analysis gives the researcher the opportunity to make maximum use of the data by exploring themes and issues which are present in the data but not central to the primary research question. The main limitation of secondary analysis is the fixed nature of the data, in that the analysis is restricted by the available data. This was felt to be less of a problem in the analysis of patient interviews, as more interviews were available, and aspects of the GP-patient relationship, and trust and cooperation, were discussed extensively. The fixed nature of the data was more of a problem for the GP analysis, where there were fewer interviews, and some themes or issues were raised in only a small number of interviews.

The analysis of the qualitative data was undertaken using a deductive approach. The tradition of qualitative research as inductive rather than deductive reflects the concern that, in doing qualitative analysis, researchers should avoid imposing their prior theories on to the data. Instead, it is argued that the validity of qualitative analysis is strengthened by developing themes that emerge from, and are grounded in, the existing data. This argument was emphasised by Glaser and Strauss (1967), and underpins the grounded theory approach to qualitative data analysis. As discussed in chapter 5, it has increasingly been recognised that qualitative analysis is rarely theory-free, and that there is value in researchers explicitly articulating their theoretical position prior to analysing the data (Gilgun 2005). Also, as in the case of this thesis, there is often value in using a qualitative approach to develop, refine or expand on an existing theory, and here a deductive approach is appropriate. However, a potential pitfall of the deductive approach to analysing qualitative data is precisely that argued by Glaser and Strauss

(1967); having articulated the prior theoretical position, researchers must exercise caution in ensuring that the data are not selected and organised in a way that simply fits their prior theory.

In the deductive analysis carried out for this thesis, the researcher attempted to avoid this, and to ensure that the findings were a valid representation of the data, using two strategies. Firstly, transcripts were initially coded using an open coding approach, which aimed to code all segments of text relating to continuity, trust and/or cooperation. The open coding was informed by, but not limited to, the concepts identified from game theory, and thus allowed for unanticipated issues to be included in the analysis. Secondly, throughout the analysis the researcher checked for negative cases, for example, cases where respondents did not describe trust or cooperation being built despite repeated interactions. Gilgun (2005) argues that the search for negative cases is a key aspect of deductive analysis. Thus the analysis presented uses game theory as an organising framework – sensitising the researcher to important themes and links between themes, but the findings go beyond the original understanding provided by game theory, and point to limitations of a game theory perspective, for example, in the case of understanding the development of affective trust.

Overall it is felt that taking a deductive approach to the analysis meant that game theory acted to sensitise the researcher to issues that could be explored in the analysis, and enabled the researcher to start the analysis with an organising set of concepts, and ideas about how these might be related. For example, game theory provides a particular perspective on trust and cooperation in dyadic interactions, and on the process by which trust develops over time. Without the prior organising framework, some of the themes,

and the relationships between them, may not have been identified, or interpreted in the way in which they have been in this thesis.

8.3 Implications for theory

8.3.1 A model of continuity, trust and cooperation in primary care

One of the key aims of this thesis was to develop a model, based on game theory principles, of trust and cooperation in the GP patient relationship, and the role of repeated interactions in producing these outcomes. This section describes a tentative model, based on game theory principles, and informed by the findings of the empirical research reported in this thesis.

Ostrom's (2003) model, described in chapter 1, was taken as a starting point for the development of a model of the processes involved in promoting trust and cooperation in the GP-patient relationship. The findings of the quantitative and qualitative studies were reviewed and summarised, and used as a basis for modifying and extending Ostrom's model in order to more accurately reflect the findings of the primary research carried out in this thesis, and to ensure that the model is relevant to the particular context of the GP-patient relationship.

The findings of the research presented in this thesis can be summarised as follows:
The patient interviews show that patients initially placed relatively high levels of trust in GPs in their first consultation. This was based on assurances provided by the

professional status of GPs, but was also informed by information about the individual GP such as organisational membership, gender, and reputation.

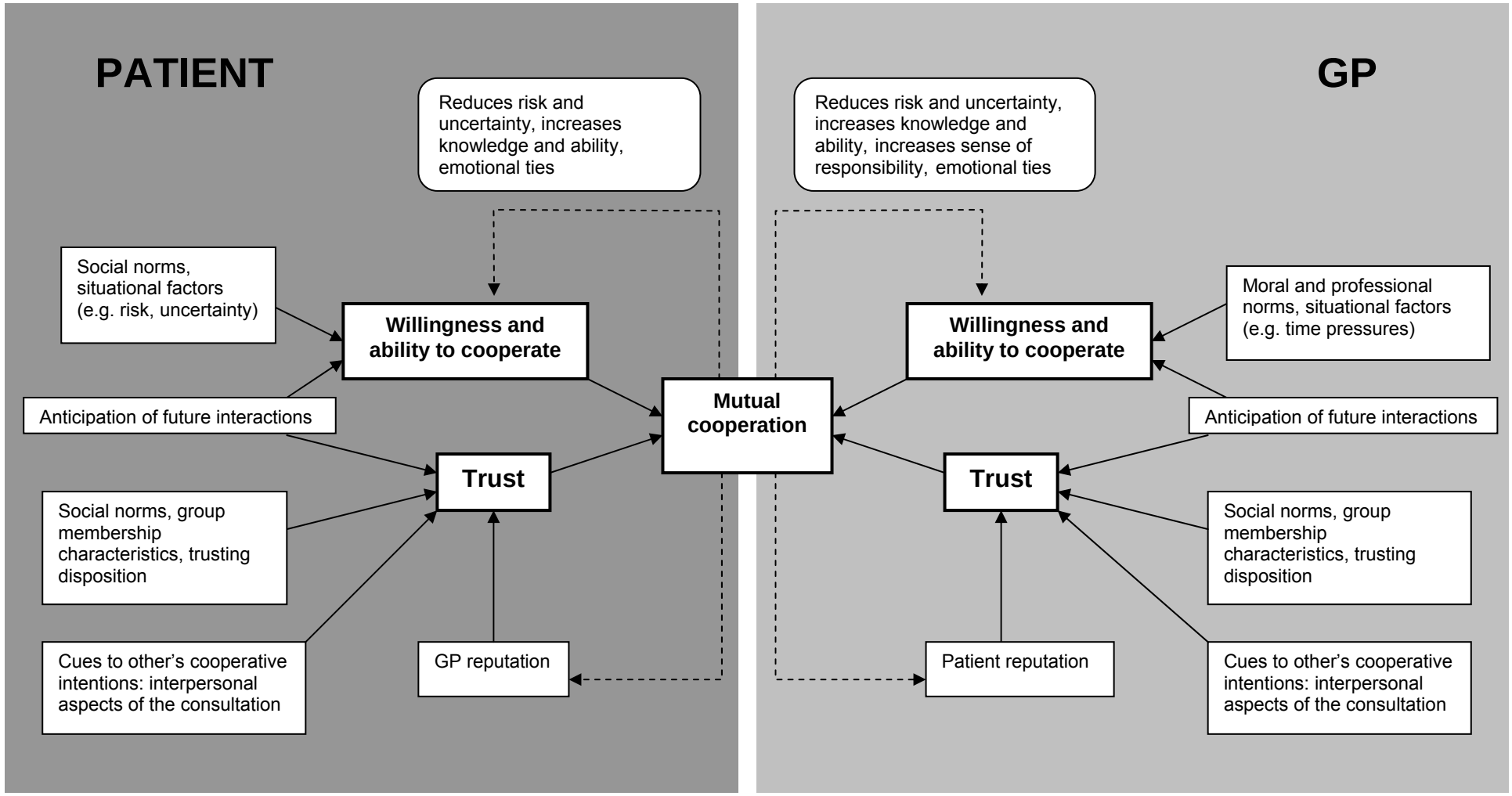
This initial trust was evaluated in the early stages of the relationship, once the patient had experience of consulting the GP. Patients tended to assume GP competence unless there was clear evidence to the contrary, instead citing evidence of the GPs' motivation based on interpersonal skills and evidence of commitment to future interaction as important for the maintenance of trust. The survey found that interpersonal care was most strongly associated with trust, and findings from the qualitative interviews suggest that this is because interpersonal aspects of the interaction are used as cues to the likely cooperativeness or trustworthiness of the other.

The experience, over time, of consulting the same GP meant that both the patient and GP could build up a reputation as cooperative, which reinforced mutual trust. Repeated experiences of mutual cooperation acted to reduce uncertainty about the likely cooperativeness of the other. In the context of repeated interactions, patients felt less uncertainty about whether they would get good care, were less anxious, and had more confidence in their treatment, reducing the perceived risk in cooperating. In this context, GPs were more likely to believe that patients would cooperate with their advice or treatment so were more willing to invest time and effort into acting in the patient's best interests, even at some cost to themselves. The survey found that evidence of cooperativeness in past interactions (the belief that the GP had given the best possible advice or treatment in previous consultations) was associated with trust, along with anticipation of future interactions. GPs felt that repeated interactions promoted patient

trust and cooperation, and both enabled and motivated them to give better quality of care. Over time there was the opportunity for affective-based trust to develop.

Figure 8.1 presents a theoretically and empirically based model of the processes involved in the GP-patient relationship. The model is a considerably extended and refined version of Ostrom's (2003) behavioural game theory model of trust and cooperation in social dilemmas (described in chapter 1). The model has been developed and refined on the basis of the findings of this thesis as summarised above. The model illustrates the factors associated with trust and mutual cooperation, and how trust and mutual cooperation can be promoted over repeated interactions.

Figure 8.1: Model of trust and cooperation in primary care



The arrows indicate direction of influence. Dashed lines indicate the feedback loop which occurs when interactions between a patient and a GP are repeated.

Although much of the research in the field of game theory is based on the Prisoner's Dilemma Game, the model does not make the assumption that all consultations must fit the Prisoner's Dilemma Game. Rather, it is assumed that consultations can described as a dyadic social dilemmas, in which mutual cooperation (in terms of the GP acting in the best interests of the patient, and the patient disclosing information, engaging in decision-making, and following advice or treatment) is a key goal, but in which potential conflicts of interest, risks associated with choosing to cooperate, and each party's uncertainty about the intentions of the other, can act against achieving this outcome. These assumptions relate to the conceptual model provided by the Prisoner's Dilemma game, in which the best possible overall outcome is mutual cooperation, but uncertainty about the intentions of the other individual and potential conflicts of interest exist and can make the achievement of mutual cooperation problematic. However, these assumptions also relate to a wide range of other game structures which may provide better representations of the dynamics of many consultations, and this is discussed in section 8.5.3. Overall these assumptions mean that principles from game theory, and experimental game research into social dilemmas, can be used as a basis for understanding trust and cooperation in the GP-patient interaction. Given this assumption, game theory principles are used as a framework, or heuristic tool, to develop the model in Figure 8.1.

In line with game theory principles (e.g. Kelley & Thibaut, 1978; Ostrom, 2003), the model identifies that the achievement of mutual cooperation depends on both parties' willingness to cooperate, and their trust in the other to cooperate.

For the patient, willingness to cooperate may vary depending on their reason for consulting, in particular, the risk and uncertainty involved, as well as social norms (e.g. beliefs that one should cooperate with a GP). Patients' initial trust is dependent on a range of factors, including general judgements of trustworthiness based on group membership, and trusting disposition. Knowledge of the GP's reputation for cooperativeness (e.g. a patient's family's experience with this GP) also influences initial trust.

For the GP, willingness to cooperate (i.e. motivation to act in the patient's best interest) is argued to be primarily based on moral and professional norms. Willingness to cooperate may vary depending on the extent to which there are conflicts of interest for the GP (for example, time pressures). The model also identifies that GP trust in patients can be a factor in the achievement of mutual cooperation.

For both the GP and the patient, interpersonal aspects of the consultation can act as cues to the likely trustworthiness of the other individual. These include verbal (e.g., cooperative language, Wichman, 1972) and non-verbal cues (e.g., smiling, Eckel & Wilson, 2003). Communication within the consultation also allows for each individual to negotiate and establish mutual cooperative intentions. Also, interpersonal aspects of the consultation can act as cues to how much one is trusted by the other.

Repeated interactions provide the opportunity for a feedback loop to become established (indicated in figure 8.1 using dashed lines), in which trust and willingness to cooperate are reinforced. Patients can establish beliefs about the GP's reputation as trustworthy, and can build up their own reputation for cooperation, thus strengthening trust.

Similarly, GPs can build a picture of the likely cooperativeness of a patient, and can build a trusting reputation, which is valued in eliciting patient cooperation (Ostrom, 2003, points to the central importance of maintaining a reputation as trustworthy in order to elicit cooperation from others).

Repeated interactions also strengthen each individual's willingness and ability to cooperate, through reducing risk and uncertainty, increasing knowledge and ability, and building emotional and affective bonds in which each individual increasingly counts the other's interests in with their own.

The model identifies also identifies anticipation of future interactions as providing an incentive to cooperate (due to the anticipation of future benefits from cooperation), as well as promoting trust (because an expectation of future interactions gives one a reason to believe the other party will be more motivated to cooperate). This association was hypothesised based on game theory (Axelrod 1984), and supported through evidence provided through the quantitative and qualitative research carried out in this thesis.

Thus the model highlights several ways in which continuity in terms of repeated interactions between a patient and a GP can act to reinforce and strengthen trust and help in the achievement of mutual cooperation.

The proposed model emphasises the two-way nature of trust and cooperation in the GP-patient interaction. Thus the dynamics of the relationship, and the reciprocal and recursive nature of the relationship between concepts is apparent. Ostrom's (2003) model, which was drawn upon in developing the model presented in this thesis, did not

represent the relationship between the concepts in this interactive or dyadic way.

Some of the hypothesised relationships represented in the model have not been addressed in detail in this thesis (for example, the role of social norms, and patient group membership, on GPs' trust in patients), although these factors are predicted to be relevant on the basis of theory, and this is why they have been included in the model. This model therefore should be seen as preliminary, and as having value in suggesting hypotheses that would be open to testing in future research.

In particular, it should be noted that the data on GPs' trust and willingness to cooperate, on which the model is based, is relatively weak. The model is informed by the qualitative study reported in chapter 7, however, this involved the analysis of only a small number of GP interviews, which were initially carried out using an interview schedule not designed for the purposes of this study. Thus the amount of relevant data was rather limited. Because of this some of the themes identified were not well developed, and the GP side of the model should be seen as particularly tentative.

There are a couple of further issues relating to the proposed model that merit discussion. Firstly, the model as presented is symmetrical, whereas the GP-patient relationship is asymmetrical in several aspects. Cooperating with a GP involves vulnerability for patients, whereas in general there is relatively little vulnerability for GPs associated with the consultation. Additionally, the outcomes of the consultation have a larger impact on the patient than on the GP. Hence trust is very much more important for the patient. Arguably, for GPs, their willingness and ability to cooperate is likely to be more important in achieving cooperation than their trust in patients. However, overall it is

argued that the mechanisms promoting mutual cooperation are similar for patients and GPs; it is just the scale of vulnerability, and the magnitude of influence of different variables, that are different for the patient and the GP.

Secondly, it is emphasised that the model is designed to describe and explain the processes by which repeated interactions can promote trust and mutual cooperation. The model indicates that there are dynamics inherent in repeated interactions which enable trust and cooperation to be reinforced, and it is argued that these dynamics do not exist in the same way when a patient consults with a GP in a one-off encounter. Conversely, the model does not imply that mutual cooperation and trust will necessarily be strengthened whenever there are repeated interactions between a patient and a GP. It is recognised that consultations do not always have positive outcomes, and the model suggests that this may happen when problems or failures occur in any of the areas identified as promoting mutual cooperation (for example, a patient's negative perception of the GP's interpersonal skills may result in lower trust and a decision not to cooperate). Although the model hypothesises that repeated interactions promote trust and willingness to cooperate, as has been noted in previous chapters, patient trust does not always develop and become more secure over the course of a relationship (Lewicki & Bunker, 1996) and relationships can become problematic (for example, resulting in collusion between the patient and GP on courses of action that are not in the patient's best interest). Future research could consider these negative cases in the context of the proposed model, which would be of value in developing the model and in understanding the processes involved in weak or dysfunctional relationships.

Thirdly, it is recognised that GP-patient interactions are diverse and complex, and the model is limited in the extent to which this diversity and complexity can be represented. GPs and patients may have a number of varied and possibly conflicting agendas and priorities, consultations may involve discussion, and negotiation, and may result in changes in beliefs, priorities or actions. Single consultations may involve a series of steps, in which the patient and GP make choices about whether or not to cooperate (e.g. the patient decides whether to disclose information, the GP decides whether and how to advise the patient, the patient decides whether to accept or question the advice etc.). It may not always be possible to identify what the mutually beneficial outcome of a consultation might be. Thus the model can be argued to be of value in addressing research questions around the processes through which trust and mutual cooperation may develop over time in GP-patient relationships, however, it may be of less value in understanding the micro-processes and cooperative (or non-cooperative) outcomes of diverse individual consultations. In this context, rather than using broad game theory principles, it may be more appropriate to consider the specific game theoretical structures of individual consultations, and explore how this approach might help understand the processes and outcomes of particular consultations. This possibility is discussed in section 8.5.3.

8.3.2. The use of game theory

The review of the literature presented in chapter 1 identified the need for a theoretically based understanding of the process by which the personal GP-patient relationship develops over time, and through which the personal relationship can lead to positive processes and outcomes of care. Overall, one of the main contributions of this thesis is in highlighting the potential value of game theory to research into GP-patient

interactions, and the thesis makes a key contribution to the primary care research literature in analysing and modelling GP-patient relationships within the conceptual framework of game theory. The literature review presented in chapter 1 identified a very small body of work applying game theory to the GP-patient interaction (e.g. Gutek, 1995; Batifoulier, 1997). However, the application of game theory specifically to the GP-patient interaction had not been systematically explored, and in particular, the application of new aspects of game theory such as the developing field of behavioural game theory had not received attention. In this thesis, using a game theory perspective led to the generation of new hypotheses about the processes involved in the GP-patient relationship. Predictions from game theory were supported by the findings from the empirical work, and the game theory perspective provided a valuable organising framework for the qualitative analysis, generating new insights and understandings. The particular value of game theory is in providing an explanatory framework of the processes by which repeated interactions act to facilitate the development of trust and mutual cooperation, and this framework is drawn upon in developing the model described in this chapter. Game theory should be recognised as providing a valuable theoretical perspective for research into the GP-patient interaction, and as opening up the potential for fruitful work in the future; an argument that has also been made by other researchers (e.g. Batifoulier, 1997).

The validity of game theory in the context of modelling the GP-patient relationship needs to be discussed, and three issues relating to the validity of game theory in this context are discussed below.

a. The validity of game theory as a model of the GP-patient interaction – Prisoner's Dilemma game

Game theory was argued to be an intuitively relevant theoretical basis for this research, as it focuses on interactive decision-making where the outcome of the interaction depends on the actions or choices of each player. This reflects the situation in the GP-patient interaction. However, much of game theory and the experimental game research drawn on in this thesis is based on the Prisoner's Dilemma game, described in chapter 1, in which the preferred outcome for each individual player is to defect while the other cooperates, where mutual cooperation is the best overall outcome, and the worst outcome comes from cooperating when the other does not. It is recognised that this fundamental game structure may not match the preference of patients and GPs in all consultations, in other words, many consultations may not have the strategic structure of a Prisoner's Dilemma. For example, it is likely that in many consultations, mutual cooperation will be the preferred outcome for each individual player.

This raises the issues of the validity of using game theory as an initial theoretical model to underpin the research in this thesis, given that the Prisoner's Dilemma may not be an accurate representation of the strategic structure of all consultations. However, Axelrod (1984) notes that there are potential conflicts of interest in many social situations even where each individual has preferences for cooperation and concerns for the other, and that findings from game theory research can contribute to understanding cooperation in situations where cooperation is not entirely predicted by concern for others. Colman (1995) has argued that game structures can be understood in terms of families, and that similar principles apply to all games within each family, so, for example, theoretical writings and experimental game findings based on the Prisoner's Dilemma can be seen

as applying more broadly to any game structure in which mutual cooperation is the overall preferred outcome, and where there is potential conflict of interest, risk or uncertainty involved in a cooperative action.

In the context of the GP-patient interaction, mutual cooperation can be seen as the optimal outcome, in terms of the GP acting in the patient's best interests, and the patient cooperating with the GP's advice or treatment. There is always a degree of uncertainty for patients about whether the GP is likely to act in their best interests (Arrow, 1963), primarily because of the intangible nature of health care, the difficulty of assessing causality between interventions and outcomes, and the asymmetry of knowledge between the patient and the GP. This uncertainty about the GP's intentions or actions means there is a degree of risk involved for patients in a cooperative action.

In addition, it is also recognised that, although GPs are professionally obliged to act in the best interests of the patients, this may not always happen due to errors or to conflicts of interest for the GP. Although there are potentially more conflicts of interest for GPs who work in systems which, unlike the UK, are not free at the point of provision, financial factors and issues of common good may act as conflicts of interest for GPs in the UK. For example, Balint & Shelton (2002) recognise the conflict of interests that exists for GPs between, on one hand, their responsibility for the individual patient, and on the other, both their responsibility for managing resources (including financial resources) and their responsibility for their patient population as a whole. Also, GPs often perceive that they lack the time and resources to deliver the care patients need (Mechanic, 2001), and time and work pressures can clearly act as a conflict of interest for GPs in investing time and effort in acting in a patient's best interests, as

demonstrated in this study. Overall, this adds support to the argument that game theory can be seen as a valid theoretical basis for the research in this thesis.

However, it is possible that some types of GP-patient interaction are better modelled in terms of games with strategic structures that differ from the Prisoner's Dilemma game. This issue is explored further in the section 8.5.

b. The validity of game theory as a model of the GP-patient interaction – rational / calculative nature of trust

Game theory was used in this thesis to provide a theoretical basis for research into trust and cooperation in the GP-patient interaction. The branches of game theory discussed in this thesis are primarily concerned with decisions about whether or not to cooperate under conditions of uncertainty, and trust is defined in rational or calculative terms as judgements about the risks associated with cooperating with other individual(s). Empirical research based on game theory has provided evidence about the situational and interpersonal aspects of interactions that promote trust and cooperation. However, it is recognised that the nature of trust may change over the course of a relationship, from initially being cognitive or calculus based, to being identification or affective-based (McAllister, 1995; Lewicki & Bunker, 1996), and the analysis of patient interviews carried out in this thesis supports this proposition. There are implications of the shift in the basis of trust for game theory predictions. Over time, as the relationship between the patient and GP develops affective and emotional aspects, this is accompanied by a reduction of uncertainty and decreased monitoring of the GP: patients are more likely to have a stable belief that the GP will act in their best interests and will tend not to evaluate and reassess their trust at each consultation. At this stage trust and

cooperation are mutually expected and reinforced by emotional bonds and obligations. This means that predictions based on game theory about the structural features of the interaction, and interpersonal cues to trustworthiness, are of less value in predicting the level of trust and cooperation in the context of secure and established relationships. Despite this, it is still possible that trust can be undermined in accordance with predictions made by game theory, such as evidence of conflicts of interests arising because of changes in practice funding. However, overall, game theory may be best seen as helping to understand the factors associated with trust and cooperation in one-off encounters, at initial consultations, and in the initial stages of the GP-patient relationship.

Behavioural game theory recognises that people may have a range of reasons for expecting cooperation from others, including emotional and affective reasons. However, as yet the changing basis of trust and cooperation over the course of repeated interactions has not been incorporated into the game theory literature. This shift in the basis of trust and cooperation should be incorporated into behavioural game theory models.

c. The validity of game theory as a model of the GP-patient interaction – the changing nature of the GP-patient interaction

There has been much written on the nature of the GP-patient interaction, in particular, the styles of interaction and types of decision-making strategies that occur in the consultation. Stewart and Roter (1989) described four patterns of doctor-patient relationships, which vary in terms of the level of patient involvement and shared decision-making: paternalistic (in which the doctor is dominant and acts to take

decisions on behalf of the patient); consumeristic (in which the patient knows what they want and directs the decision-making); default (in which the doctor aims to be patient-centred but the patient remains in a passive role); and mutuality (in which there is partnership and equality between the doctor and patient).

There has been increasing recognition of the important contribution of the patient as well as the GP to the processes and outcomes of the consultation (e.g. Tuckett et al., 1985), and an emphasis on the need for GPs to consult with patients in a participative and involving way. This has represented a shift away from the traditional model of the paternalistic GP in which patients are expected to respect the GP and unquestioningly accept his/her advice, to models that emphasise patient-centred consulting styles, and the importance of shared decision-making. The dominant model of consulting taught to medical students and GPs in training is patient-centred with an emphasis on the importance of shared decision-making. There is evidence that patients tend to want consultations to be patient-centred (Little et al., 2001), although studies investigating the impact of patient-centeredness have not tended to find an association between patient centeredness and positive patient outcomes (Howie, Heaney & Maxwell, 2004). Despite this there is little evidence that shared decision-making routinely happens in consultations (Stevenson, Barry, Britten, Barber, & Bradley, 2000). Patients may vary in the extent to which they wish to be involved in decision-making - a review of studies of patients' preferences for involvement in decision making found wide variation across studies, with between 22% and 81% preferring active or collaborative decision-making, with those who were sicker, older, and less well educated tending to be less likely to want participation (Benbassat, Pilpel, & Tidhar, 1998). Patients may value shared-decision making more once they have experienced it (Longo et al., 2006).

In criticism of the use of game theory to model the medical consultation, it could be argued that the game theory focus on cooperation implies a paternalistic consulting model, in which the ideal interaction is one in which the GP gives good quality advice and treatment, and the patient cooperates by accepting that treatment. However, it is emphasised that in this thesis the game theory model has been interpreted as modelling mutual cooperation – that is, the achievement of cooperation between the GP and the patient that (in most cases) leads to the best outcome overall. It is possible that this mutually beneficial outcome could be achieved equally well through a paternalistic-styled consultation or through shared decision-making – what will be most effective may depend on a range of factors such as the circumstances of the consultation, the patient's health status, preferences, and the nature of the relationship between the patient and GP.

In summary, although the validity of game theory could be criticised in a range of ways, overall it is felt that game theory can be argued to be a valid approach to modelling the GP-patient interaction. It should be recognised that the aim of this thesis was not to suggest that GP-patient relationships can be understood solely in terms of a game theory model, but instead to use game theory as an organising framework for the research, recognising this as just one of many possible approaches which could be brought to bear in order to understand the same phenomena. Arguably, the value of theories in research should be judged in terms of the extent to which they fit with previous research findings, enable new questions to be asked, suggest new avenues of research, or provide new and enlightening ways of understanding phenomena.

In the survey, the game theory framework suggested new hypotheses (particularly about the importance of anticipation of future interactions) which have not been explored in previous research, and which were supported by empirical data. In the qualitative studies, the game theory framework acted to sensitise the researcher to themes and issues, and helped to structure the analysis in a way that illuminated and made sense of the processes involved. From this point of view, it is argued that game theory has provided a valuable perspective on the GP-patient relationship, and an opportunity for further research arising from this.

The following section will discuss some of the implications of the findings of this thesis for policy and practice in UK primary care.

8.4 Implications for health policy and clinical practice

8.4.1 Declining continuity in primary care

As discussed in chapter 1, recent and ongoing changes to the organisation and delivery of primary care potentially undermine continuity in GP-patient relationships. Continuity in patient care is increasingly being seen as the responsibility of practice teams rather than individual GPs, supported by the availability of full information about a patient's personal medical (and potentially, social) history. Although interpersonal continuity is recognised to be associated with positive patient outcomes, other priorities have tended to take precedence, such as ensuring patients can see a health professional as quickly as possible, and reducing the burden on family doctors, for example, through the removal of GP responsibility for out of hours care, and the introduction of nurse practitioners. It seems to be a common perception that the positive effects of personal

GP-patient relationships can, to some extent, be replicated by the provision of care from unfamiliar health professionals with good informational continuity.

However, this thesis suggests that while much can be achieved in a one-off consultation, particularly where the health professional is able to build a good rapport with a patient, ongoing relationships have unique internal dynamics. The model developed in this thesis indicates that continuity involving repeated positive interactions in which patients have an opportunity to evaluate GPs' care and build up their own reputations for cooperation, along with the expectation of future interactions in which future mutual benefits can be anticipated, promote trust and cooperation. Secure and robust patient trust is interpersonal in nature, and can only be built as a result of these repeated interactions. Specifically, the findings from this thesis suggest that ensuring that patients are able to experience repeated interactions with the same GP is a fundamental foundation for establishing secure patient trust, and norms of mutual cooperation.

Thus, the proposed model is a step towards explicating the processes involved in interpersonal continuity in terms of the impact of repeated interactions on trust and the achievement of mutual cooperation. Thus the model provides a theoretically-based justification for the importance of continuity in primary care. The unique values of ongoing GP-patient relationships cannot be overstated. It is recognised that interpersonal continuity may not always be required by patients, and in specific cases, may not be beneficial. It is also recognised that GP-patient relationships do not have to be exclusive, and that interpersonal continuity can survive even when patients often see other GPs (Boulton et al., 2006). However, it is argued that attempts should be made to balance other priorities in primary care with a recognition that primary care practices

should be designed in such a way as to give patients the opportunity to develop and maintain relationships with their health care providers. This is in line with Axelrod's (1984) recommendations, based on evolutionary game theory, that in order to promote mutual cooperation, institutions should be designed to enable frequent and durable relationships between individuals. Small practices may be the best environment for this (Schers, 2004): Guthrie (2002) found that patients were more likely to experience interpersonal continuity in smaller practices (with a list size of less than 6000 patients). However, it may be possible to promote interpersonal continuity in larger practices. Anecdotal evidence collected by the author of this thesis and colleagues as part of a recent study into continuity in primary care (Baker et al., 2005) indicated that one of the study practices managed to maintain high levels of interpersonal continuity despite being a 7-partner practice, with a list size of over 12000 patients, operating in an area of high deprivation. In this practice, the provision of interpersonal continuity was explicitly stated as one of the core principles of the practice philosophy and was recognised as such by practice staff; the responsibility of patients to maintain continuity was emphasised through written information to patients which made it clear that the practice expected them to see their usual GP whenever possible; and the practice appointment system was organised to facilitate patients in seeing their usual GP without having to wait too long for their appointment.

8.4.2 How can trust and cooperation be promoted in GP-patient interactions?

The research in this thesis clearly points to the importance of repeated interactions between a patient and a GP in promoting trust and mutual cooperation. However, the research also points to other factors that are important in promoting patient trust and cooperation. Findings from both the survey and the qualitative study indicated that

interpersonal aspects of the consultation are key factors in each individual's assessment of the other's trustworthiness. For patients, the GP's friendliness, a perception that a GP has time, is listening, and is taking them seriously, seem to promote trust, and it would make sense for GPs to use their interpersonal skills in such a way as to indicate to patients that they are motivated to act in the patient's best interest, in order to promote patient trust and engage cooperation.

The association between interpersonal aspects of the consultation and trust has been documented in previous research (e.g. Thom, Ribisl et al., 1999; Safran, Kosinski et al., 1998). A systematic review of trials of interventions focusing on the interactions between patients and professionals found that some interventions were successful in improving patient health outcomes, particularly those which aimed to increase patient contribution to the consultation (Griffin et al., 2004). However, to date, interventions involving interpersonal aspects of the consultation have not been successful in improving trust (Thom, Bloch et al., 1999; Thom, 2000). The model proposed in this thesis indicates that the strong association between interpersonal aspects of the consultation and patient trust are at least partly due to interpersonal aspects of the consultation acting as cues to the motivation or intention of the GP to act in the patient's best interest. Interpersonal cues to trustworthiness must be judged as genuine in order to be used as an indicator of trustworthiness and this may be difficult to achieve in intervention studies. This point is supported by Elster's argument, outlined in Gambetta (2000) that trust may be difficult to produce through deliberate means. Elster suggests that trust and trustworthiness 'can never… be brought about intelligently or intentionally, because the very attempt to do so precludes the state one is trying to bring about' (as cited in Gambetta, 2000, p. 230).

Considering the issue of patients' perceptions of GPs' motivation or incentive to act in their best interests, the issue of addressing how conflicts of interest are managed may be important in promoting patient trust. One conflict recognised by GPs and patients is that of lack of time in the consultation. Ettlinger & Freeman (1981), in their study of the relationship between 'knowing the doctor well', and compliance, recognised that although GP friendliness and social talk are important, working on the interpersonal aspects of the consultation may be time consuming for a GP, even though there is a possible long term benefit from investing this time. Hence time pressure can act as a conflict of interest. Addressing the problems of time pressure through practice appointment systems, or longer consultations, may be one solution to this problem. Edwards et al. (2004) found that longer consultation times were associated with increased patient confidence in the treatment decision, and increased patient expectation that they would adhere to chosen treatments. There is also evidence that longer consultations are associated with provision of higher quality care. A review carried out by Wilson and Childs (2002) found evidence that longer consultations were associated with: increased likelihood of dealing with long term and psychosocial problems; a lower prescribing rate; increased preventative activity; and patient satisfaction and enablement. However, making interactions more durable may also be a way to promote better quality of care and patient trust. Repeated interactions make short-term investment of time more attractive to GPs, as there is more likely to be a long-term payoff when patients consult again in the future. Making a commitment to future interactions (and also ensuring that future continuity is not obstructed by practice appointment policies) is a strategy that GPs could use to promote patient trust – the expectation of future interactions was strongly associated with trust in the survey, and

was recognised by some GPs in the qualitative study to be an effective way to promote trust.

8.4.3 Continuity in primary care and GP accountability

As well as considering patient trust and cooperation, the research presented in this thesis indicates that continuity can both enable and motivate GPs to provide high quality care. Hence, the impact of the cultural shift in primary care described above on GPs also needs to be considered.

Accompanying this shift away from a model of care based around ongoing GP-patient relationships, Harrison and Smith (2004) note that in recent years there has been a shift from patient trust and accountability based on GPs' responsibility to individual patients, professionalism and reflective practice, to a focus on building patient confidence in systems based on rules and surveillance, with GP accountability to government bodies rather than individual patients (see also Rowe & Calnan 2006). This focus on promoting patient confidence, rather than trust in individual professionals, in part reflects the recognition of the inherent problem of accountability to individual patients based on trust; patients often cannot accurately judge technical quality of care, instead primarily relying on interpersonal cues as indicators of trustworthiness, and this trust can be abused by GPs who do not act in patients' best interests.

Harrison and Smith (2004) suggest that these shifts may lead to abdication of personal responsibility by professionals and may reduce the moral motivation of health care providers. Marshall and Harrison (2005) also criticise the use of external incentives for quality, notably financial incentives, and point out that economic benefit is not always

what motivates GPs to change practice for the benefit of their patients. They point to the importance of recognizing the role of GPs' moral motivation to provide good quality care to their patients, and they review evidence that suggests internal motivation can be displaced by external, financial incentives. Sheaff et al. (2003) also note that there has been little empirical research into the impact of external performance measures, and the research that is available has reported negative findings.

These organisational and cultural shifts in primary care act to change the context of the GP-patient interaction so that the mechanisms for maintaining quality of care are no longer within, but are outside of, the GP-patient dyad. This shift is encapsulated by what Gutek (1995) refers to as a move away from service in the context of relationships, and towards service in the context of what she refers to as 'pseudo-relationships' where a third party – the organisation or governing body – rewards service providers for acting in the best interest of the customer and provide incentives for the customer to continue to use their services. However, pseudo-relationships do not have the internal dynamics that promote service quality, at the level of the individual interaction, in the way that is evident in a relationship between an individual service provider and customer which involves secure trust. As Mechanic states: 'trust provides the glue that makes cooperation possible without costly and intrusive regulation' (Mechanic, 2004, p. 1418).

This study adds to the debate by providing evidence from GP interviews that ongoing relationships enable GPs to provide better quality of care, but also can act to promote GPs' internal motivation to act in patients' best interests (both in rational/calculative terms, and affective terms), while recognising that ongoing relationships can also be

problematic where mutually beneficial cooperation cannot be established. This study is the first to explore this issue qualitatively.

This raises the question of how GPs' motivation can be maintained in the changing context of UK primary care. Sheldon (2005) argues that 'No system of external measurement and auditing will be able to substitute for the relations of trust and professionalism which can also promote quality' (Sheldon, 2005, p. 4). This argument along with the findings of this study, suggest that promoting quality of care needs the opportunity for trusting relationships to be developed and maintained where possible in the context of modern primary care.

Checkland, Marshall, and Harrison (2004) focus on the potentially negative impact of external financial incentives on GP motivation, and suggest the need to focus on internal motivation. In particular, Checkland et al. emphasise that GPs should be accountable to their patients rather than to an external body. The sharing of knowledge, and increasing the possibility of individual sanctions (for example, changing GP), promotes trust by reducing uncertainty for patients and allowing them to hold their GPs to account for their care. This would retain accountability within the dyad rather than transferring it to an external organization.

However, there are issues around the ability of patients to judge the quality of their care. Sharing of knowledge may make this easier for patients, but as this study highlights, patients are often unable or unwilling to objectively judge the quality of their care, instead relying on subjective evaluation, often based on interpersonal aspect of their care, which may not accurately represent technical quality. Publication of performance

data would provide patients with objective means of evaluating the technical quality of their care, and support patients in holding GPs accountable. However, publication of performance data would not necessarily increase patient trust, as trust is centred on patients' beliefs about the GP's motivation or intention as well as the GP's skills or competence. Because of this, publication of figures indicating good technical care may not increase trust if an individual patient experiences a GP as not motivated to act in their best interests. Patients may prefer a GP who is technically 'good enough' and caring, to one who is technically excellent but not emotionally engaged, as one interviewee in a study into continuity of care described when discussing his ideal GP: 'somebody who is approachable and gives you time and makes you feel that you're important to them while you're with them, and they come over as caring. And dare I say it; they needn't necessarily be the most capable person' (Baker et al., 2005, p. 57). Sheaff et al. (2003) also note in their scoping review that there is evidence that patients make little use of clinical outcomes data, giving more emphasis to 'soft' information. It may be more difficult to represent a GP's subjective qualities in performance data.

Plans for GP revalidation, in which GPs must be regularly reappraised for fitness to practice, have been developed by the GMC (General Medical Council, 2004), but these came under criticism in the context of the Shipman enquiry (Smith, 2004) and were put on hold pending review (General Medical Council, 2005). The Chief Medical Officer (CMO) (Chief Medical Officer, 2006) recently published a wide-ranging review of medical regulation, which was critical of GMC plans, and included a series of recommendations for reform. The CMO's report calls for regular, formal and systematic regulation of every doctor to ensure that all practicing doctors reach specified standards. The report argues that assessment should be based on a 'universally agreed definition of

a good doctor operationalised into a well understood and easily assessed set of standards' (Chief Medical Officer, 2006, p. 169), which should include technical and interpersonal skills. It is also argued that assessment should be based on positive affirmation of fitness to practice, and as such would support patient trust by providing a continuing assurance that a GP is competent. There are clearly issues to be resolved in relation to revalidation, not least the issues of defining and measuring a 'good' doctor, however, revalidation would be a positive step.

Revalidation should be seen, in much the same way as full registration with the GMC, as confirming a GP's autonomy and freedom to practice in the best interests of his/her patients. In this way, accountability can be maintained within the dyadic relationships between a GP and his/her patients, based on a more secure grounding of trust. Revalidation would provide an opportunity for patients to be assured that their GP is 'good enough' to practice, and should protect patients against trusting an incompetent GP. In the context of this assurance, patients would be able to hold their GP to account on the basis of their own assessment of their subjective experiences and their satisfaction with this.

8.5 Further research

A number of possibilities for further research emerge in the context of this thesis, many of which have been discussed in previous chapters. Key areas for future research discussed in previous chapters include: further investigation of the changing nature of, and basis for, trust over time, in particular an investigation of when and why the basis of

trust changes from being calculative to being affective or identification-based; the development of measurement scales to include trust in non-usual GPs and to address the changing nature of trust; the testing of an intervention to promote trust involving GP commitment to future interactions; research into how GPs recognise trust or lack of trust, and how they respond to lack of patient trust; and empirical research into the relationship between repeated interactions and the extent to which GPs are enabled and motivated to provide high quality care, which would substantiate the qualitative findings in this thesis.

Three areas for future research will be discussed in more detail: the measurement of trust in future research; research to develop and test the proposed model (figure 8.1); and research into the range of game theory games other than the Prisoners Dilemma, and how these might contribute to understanding the outcomes of consultations.

8.5.1. The measurement of trust in future research

There are a number of validated trust scales available for use in measuring patients' trust in their usual GP, although, as discussed in section 8.2.2 of this thesis, there are problems with the way that trust has been conceptualised in the development of these scales, and this means that their value may be limited. Existing trust scales have tended to be based on the conceptualisation of trust as a broad, stable attitude, and have been designed to measure trust in the patient's usual doctor. In addition, there has not been a clear distinction between cues to trustworthiness (e.g. interpersonal aspects of the consultation), and trust itself. The findings reported in this thesis point to the complexity of trust, and suggest that it is the changing nature of trust, rather than the level of trust per se, that can lead to positive outcomes for the GP and patient. These

findings lead the conclusion that there is a need to develop new measures of trust that reflect this complexity and are sensitive to changes in the nature, rather than just the level, of trust.

New measures of trust should be based on the conceptualisation of trust provided by this thesis: that trust can be understood in terms of a patient's beliefs about the willingness and ability of the GP to act in their best interests; that this belief can be based on a wide range of information including beliefs about the professional role of GP, the GP's interpersonal skills (as cues to trustworthiness), past experience of good care, expectation of future interaction, and/or emotional aspects of the relationship; that the basis of trust can change over time from being rational to emotional; and that with this change, trust becomes more robust, risk and uncertainty for patients is reduced, and patient cooperation is promoted (particularly where this involves vulnerability for the patient).

Improved measures of trust could focus on measuring the changing nature of trust by assessing patients' reasons (or basis) for trust. This might include exploring the extent to which the patient is relying on general beliefs about the role of a GP, past experience of good outcomes of care from the GP, or beliefs that the GP cares about them as a person. Alternately it might be possible to clarify the characteristics of initial rational trust versus developed emotional or affective trust and use these characteristics (such as the extent to which the patient's trust in the GP is resistant to minor errors) as a way of measuring the changing nature of trust.

8.5.2. Research to develop and test the proposed model

There is a need to develop and test the proposed model of trust and cooperation (Figure 8.1) through further empirical research.

The first area that needs further research is the GP side of the model. As discussed in section 8.3.1, the variables and relationships proposed on the GP side of the model emerge from theory, but were supported and developed only by relatively weak data from interviews with a small number of GPs that did not focus specifically on the issues in question. There is a need for further qualitative work exploring in more detail GPs' trust in patients, and the factors that influence the extent that they are willing or able to act in patients' best interests. This research would be of value in supporting and developing the GP side of the model.

The second area where further research is needed to support and develop the model is that of patient cooperation. This thesis explored patient trust, the factors that promoted trust, and the impact of trust on cooperation. However, the concept of patient cooperation, and the factors that influence it other than trust, were less well researched and developed. In the survey, cooperation was narrowly defined as adherence, meaning that cooperation was measured in a limited and incomplete way. The survey did not identify significant predictors of adherence, other than trust. In addition, the patient interviews focused on conceptualising and exploring trust rather than exploring cooperation. There would be value in further qualitative research into the concept of patient cooperation, broadly defined, and the factors that influence it.

Still considering the issue of patient cooperation, the model hypothesises that the relationship between trust and cooperation is likely to be influenced by willingness to cooperate, as well as other factors such as the level of uncertainty or risk involved. So for example, in the case of a patient consulting for symptom relief for a clearly defined minor acute problem (such as an ear infection), trust may be less of an issue in determining acceptance of treatment, as risk and uncertainty are low, meaning that willingness to cooperate is high. There would be value in further research to unpick this relationship, and to develop a theoretically based, and more nuanced, model of patient cooperation which incorporated willingness to cooperate, risk and uncertainty, as well as patient trust. Although cooperation should be defined more broadly than just in terms of adherence to treatment, the use of such a model may be of value in integrating previous research on compliance or adherence to treatment, in designing empirical studies of the factors associated with compliance or adherence to treatment, and in suggesting intervention studies to improve adherence to treatment

The third area relates to empirically testing the model. The model proposes a number of variables that relate to patient trust and willingness to cooperate. These relationships would be amenable to testing using quantitative methods. Future work could collect data on the variables included in the model using patient surveys, and test the hypothesised relationships using the multiple regression, and path analysis, to provide evidence for the direction and strength of relationships. Prior to undertaking this work, improved measures of trust would be needed, as discussed in section 8.5.1 above.

8.5.3. The Prisoner's Dilemma Game, and other game structures.

This thesis has focused on using game theory as a broad framework to explore the processes involved in ongoing relationships between patients and GPs. However, the findings from the study also indicate the relevance of game theory to individual consultations. A game theory perspective invites the suggestion that the processes involved in achieving mutual cooperation in individual consultations can be understood by investigating the strategic structure of different consultations. Two issues to consider in applying game theory to individual consultations are issues of symmetry, and the range of games available to model the consultation.

The Prisoner's Dilemma is a symmetric game, which assumes that the order of preference for outcomes is identical for both players, so that the players' roles are essentially interchangeable. In the case of the medical consultation, the doctor and patient occupy different and non-interchangeable roles. There is a possibility that the doctor and the patient may differ greatly in the value they put on different consultation outcomes, and their preferences for different outcomes may not be symmetric. It is possible to incorporate asymmetry into Prisoner's Dilemma Game models, and into games with different strategic structures (Tarrant, Stokes & Colman, 2004).

It is important to note that consultations may differ in nature, in terms of what the patient and the GP wish to achieve, and what conflicts of interest may exist. This has an impact on the ease of achieving mutual cooperation, the barriers that may have to be overcome, and the role of trust and validation in achieving mutual cooperation in different types of consultation. In some cases either the patient or GP may have a clear and specific desired outcome that may or may not concur with the other's desired

outcome – the patient may know what they want (e.g. a sick-note, a prescription), or the GP may have a specific agenda (e.g. health promotion, encouraging a patient to adhere to ongoing treatment). This situation may be likened to the Prisoner's Dilemma game, where engaging the other's cooperation, even when this is may not be the preferred outcome, may be the issue. As outlined in chapter 1, the Prisoner's Dilemma Game can be described in terms of payoffs for each player depending on their, and the other player's, choices about whether to cooperate (*C*) or defect (*D*). The Prisoner's Dilemma is characterised by the following order of preferences, where an individual players' own choices are shown first for each pair, and their partner's choices second: $DC > CC > DD > CD$. However, there are limitations to modelling consultations purely based on the Prisoner's Dilemma Game, in that the Prisoner's Dilemma Game may not accurately represent the strategic structure of a consultation.

It is clear that in many consultations, both the patient and GP may prefer cooperative strategies, and recognise that mutual cooperation is the best overall outcomes. The Assurance Game models a situation where the order of preferences are CC > DD > DC > CD. In this case, both parties prefer mutual cooperation, but a cooperative strategy involves a risk, hence assurance (or trust) that the other player will choose a cooperative strategy is essential for a player to risk cooperating themselves. The Assurance game may provide a better model for some consultations. In some consultations, there may be little risk involved, and the GP and patient may both wish to work together to identify preferred outcomes, for example, in the case of a patient consulting with symptoms and wanting resolution or diagnosis. Here, identifying the mutually preferred actions, and signalling willingness to cooperate may be important. Such consultations are more accurately represented as pure coordination games, (Mehta, Starmer, &

Sugden, 1994) where the two players are motivated to find a route to a mutually preferred outcome. There are a large number of possible 2×2 game structures for dyadic interactions. Tarrant, Stokes, and Colman (2004) describe a range of game structures and illustrate how these models may represent different types of consultation (see Appendix 3.1). Exploring the applicability of these different game structures to a range of consultations will help to address the limitations of the Prisoner's Dilemma Game as a basis for understanding consultations, and may lead to a development and refinement of the model presented in this thesis (Figure 8.1).

It is possible to test which model provides a fit to a 'real-life' interaction by collecting data on the order of preference for the different possible outcomes of the interaction. This methodology has been used to test the assumption that the problem of city centre traffic can be seen as a multi-player Prisoner's Dilemma (Sissons-Joshi, Lamb, & Joshi, 2002), and to test the assumption that the Cyprus conflict was an example of a Prisoner's Dilemma (Lumsden, 1973).

Exploring the strategic nature of consultations, and considering the implications of the underlying strategic structure in terms of how GPs practice would be a fruitful avenue for research. Other work has noted a range of different kinds or types of consultations (Miller, 1992), but consultations have not been categorised in terms of their strategic structure. Although caution would be advised in reducing the complexity of consultations to simple representations of choices about whether or not to cooperate, mapping out the underlying strategic structure of a range of different consultations may help in gaining an understanding of the positive or negative outcomes of these consultations. This approach may be particularly valuable in understanding conflict of

interest, as well as exploring the preferences expressed by the different parties and the extent to which these do or do not match. This approach may contribute to the stream of research into doctors' and patients' agendas (e.g. Butler, Campion, & Cox, 1992).

One further area for research relates to the issue of concordance. Concordance refers to the GP and patient coming to an agreement on the course of action to be followed, and there is evidence that concordance is associated with increased compliance with medication (Kerse et al., 2004). Concordance is an act of identifying and making a verbal commitment to a particular course of action. Such a commitment may act to change the strategic structure of an interaction between a patient and a GP, from one in which non-cooperation is the optimal strategy, into one in which the agreed course of action becomes credible, and mutual cooperation is an equilibrium (Dasgupta, 2000). Exploring whether and under what circumstances concordance can change the strategic structure of a consultation would also be an interesting area for future research.

8.6. Conclusion

This conclusion will outline the contribution of this thesis to the existing literature on continuity, trust and cooperation in primary care.

Although the GP-patient relationship has been recognised as valuable, in particular, in promoting patient trust and in contributing to the achievement of positive patient outcomes, there has been a dearth of theoretically-based research into the processes involved. This thesis argues that game theory provides a valid and useful basis for such

research, and the empirical research reported in this thesis uses game theory principles as a framework for the investigation into the relationship between continuity, trust, and cooperation in primary care.

A survey exploring the factors associated with patient trust and cooperation was carried out, and the findings indicated that interpersonal care was the factor most strongly associated with trust, and that specific aspects of continuity – positive past experiences, and anticipation of future interaction – were also associated with higher levels of trust.

Analysis of patient interviews allowed the concept of trust, and the process of trust development to be explored. Patients described relatively high levels of initial trust in unfamiliar GPs. Repeated interactions allowed initial trust to be validated – mutual validation (as a 'good' GP and a 'good' patient) was important in maintaining trust, and patients worked both to validate the GP and to build and maintain their own reputation. Over time, experience of consulting the same GP could lead to a reduction of uncertainty and monitoring, and a move to a more stable, affective basis for trust which was associated with lower anxiety, and increased willingness to disclose information, and to accept treatment or advice.

The analysis of patient interviews illuminated the processes involved in the development of trust over time, and helped to provide to a better understanding of the association between interpersonal skills and trust, in that, at least early in the development of a trusting relationship, these are seen as cues to the cooperative motivation or intention of the GP.

Analysis of GP interviews added to the literature by exploring GPs' views of patient trust. In addition the game theoretic framework facilitated the identification of mechanisms inherent in repeated interactions that (from the GPs' point of view) promote quality of care. Ongoing relationships were perceived by GPs to be associated with accumulated personal knowledge and increased patient acceptance of treatment: factors which could lead to better quality of care. Additionally, GPs' beliefs in the likely cooperativeness of patients in the context of an ongoing relationship, and anticipation of future interactions, provided motivation and incentives for GPs to act in patients' best interests.

GPs also felt that repeated interactions made it easier for them to detect uncooperative or manipulative patients, and that continuity could be used as a tool to work towards achieving mutual cooperation with difficult patients. However, GPs identified that continuity could also lead to collusion – mutual cooperation which was not beneficial for the GP or patient.

The findings from these studies have been brought together to develop a tentative model, based on game theoretic principles, of the relationship between continuity, trust and cooperation in primary care (figure 8.1).

Overall it is argued that this thesis has achieved the stated aims of advancing understanding of the relationship between continuity, trust and cooperation in primary care. Important questions remain unanswered, notably, those surrounding patient cooperation, partly because there are methodological problems in investigating this

variable. The model proposed in this thesis suggests a range of factors that may impact on cooperation, and further research investigating this would be of value.

In conclusion, the findings of this thesis provide evidence to underpin the argument that repeated interactions between patient and GP are important in promoting trust and mutually beneficial cooperation, and, additionally, the findings help to illuminate the processes through which these positive effects may occur. The thesis adds strength to Gutek's (1999) assertion that ongoing relationships as a mode of service provision are conceptually distinct from the other modes of service provision, and have unique features that help to promote cooperation and quality of care. This conclusion has important implications for policy in the context of the current and ongoing changes in UK primary care that may undermine interpersonal continuity between GPs and patients.

APPENDIX 1

QUESTIONNAIRE STUDY

Appendix 1.1 Pilot version, patient trust questionnaire

University of Leicester

Patient trust questionnaire

This questionnaire is completely anonymous. Your doctor *will not know what you have said in the questionnaire.*

If you have any questions, or have any difficulties completing the questionnaire: Please telephone the University of Leicester on 0116 258 4873 and ask for Carolyn - I will be happy to help you.

Department of Health Sciences, University of Leicester, Gwendolen Road, Leicester, LE5 4PW

This questionnaire asks about your most recent visit to a GP (family doctor) or nurse from your GP practice. If you do not want to answer a question, leave it blank and move on to the next one. Please feel free to write comments.

A. THE FOLLOWING QUESTIONS ARE ABOUT YOUR MOST RECENT VISIT TO A GP OR NURSE FROM YOUR GP PRACTICE

1. Was the reason for your most recent visit to do with:

- a problem or condition you had consulted about in the past ☐1
- a new problem, condition or procedure ☐2
- a previous problem *and* a new problem ☐3

2. Was the visit for something you considered urgent, or not?

- Yes, I considered it urgent ☐1
- No, I did not consider it urgent ☐2

3. Did you make an appointment for the visit?

- Yes, I made an appointment at least a day before the visit ☐1
- Yes, I made an appointment on the same day as the visit ☐2
- No, I just turned up for the visit ☐3

4.a. Who did you see?

- A GP (family doctor) ☐1
- A practice nurse ☐2

4.b. If you saw a GP, was this

- A GP who *usually* works at your practice ☐1
- A GP who *does not usually* work at your practice (e.g. a locum trainee) ☐2
- Don't know ☐3

5.a. Have you been to see this GP/nurse before?

- Yes ☐1
- No ☐2 **If No go to question 6.**

5.b. Is this the person you usually see?

- Yes ☐1
- No ☐2 **If No go to question 6.**

5.c. How long have you been with this GP/nurse?

- Less than 6 months ☐1
- More than 6 months but less than a year ☐2
- At least 1 year but less than 5 years ☐3
- At least 5 years but less than 10 years ☐4
- 10 years or more ☐5
- Can't remember ☐0

B. THE FOLLOWING QUESTIONS ARE ABOUT THE GP/NURSE YOU SAW ON YOUR MOST RECENT VISIT

6. Please tick a box to indicate the extent to which you agree or disagree with each of the following statements:

	Strongly disagree				Strongly agree	Not sure/ Not applicable
a. This GP/nurse remembers me when I visit	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
b. This GP/nurse knows, or has checked, whether I have followed the treatment or advice recommended on past occasions	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
c. This GP/nurse has *always* given me the best possible treatment or advice in the past	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
d. This GP/nurse has a very good reputation with patients	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
e. *On this occasion*, this GP/nurse gave me the best possible treatment or advice	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
f. I expect to see this GP/nurse next time I visit	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
g. This GP/nurse is committed to following-up my progress in the future	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
h. It will be easy for me to get to see this GP/nurse again in the future	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
i. I expect that I will continue to see this GP/nurse for the foreseeable future	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
j. I expect that this GP/nurse will get to know whether I have followed through with their advice or treatment	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0

7. On this occasion, did the GP/nurse ask you to come back and see him/her again if you had any problems?

Yes ☐ 1
No ☐ 2

8.a. To what extent did you follow through with the advice or treatment recommended by the GP/nurse on this occasion? (please tick one box)

did not follow the advice or treatment at all									did everything exactly as recommended
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8	☐ 9	☐ 10

8.b. Please tick a box to indicate the extent to which you agree or disagree with the following statement:

	Strongly disagree				Strongly agree
I would follow **any** advice or treatment this GP/nurse recommended, even if I did not really want to	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

9. How much did you trust the GP/nurse you saw to:

	Not at all				Completely
a. Always tell you the truth	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b. Provide you with accurate up to date medication	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
c. Make excellent medical judgements on your behalf	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
d. Do everything medically that should be done in order to ensure the best possible result	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
e. Tell you when you could benefit from seeing a specialist	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
f. Tell you if a mistake was made about your treatment	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
g. Put your medical needs above all other considerations, including costs	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
h. Listen well so he/she understands your needs and concerns	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
i. Never pretend to know things when he/she is not sure	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

10. All things considered, how much did you trust this GP / nurse? (Please tick one box)

Not at all									Completely
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8	☐ 9	☐ 10

C. THE FOLLOWING QUESTIONS ARE ABOUT YOU AND YOUR HEALTH

11. Are you:

male ☐1
female ☐2

12. What is your age? _____ years

13. Please tell us to which grouping you feel you belong.
If you prefer not to give this information please tick this box ☐0 and go to question **14.**

White English, Scottish, Welsh or Irish	☐1	Black Caribbean	☐6
White Other	☐2	Black African	☐7
Indian	☐3	Chinese	☐8
Pakistani	☐4	Other (please specify)	☐9
Bangladeshi	☐5	_____	

14. How would you describe your current situation?

Employed full time	☐1	Unable to work due to ill health or disability	☐7
Employed part time	☐2	Looking after the family, home or dependants	☐8
Self employed	☐3	Student	☐9
Unemployed	☐4	Other (please specify)	☐10
Retired	☐6	_____	

If you are, or have been, employed, please describe your main job (e.g. Nurse, Bus driver, Civil engineer, Accounts clerk, Manager)

_____

15. Is the house/flat/other place where you live:

Owned by you (including with a mortgage) ☐1
Rented or other arrangements ☐2

16. Over the *past 12 months*, how would you say your health has been?

excellent ☐1
very good ☐2
good ☐3
fair ☐4
poor ☐5

17. Over the *past 12 months*, have you suffered from any long-standing illness, health problem or disability?

Yes ☐1
No ☐2

18. Over the past 12 months, approximately how many times have you consulted a GP or nurse about your health?

1 or 2 times ☐1
3 to 6 times ☐2
7 to 12 times ☐3
more than 12 times ☐4

D. THE FOLLOWING QUESTIONS ARE ABOUT THIS QUESTIONNAIRE

19. Approximately how long did it take you to fill in this questionnaire?

_____ minutes

20. How easy was this questionnaire to fill in?

Very easy ☐1
Quite easy ☐2
Quite difficult ☐3
Very difficult ☐4

21. Do you have any comments about the questions you were asked, or about how we could improve the questionnaire?

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE.
Please return the questionnaire in the envelope provided. No stamp is needed.

Appendix 1.2 Table of correlations, questionnaire pilot

Figures show correlation coefficient, with p value (2-tail) in brackets.

	Adherence	**Overall trust (GPAS)**	**Overall trust (Thom)**
Adherence	1	0.22 (0.32)	0.39 (0.07)
Overall trust (GPAS)	0.22 (0.32)	1	.76** (0.000)
Overall trust (Thom)	0.39 (0.07)	0.76** (0.000)	1
Have you been to see this GP/nurse before? (1=y, 2=n)	-0.47* (0.03)	-0.38 (0.07)	-0.32 (0.14)
Is this the person you usually see? (1=y, 2=n)	-0.28 (0.21)	-0.24 (0.27)	-0.43* (0.04)
How long have you been with this GP/nurse?	0.14 (0.61)	-0.07 (0.78)	0.25 (0.40)
This GP/nurse remembers me when I visit	0.24 (0.30)	0.44 (0.05)	0.21 (0.38)
This GP/nurse knows, or has checked, whether I have followed the treatment or advice recommended on past occasions	0.21 (0.37)	0.72** (0.000)	0.56* (0.009)
This GP/nurse has *always* given me the best possible treatment or advice in the past	-0.03 (0.91)	0.79** (0.000)	0.66* (0.002)
This GP/nurse has a very good reputation with patients	0.02 (0.95)	0.86** (0.000)	0.60* (0.008)
***On this occasion*, this GP/nurse gave me the best possible treatment or advice**	-0.12 (0.57)	0.30 (0.16)	0.45* (0.03)
I expect to see this GP/nurse next time I visit	0.30 (0.16)	0.53* (0.008)	0.35 (0.09)
This GP/nurse is committed to following-up my progress in the future	0.16 (0.50)	0.78** (0.000)	0.55* (0.02)
It will be easy for me to get to see this GP/nurse again in the future	-0.10 (0.67)	0.58* (0.004)	0.45* (0.03)
I expect that I will continue to see this GP/nurse for the foreseeable future	0.15 (0.51)	0.72** (0.000)	0.55* (0.005)

	Adherence	Overall trust (GPAS)	Overall trust (Thom)
I expect that this GP/nurse will get to know whether I have followed through with their advice or treatment	0.11 (0.65)	0.71** (0.000)	0.68* (0.001)
Sex (1=m, 2=f)	-0.14 (0.52)	-0.25 (0.24)	-0.26 (0.24)
Age	0.11 (0.62)	0.42* (0.04)	0.50* (0.01)
Health past 12 months (1=excellent ... 5=poor)	-0.03 (0.90)	0.27 (0.19)	0.17 (0.42)
Long term condition in past 12 months? (1=y, 2=n)	0.29 (0.19)	-0.02 (0.92)	0.02 (0.93)
Times consulted GP/nurse over past 12 months	0.15 (0.48)	0.29 (0.17)	0.05 (0.81)

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.001 level (2-tailed).
Note: Where the correlation involved dichotomous variables (e.g. sex), the point biserial correlation (r_{pb}) has been used. In all other cases, Pearson's *r* has been calculated.

University of Leicester

Patients' experiences of visiting the GP or nurse

This questionnaire is confidential. Your doctor *will not get to know what you have said in the questionnaire.*

If you have any questions, or have any difficulties completing the questionnaire, please telephone the University of Leicester on 0116 258 4873 and ask for Carolyn.
I will be happy to help you.

Department of Health Sciences, University of Leicester, Gwendolen Road, Leicester, LE5 4PW

This questionnaire asks about your most recent visit to a GP (family doctor) or nurse from your GP practice. If you do not want to answer a question, leave it blank and move on to the next one.

THE FOLLOWING QUESTIONS ARE ABOUT YOUR MOST RECENT VISIT TO A GP OR NURSE FROM YOUR GP PRACTICE

1. Who was this most recent visit for? (tick any that apply)

- self ☐1
- child ☐2

2. Was the reason for your most recent visit to do with: (tick any that apply)

- a problem or condition you had consulted about in the past ☐1
- a new problem, condition or procedure ☐2

3. Was the visit for something you considered urgent, or not?

- Yes, I considered it urgent ☐1
- No, I did not consider it urgent ☐2

4. Did you make an appointment for the visit?

- Yes, I made an appointment at least a day before the visit ☐1
- Yes, I made an appointment on the same day as the visit ☐2
- No, I just turned up for the visit ☐3

5.a. Who did you see? (tick any that apply)

- A GP (family doctor) ☐1
- A practice nurse ☐2

5.b. If you saw a GP, was this

- A GP who *usually* works at your practice ☐1
- A GP who *does not usually* work at your practice (e.g. a registrar/ locum) ☐2
- Don't know ☐3

THE FOLLOWING QUESTIONS ARE ABOUT THE GP OR NURSE YOU SAW ON YOUR MOST RECENT VISIT. If you saw a GP *and* a nurse, please answer the following questions about the GP.

6.a. Have you been to see this GP/nurse before?

- Yes ☐1
- No ☐2 **If No go to question 7.**

6.b. Is this the person you usually see?

- Yes ☐1
- No ☐2 **If No go to question 7.**

6.c. How long have you been with this GP/nurse?

Less than 6 months	☐ 1
More than 6 months but less than a year	☐ 2
At least 1 year but less than 5 years	☐ 3
At least 5 years but less than 10 years	☐ 4
10 years or more	☐ 5
Can't remember	☐ 0

---

7. Please tick a box to indicate the extent to which you agree or disagree with each of the following statements:

	Strongly disagree				Strongly agree	Don't know/ Not applicable
a. This GP/nurse remembers me when I visit	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
b. This GP/nurse knows, or has checked, whether I have followed the treatment or advice recommended on past occasions	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
c. This GP/nurse has *always* given me the best possible treatment or advice in the past	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
d. This GP/nurse has a very good reputation with patients	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
e. On this occasion, I feel sure that this GP/nurse gave me the best possible treatment or advice	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
f. I would like to see this GP/nurse next time I visit	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
g. I expect that I will see this GP/nurse next time I visit	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
h. It will be easy for me to get to see this GP/nurse again in the future	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
i. I expect that I will continue to see this GP/nurse for the foreseeable future	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
j. This GP/nurse will get to know whether I have followed their treatment or advice	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0
k. This GP/nurse will follow-up my progress in the future	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 0

8.a. On this occasion, did the GP/nurse ask you to come back again if you had any problems?

Yes ☐1
No ☐2 **If No go to question 9.**

8.b. If yes, did the GP/nurse ask you to come back to see :

him/her specifically ☐1
any of the practice GPs/nurses ☐2

9. Thinking about your most recent visit, how do you rate the following:

	Very poor	Poor	Fair	Good	Very good	Excellent
a. The amount of **time** the GP/nurse spent with you?	☐1	☐2	☐3	☐4	☐5	☐6
b. The GP/nurse's **patience** with your questions or worries?	☐1	☐2	☐3	☐4	☐5	☐6
c. The GP/nurse's **caring and concern** for you?	☐1	☐2	☐3	☐4	☐5	☐6

10. Please tick a box to indicate the extent to which you agree or disagree with each of the following statements:

	Strongly disagree				Strongly agree
a. Sometimes this GP/nurse cares more about what is convenient for him/her than about your medical needs	☐1	☐2	☐3	☐4	☐5
b. This GP/nurse is extremely thorough and careful	☐1	☐2	☐3	☐4	☐5
c. This GP/nurse is totally honest in telling you about all of the different treatment options available for your condition	☐1	☐2	☐3	☐4	☐5
d. You completely trust this GP/nurse's decisions about which medical treatments are best for you	☐1	☐2	☐3	☐4	☐5
e. All in all you have complete trust in this GP/nurse	☐1	☐2	☐3	☐4	☐5

11. All things considered, how much did you trust this GP / nurse?

Not at all **Completely**

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10

THE FOLLOWING QUESTIONS ARE ABOUT THE TREATMENT OR ADVICE YOU WERE GIVEN ON YOUR MOST RECENT VISIT

12.a. On this occasion, did you get a prescription?

Yes ☐1
No ☐2 **If No go to question 13.a**

12.b. Have you taken the medication?

Yes, exactly as prescribed ☐1
Yes, but not exactly as prescribed *(e.g. did not take all the tablets, took a lower dose)* ☐2
No, not at all ☐3

12.c. If you have not taken the medication at all, or have not taken it as prescribed, please say why not:

13.a. To what extent have you followed the treatment or advice recommended by the GP/nurse on this occasion?

I have not followed the treatment or advice at all									**I have followed the treatment or advice exactly as recommended**
☐1	☐2	☐3	☐4	☐5	☐6	☐7	☐8	☐9	☐10

13.b. Please tick a box to indicate the extent to which you agree or disagree with the following statement:

	Strongly disagree				**Strongly agree**
I would follow **any** treatment or advice this GP/nurse recommended, even if I did not really want to	☐1	☐2	☐3	☐4	☐5

THE FOLLOWING QUESTIONS ARE ABOUT YOU AND YOUR HEALTH

These questions are being asked to find out whether the questionnaire is completed by a wide range of different people.

14. Are you:

male ☐1
female ☐2

15. What is your age? _____ years

16. Please tell us to which grouping you feel you belong.

If you prefer not to give this information please tick this box ☐0 and go to question **17.**

White English, Scottish, Welsh or Irish ☐1
White Other ☐2
Indian ☐3
Pakistani ☐4
Bangladeshi ☐5
Black Caribbean ☐6
Black African ☐7
Chinese ☐8
Other (please specify) ☐9
_____

17. How would you describe your current situation regarding employment?

Employed full time ☐1
Employed part time ☐2
Self employed ☐3
Unemployed ☐4
Retired ☐5
Unable to work due to ill health or disability ☐6
Looking after the family, home or dependants ☐7
Student ☐8
Other ☐9

18. Is the house/flat/other place where you live:

Owned by you (including with a mortgage) ☐1
Rented or other arrangements ☐2

19. Over the *past 12 months*, how would you say your health has been?

excellent ☐1
very good ☐2
good ☐3
fair ☐4
poor ☐5

20. Over the *past 12 months*, have you suffered from any long-standing illness, health problem or disability?

Yes ☐1
No ☐2

21. Over the *past 12 months*, approximately how many times have you been to see a GP or nurse about your health?

1 or 2 times ☐1
3 to 6 times ☐2
7 to 12 times ☐3
more than 12 times ☐4

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE.
Please return the questionnaire in the envelope provided. No stamp is needed.

APPENDIX 2

INTERVIEW STUDY

Appendix 2.1 Personal care study – Topic guide for patient and GP interviews

Personal Care Study: Topic Guide for Patient Interviews

1. Background
Living arrangements (live alone/with family etc), what is your health like generally?
How long registered / how often do you see a GP/nurse?
What do you like / dislike about the practice?
Do you always see the same GP? why? Do you have your 'own' GP? (or practice) - what do you mean by 'own'?

2. Meaning of personal care
We are interested in what makes care 'personal' or 'individual' - things that make you feel as if you're being treated as a 'person', and things that go with treated anonymously or impersonally?
In your view, what things make care feel 'personal' or 'individual'? GP / patient / practice

COULD YOU GIVE ANY EXAMPLES OF PC/NOT PC
- why was it PC / not (what made you feel that?) - how did it help - what made it possible?
Does PC make a difference? In what way? (medical / psych?)
Do you like to get care that is 'personal'? or do you prefer more impersonal/ anonymous approach? why?/when?
If have 'own' GP, do you always get PC from them? Could you get care that's not personal from 'own' GP?

3. Relationship
Describe your relationship with GP (link to time, personal characteristics)
How has relationship developed - was it always like this/ how long did it take?
Can you say what makes a relationship with GP/nurse 'good'? (Same as personal care or not?)
Is a 'good' relationship important or not always? When important? When not important?
Do you need to have a good relationship (get on?) with a GP to have personal care?
Decisions about which GP to see - when / what want from relationship vs encounter

4. Knowing
Do you feel that your GP knows you? In what way - remembers you / from notes or in a different way?
Is it important to see a GP who knows you? (is this part of making care personal?) when? why?
Can you get personal care if seeing a GP who doesn't know you? e.g. if consulting unfamiliar GP, can you still get 'personal' care?
Any advantages and disadvantages of knowing GP/nurse?

5. Importance of personal care
Is it always important that care is personal? Explore circumstances when personal care may be more / less important or even undesirable (eg. for particular illnesses / particular types of people).
advantages and disadvantages of - care that feels 'personal' (for you /GP/nurse/practice)?
- care that feels 'impersonal' (for you /GP/nurse/practice)?
Trade offs - what other things are important seeing a GP / nurse / visiting a doctors practice?
If you could make a list of things you need to be a good GP, what would be on it? Could a GP be a 'good GP' without giving 'personal' care

6. Barriers / facilitators
What makes it easier for GP / nurses / practice to make care personal?

7. Future
what should change , and what should stay the same (in own practice, and nationally)?
views on NHS direct, walk-in centres, internet services

8. Reflections
Anything else you want to say about personal care? Was interview as expected?

Personal Care Study: Topic guide for GPs/ other health professionals and practice staff

1. Background / Context:
Can you tell me about your background (e.g. where have worked, why)
What is role in this practice, in relation to other staff?
What sort of patients see (do you have 'own' patients - i.e. if nurse or GP) - advantages and disadvantages of this, pros and cons of practice set-up, Advantages and disadvantages of current role(s)?

2. Meaning
Interested in finding out what people think makes care personal. So how would you try to describe what personal care is? What things make care personal?
COULD YOU GIVE ANY EXAMPLES OF PC/NOT PC
- why was it PC / not (what made you feel that?) - how did it help - what made it possible?
Do you have strategies (things that you do) to make care more personal?

3. Knowing
Is it important to know patients – in what way, and why?
Can care be personal if you don't know the patient? How? Is this different to when you do know the patient?
What do you need to know about the patient? How do you get this knowledge?
Is there a difference between having your 'own' GP/nurse and getting personal care?

4. Relationship
What is a good relationship?
Are there some patients with whom you have a good relationship & some with whom you don't? What makes the difference? Frequency?
How do relationships with patients develop? Contrast new and established patients
How does having a relationship (or not) with a patient influence personal care? PC in relationship vs encounter - different?

5. Context
Whatever it is that makes care personal, is it limited to what happens when patient is in the consultation, or do other things matter? (**PC about practice as a whole**, community, family expectations?)
How do other professionals in the practice contribute towards making care personal?

6. Importance of PC
Advantages and disadvantages of PC for patient and for GP/nurse - what is value?
What is the impact of care that isn't personal (on GP/nurse / patient)? Does it matter?
What are the priorities for patients you see (eg. access) – how important is PC in context of these things?
Is it always important that care is personal?, explore situations where it is particularly important/doesn't matter is undesirable that care is personal - Probe types of illness, life stages emotional content of illness
Can you be a good GP/nurse/receptionist without giving PC?

7. Barriers / facilitators
What makes it easier / more difficult for care to be personal? e.g HCP, patient, practice, societal factors

8.Future
How do you see the future in reality – what do you think will be the impact of things like NHS direct, walk in centres, internet services?
What will patients/GPs gain from NHS changes? What do patients/GPs get from the traditional GP that can't get from other models of care? Can this be compensated for in any way?
How should it be? In your view, what about primary care needs to change (or stay the same) for care to be as personal as you think it should be? (probe roles of different PHCT members)

9. Reflections
What do you think has influenced your views on PC (teaching, experience as person / as GP/nurse)Has your view of personal care changed?
Any reflections on how you'd describe what personal care is, in case you've thought of something new?
Was the interview as expected?

Appendix 2.2 Coding frame – patient interviews

```
|HU:  phd trust
File:  [C:\DOCUME~1\Carolyn\MYDOCU~1\PhD\CH8-QU~1\FINAL patients  2nd
attempt thematic coding 14dec05]
Edited by: Super
Date/Time: 25/05/06 11:44:11
----------------------------------------
Code-Filter: All
----------------------------------------!

1.1. pl trust exists in GP-patient encounter
1.2. pl trust essential in order to get care
1.2.1. pl trust based on - knowing GP outside prof role
1.2.2. pl trust based on - GPs as qualified professionals
1.2.3. pl trust based on - experience of other GPs
1.2.4. pl trust based on - organisation eg 'own practice', OOHs GPs
1.2.5. pl trust based on - norms 'should trust GPs'
1.2.6. pl trust based on - reputation
1.2.7. pl trust based on - autonomy - evidence that professional is
expert enough to treat independently
1.2.8. pl trust based on GP chars eg gender
1.2.9. pl trust based on objective evidence of good care
2.1.1. descr IP trust - 'relying on GP'
2.1.2. descr IP trust - belief that GP cares about patient as a person
2.1.3. descr IP trust  - more confidence in own GP than others (e.g.
use own GP to confirm tmt/diag from other GP)
2.1.4. descr IP trust - more confidence in known than unknown HCP
2.2.1. IP trust based on - GP interpersonal skills
2.2.10. IP trust based on - GP as part of community
2.2.11. IP trust based on - belief that GP is acting in best interests
2.2.12. IP trust based on - belief that GP takes problems seriously
2.2.13. Ip trust based on - GP giving physical exam
2.2.2. IP trust based on - confidence in medical expertise
2.2.3. IP trust based on - quick referr/know limits expertise
2.2.4. IP trust based on - GP knowledge of other HCPS
2.2.5. IP trust based on - GP agency / lack of confl interest
2.2.6. IP trust based on - understanding that GPs are 'only human' /
can make mistakes
2.2.7. IP trust based on - clear personal-prof boundary
2.2.8 IP trust based on - status / power balance
2.2.9. IP trust based on - needs patient openness/honesty
2.3.1. devel IP trust - builds from first consultation
2.3.10. devel IP trust - evidence /belief that GP 'cares'/patient
matters
2.3.11. devel IP trust GP disclosure of own personal info
2.3.12. devel IP trust depends on patients propensity to trust
2.3.2. devel IP trust - over a period of time
2.3.3 devel IP trust - freq of consultation
2.3.4 devel IP trust - experience of effective
treatment/management/diagnosis
2.3.5 devel IP trust - interpersonal skills reinforce trust
2.3.6 devel IP trust - patient cooperation reinforces trust
2.3.7. devel IP trust - GP recall of (personal knowledge from) past
interactions
2.3.8 devel IP trust - patient believes GP PK helps GP give better
care
2.3.9. devel IP trust - anticip future: continuity / commitment
2.4.1. IP trust validated by GP action in 'critical' moments
```

2.4.4. IP trust validated by GP recognising limits expertise
2.4.5. IP trust validated by 2 opinion
2.4.6. IP trust validated by other people's experiences (reputation)
2.4.7. IP trust validated by evidence of GP 'going extra mile'
2.4.8. IP trust validated by evidence that GP has given correct advice / treatment
2.4.9. IP trust validated by evidence of prof standing
2.4.9. maintain IP trust - achieving mutually acceptable compromise
2.5.1. validation of patient self justification as valid/deserving (eg appropriate use of service)
2.5.2. validation of patient GP PK judge validity /trustworthiness
2.5.3. dr hopping?
2.6.01. undermine trust GP IP skills
2.6.02. undermine trust lack conf expertise
2.6.03. undermine trust GP doesn't take seriously
2.6.04. undermine trust GP chars (gender, ethnicity)
2.6.05. undermine trust GP doesn't care
2.6.06. experience of poor management/diagnosis
2.6.07. undermine trust reputation
2.6.08. undermine trust GP agency /conflict of interest
2.6.09. undermine trust concerns confidentiality
2.6.10. undermine IP trust - power/status
2.6.11. undermine trust - lack anticip future
2.6.12. undermine trust - lack of GP accountability/responsibility
2.6.13 undermine trust - GP not having time for patient
2.6.14 undermine IP trust - overstepping prof boundaries
2.6.16. undermine trust - GP giving decision to patient / belief that GP does not know what's best
2.6.17. undermine IP trust - belief that GP is not taking the time to act in your best interests
2.6.18 undermine IP trust - unfamiliar GP does not know full history
2.6.19 undermine IP trust - GP does not recall patient
2.7.1. outcomes IP trust disclosure /open communication
2.7.2. outcomes IP trust compliance
2.7.3. outcomes IP trust - makes patient feel more comfortable
2.7.4. outcomes IP trust less constrained by formal rules
2.7.5. outcomes IP trust - more confidence in treatment
2.7.6. outcomes IP trust - patient wants to maintain continuity
2.8.1. outcomes no IP trust - avoid consulting GP
2.8.2 outcomes no IP trust - no disclosure
2.8.3. outcomes no IP trust - lack confidence in tmt
2.8.4. outcomes no IP trust - continuity not important
3.1. basis situational trust interpersonal
3.2. basis situational trust - medical skills
3.3. basis situational trust - read notes / prepared for patient
3.4. basis situational trust - anticip future
3.5 basis situational trust - GP following up patient
3.6. basis situational trust exploring background / asking questions / looking for cause not symptom
4.1. pl trust sufficient for minor/physical problems
4.2. value IP trust - important when more vulnerable/ more serious prob
4.3. unfamiliar GPs - patients less comfortable / less likely to disclose
4.4. pl trust sufficient for children
4.5. unfamiliar GP - patient unsure of what to expect/nervous
4.6. placed trust sufficient when patient is 'in control' of health
5. non-compliance/adherence

2.3 Placed trust – descriptive story

Patients describe having confidence in unknown GPs. On what is this based?

The first, most general basis (which focuses on group membership) is **general trust in GPs**, rather than trust in a specific person. Firstly, patients say they have confidence in GPs because GPs are trained professionals. In order to qualify as a GP one has to reach a certain standard / have a certain level of knowledge etc, and patients rely on this to give them confidence that they will get the medical care they need. Patients talk about having confidence that any trained GP will have **medical expertise.**

Patients also draw on their **past experience** of consulting GPs, and use past experience with other GPs as the basis (best source of information?) for trust in an unknown GP. 'I have not really had a bad experience with a GP, and I have every confidence in them, you know' pr2pt5. Bad experiences also affect general level of trust (see below, comment on out of hours GPs).

Organisational trust also is important – e.g. trust in any of the GPs at the practice 'I prefer to stick to the practice as such' pr2pt5. (see pr5pt1 'faith' in any of the GPs at the practice, so she doesn't mind which she sees) Conversely, patients describe lack of trust based on organisational membership (see below, comment about out of hours GPs)

Secondly, patients draw on information relevant to the specific GP. One source of information is **knowing the GP** professionally. Is this because this allows the patient to assess the GP as a professional? Also, knowing GPs as part of the community – e.g. swimming pool users. This give the patient information about what the GP is like as a person.

Characteristics of the specific GP may also influence placed trust e.g. professional standing may be a source of information (e.g. choosing one of the senior partners based on beliefs about expertise - 'I don't know whether competence is the right word but….they're more effective' pr6pt3). Other personal characteristics (particularly gender, age and ethnicity) also are used as sources of information about likely trustworthiness - this is generally not about competence but beliefs about whether the GP would be likely to act in the patients best interests, based on group membership. These factors influence patients' predisposition to trust.

Reputation is also a valuable source of information about likely trustworthiness. 'There's a doctor I don't know…but they all speak very highly of him' pr2pt7

Information about a particular GP that patients use to judge trustworthiness seems to relate as much to motivations/intentions (are they a 'good' GP) as to medical competence

Are there any examples of patients not placing trust in an unknown GP, and what can we learn from this?

Some patients had had negative experiences of care from out of hours GPs, and this led them to lack confidence in / or lack trust in, out of hours GPs in general 'these emergency doctors…they're all the same…they cannot diagnose it properly' pr6pt2.

This shows that experience of care from members of a group (in this case 'out of hours' GPs) forms beliefs which influence judgements about the likely trustworthiness of a person, based on group membership ie. being an out of hours GP. This belief means the patient is predisposed not to trust people in this group, in the same way that patients may be more likely to be predisposed to trust GPs from their own practice. This is based on, and has an impact on both confidence (belief that out of hours GPs lack skills/training/expertise) **AND** beliefs about motivation/intention (out of hours GPs don't care, won't invest time in finding the right treatment diagnosis)

Why is placed trust important?

Having this confidence is essential in order to receive care – patients must place trust in order to consult in the first place. There is also a suggestion that, in many cases, patients do not have a choice of who they see, for example, in emergency situations, so being able to place trust in an unknown professional is essential in order to get care. In some cases patients emphasise the gap between the GP's level of expertise and their own (this emphasises the fact that patients have no choice but to rely on GPs – 'I'm no doctor' pr5pt1). Patients also refer to norms about trusting GPs 'I know you should trust the doctor' pr3pt8

Confidence can exist without any prior knowledge of the individual health professional. Whether this 'confidence', or placed trust is sufficient in order for the patients to choose to consult an unknown GP depends on the reason for consulting. Patients who are consulting for minor, acute, physical problems, for minor chldren's problems, or in some cases for routine checkups, where simply medical knowledge is required, feel placed trust is sufficient. 'if it was an injury type thing that you needed to go to the doctor for, then it wouldn't matter to me who I saw because I'd feel confident that even if it was a locum, the junior doctor, a first day there, I would feel confident that they have had the experience of how to deal with a strained muscle or something like that' pr2pt5
Patients also feel placed trust is sufficient when they themselves know whet they want (e.g. the same antibiotics for recurrent infection). This is because the level of **uncertainty** and **risk** are low in these circumstances, so trust is not particularly important, particularly when there are other priorities such as quick access.

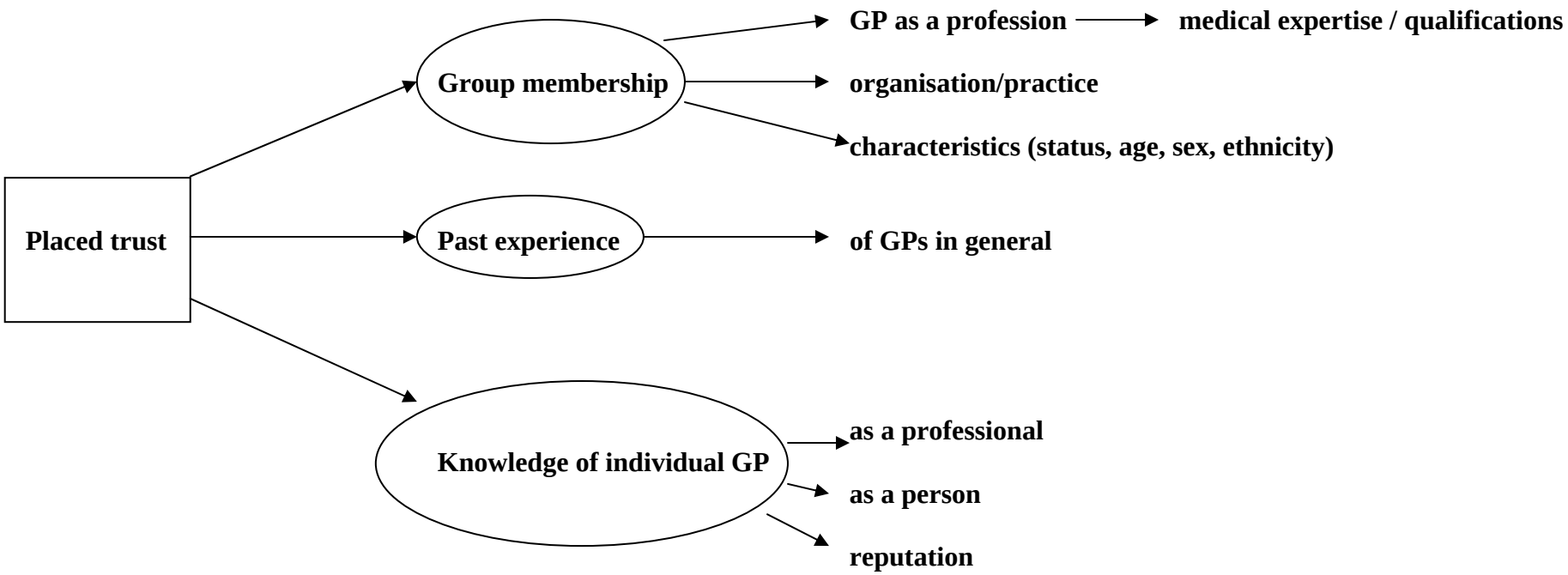
Question: Is there a difference between confidence and trust? Is confidence purely related to medical skills? Perhaps confidence is related to beliefs about skills/ability and trust is related to beliefs about motivation/intention?

Luhman (in Gambetta 1988) suggests that trust implies choice i.e. that you are willing to engage in a cooperative action despite the possibility of adverse outcomes, and that you choose this action over other possible actions. Also, there must be some degree of risk for trust to be relevant; if there's no risk there's no need for trust. Confidence implies that other alternatives are not considered. Confidence is needed where we have no alternative but to rely on the other.

So confidence is needed when one can't choose to see a different HCP (or when one has no information about any of the GPs on which to base judgements of trustworthiness, but needs to rely on an unknown GP in order to get help)?

Appendix 2.4 Placed trust – concept map

On what is placed trust based?



Appendix 2.5 Coding frame – GP interviews

```
|HU:  phd trust
File:  [C:\DOCUME~1\Carolyn\MYDOCU~1\PhD\CH9-QU~2\GPs thematic coding
22dec05]
Edited by: Super
Date/Time: 25/05/06 11:46:53
----------------------------------------
Code-Filter: All
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1.1. pl trust exists in GP-patient encounter
1.3. pl trust - influenced by media
1.4. pl trust - trust in GP practice
2.1.01. devel IP trust - builds from first consultation
2.1.02. devel IP trust - over a period of time
2.2.10. devel IP trust - anticipation future
2.2.11. devel IP trust - initial evaluation
2.2.12 devel IP trust - patient getting to know GP
2.2.13. devel IP trust - patient choice of who to consult
2.2.14. devel IP trust - experience of effective management / tmt /
diagnosis
2.2.15 devel IP trust(?) - devel patient self-competence
2.2.16. devel IP trust - professional boundaries
2.2.20 devel IP trust - IP skills
2.2.22 devel IP trust - needs patient cooperation
2.2.23 devel IP trust - GP as part of the community
2.2.3. devel IP trust - value of trusting rel over quick fix
2.2.4. devel IP trust - initially need Gp to demonstrate
trustworthiness
2.2.5. devel IP trust - acknowledging limits of expertise
2.2.6. devel IP trust - giving impression that trust other
2.2.7. devel IP trust - GP recall of (personal knowledge from) past
interactions
2.3.1. undermine trust - GP doing something that worries patient
2.3.2. barrier to IP trust - non compliance
2.3.3. barrier to IP trust - negative experience of care
2.3.5. barrier Ip trust - lack of time
2.4.1. outcomes IP trust compliance
2.4.10 outcomes IP trust - patient willing to consult / does not delay
2.4.11. outcomes IP trust - easier for GP to reassure patient
2.4.12. outcomes IP trust - can be an emotional burden on GP/have
obligations
2.4.13. outcomes IP trust - can lead to higher patient
expectation/demand
2.4.2. outcomes IP trust  - makes patient feel more comfortable/
reduce anxiety
2.4.3. outcomes IP trust - disclosure
2.4.4. outcomes IP trust - fewer consultations / more  effective care
2.4.5. outcomes IP trust -  deal with difficult issues/talk not
prescribe
2.4.6. outcomes IP trust - GP feels privileged
2.4.7. outcomes IP trust - patients want to maintain continuity
2.4.8. outcomes IP trust - GP incentive to be trustworthy
2.4.9. outcomes IP trust - reduction of uncertainty
2.5.1. outcomes no IP trust - leads to poor outcomes/patient dissat
2.5.2. outcomes no IP trust - patient won't accept dealing with
difficult issues
2.5.3. outcomes no IP trust - patient not willing to consult/ may
delay
2.5.4. outcomes no IP trust - no compliance
```

2.6.1. unfamiliar GP - patients less comfortable/ less likely to accept treatment
2.6.2. unfamiliar GP - less likely to treat appropriately (expertise in partic problem)
2.7.1. incentive to be trustworthy - own patients
2.7.2. incentive to be trustworthy - anticipation of future interactions
2.7.3. barriers to acting in patients best interests - emotional
2.7.4. incentives to be trustworthy - patient characteristics don't influence
3.1.1. validation of patient - inappropriate use of service
3.1.2. validation of patient - frequent consulters as valid patients
3.1.3. validation of patient - first impressions
3.1.4. validation of patient - knowing how they react
4.1.1. continuity - makes care more appropriate / effective
4.1.3. continuity - when patients break continuity
4.1.4. continuity as a way of managing inappropriate / difficult consultation
4.1.5. GP lower trust in unfamiliar patient
5.1 placed trust sufficient for minor/routine probs
5.2. Ip trust valued for serious probs
6.1.1. validation of GP - patients testing of GP competence
6.1.3. validation of GP - good med opinion and referral
6.1.4. validation of Gp - choice of seeing other GPs to validate
7. non-cooperative/manipulative patients
8.1. basis situational trust - read notes / prepared for patient/ ask questions
8.2. basis situational trust - IP skills
8.3. situational trust - promoted by anticipation of future interactions

APPENDIX 3

PUBLISHED PAPER

Appendix 3.1 Tarrant. C., Stokes, T., & Colman, A. (2004). Models of the medical consultation: opportunities and limitations of a game theory perspective. *Quality and Safety in Health Care, 13,* 461-466.

Qual Saf Health Care 2004;**13**:461-466

EDUCATION AND TRAINING

Models of the medical consultation: opportunities and limitations of a game theory perspective

C Tarrant[1], T Stokes[1] and A M Colman[2]

[1] Division of General Practice and Primary Health Care, Department of Health Sciences, University of Leicester, Leicester General Hospital, Leicester LE5 4PW, UK
[2] School of Psychology, University of Leicester, Leicester LE1 7RH, UK

Correspondence to:
Carolyn Tarrant
Division of General Practice and Primary Health Care, Department of Health Sciences, University of Leicester, Gwendolen Road, Leicester LE5 4PW, UK; ccp3@le.ac.uk

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ABSTRACT

The medical consultation is best understood as a two-way social interaction involving interactive decision making. Game theory—a theory based on assumptions of rational choice and focusing on interactive decision making—has the potential to provide models of the consultation that can be used to generate empirically testable predictions about the factors that promote quality of care. Three different game structures—the Prisoner's Dilemma game, the Assurance game, and the Centipede game—all provide insights into the possible underlying dynamics of the doctor-patient interaction. Further empirical work is needed to uncover the underlying game structures that occur most commonly in medical consultations. Game theory has the potential to provide a new conceptual and theoretical basis for future empirical work on the interaction between doctors and their patients.

Keywords: game theory; medical consultation; doctor-patient relationship; primary health care; decision making

The medical consultation is best understood as a two-way social interaction. In a typical consultation the doctor elicits information from the patient, then offers a diagnosis or opinion and may also discuss and offer treatment. The patient can choose what information to disclose and how to present it, can ask questions that influence the doctor's perception of the problem, can make explicit requests and, above all, can choose how to respond to the advice offered or the treatment prescribed. The outcome of the consultation is affected by the actions and choices of both participants. In other words, a consultation involves *interactive* decision making. The closely related notion

of *shared* decision making—the idea that doctors should collaborate with patients in making treatment or management decisions—has been the focus of extensive conceptual and empirical research, particularly in the context of primary care.[1,2] There is little evidence that shared decision making routinely happens in consultations,[3] but it is clear that even if the decision making *process* is not shared, the outcome of the consultation will still usually depend on the choices of both the doctor and the patient—the doctor's decision about treatment or management and the patient's decision about whether or not to follow the advice or prescribed treatment.

A conceptual apparatus for describing and analysing interactive decision making is supplied by game theory. The theory emerged in the 1940s[4] following preliminary work by the French mathematician Borel and the Hungarian mathematician von Neumann in the 1920s and 1930s. Its influence in the social and behavioural sciences began to grow after the publication of a more accessible account of the theory by Luce and Raiffa,[5] culminating in the award of Nobel prizes to three leading game theorists in 1994. Game theory has found wide application in social psychology where it has been used to model decision making in a range of contexts[6] including economics,[7,8] politics,[9,10] and biological sciences.[11]

Hockstra and Miller[12] were among the first to recognise the interactive nature of decision making in medical consultations, and hence the value of game theory in modelling this decision making process. There has also been some interest in the use of game theory to develop prescriptive models of medical decision making.[13] Game theory has the potential, however, to provide a valuable theoretical basis for broader questions about the medical consultation. This approach has received little attention, with the exception of the work by Batifoulier which explored the relevance of game theory models to the doctor-patient interaction, and drew on this theoretical perspective to address the question of what produces cooperation between the doctor and the patient.[14] Palombo also used game theory principles as the basis of a discussion on the development of the therapeutic alliance in psychiatry.[15]

Game theory may have particular value in increasing our understanding of doctor-patient relationships. A recent narrative review of empirical research has found evidence that continuing relationships between doctors and patients are associated with a range of measurable positive outcomes, including quality of care, adherence to treatment, and patient satisfaction, but may also be associated with negative outcomes including poorer control in diabetic patients and difficulty in the application of evidence based care.[16] However, much of this research is pragmatic, lacking a theoretical basis through which findings can be integrated and from which new hypotheses can be developed and tested. The theoretical and experimental literature on game theory and experimental games includes a huge body of research on the factors promoting cooperation, reciprocity and trust, which could be applied to developing an understanding of cooperation and trust in the consultation.

Work carried out by Gutek and colleagues in the US and Australia[17–19] provides a good example of the use of game theoretic principles to model the organisation of service provision and its impact on service quality. Based on game theoretic principles, Gutek asserted that continuing relationships between providers and consumers are conceptually distinct from the other modes of service provision and have unique features that help to promote cooperation and quality of care. Her empirical work

provided evidence to support this assertion. Customers who received service within relationships were more likely to trust their providers and recommend their providers to others. They reported more personalised service within relationships and were more likely to direct complaints to their individual providers than to managers.[19] Service relationships were also found to be linked to higher customer satisfaction and higher frequency of service use.[18] Gutek's work provides an illustration of the use of game theory to develop a theoretical model and to generate and test predictions about service quality. Although this work did not have a specific focus on medical care, it does point to the value of further research using game theory models to identify predictors of quality in health care.

We propose that game theory has the potential to provide models of the consultation and its organisational context—models that can be used to generate empirically testable predictions about the factors that promote good quality health care. In this paper we (1) introduce the key concepts of game theory; (2) outline some game structures and evaluate their relevance to the medical consultation in primary care; and (3) discuss the possible contribution of game theory models to research into the consultation and quality of health care. The paper focuses particularly on doctor-patient interactions in the context of primary care. However, all medical consultations are social interactions and, as such, it is likely that this approach will have relevance to understanding medical consultations more generally.

KEY CONCEPTS OF GAME THEORY

Game theory is concerned with decisions in which the outcomes depend on the actions of two or more decision makers, called *players*, and where each player has two or more ways of acting, called *strategies*. Each player is assumed to have clear preferences among the possible outcomes. The theory is not concerned with the sources and nature of preferences and beliefs but assumes that people generally try to do the best for themselves in the light of their beliefs.[20] Essentially, game theory provides a means of abstracting the fundamental structure of an interaction and representing it in terms of a strategic game.

Prisoner's Dilemma game

The most famous of all strategic games, the Prisoner's Dilemma game, is a standard model of a two-person interaction involving cooperation and competition, or trust and betrayal. Its name comes from a scenario involving two people, arrested and charged with involvement in a serious crime, held in separate cells and prevented from communicating with each other. The police have insufficient evidence for a conviction unless at least one of the prisoners discloses incriminating information. Each prisoner is faced with a choice between concealing information (*C*) and disclosing it (*D*). If both conceal the information, then both will be acquitted. If both disclose the information, then both will be convicted. If only one prisoner discloses the information, then that prisoner will be acquitted and will also receive a reward for helping the police (the best possible outcome), while the prisoner who conceals the information will receive an especially heavy sentence (the worst possible outcome). It is customary to interpret the *C* strategy as *cooperate* and the *D* strategy as *defect*.

The underlying structure of the Prisoner's Dilemma game is shown in fig 1.

		II	
		C	D
I	C	3, 3	1, 4
	D	4, 1	2, 2

Figure 1 Prisoner's Dilemma game. Player I chooses between rows C (cooperate) and D (defect), player II chooses between columns C and D, and the numbers in each cell represent the payoffs to player I and player II in that order, 4 being best, 3 second best, 2 third best, and 1 worst.

A key concept in game theory is the Nash equilibrium, named after the Nobel laureate John Nash, the subject of a biography by Sylvia Nasar[21] and an Oscar winning film entitled "*A Beautiful Mind*". For a two player game, a Nash equilibrium is a pair of strategies that are best replies to each other, a best reply being a strategy that yields the best outcome to the player choosing it, given the co-player's strategy. The unique Nash equilibrium in the Prisoner's Dilemma game is joint defection (*D*, *D*), with both prisoners disclosing information. This is because *D* is a best reply for both players in the sense that it yields a better outcome to each individual than cooperating, whether the co-player chooses to cooperate or to defect. Although both prisoners would be better off if they both chose to conceal the information (*C*, *C*), joint cooperation is not in equilibrium. This is because the best reply to a cooperative (*C*) strategy is defection (*D*)—a prisoner who discloses information while the other conceals it is not only acquitted but also rewarded. And by choosing *C*, a prisoner exposes himself to the risk of the worst possible outcome for himself—the possibility of an especially heavy sentence if the other prisoner succumbs to the temptation of a reward for confessing. (*D*, *D*) is the only outcome in which each player's strategy is a best reply to the co-player's. From a purely game theoretic point of view, cooperation is never a rational strategy in a one-off Prisoner's Dilemma game.

Prisoner's Dilemma and the consultation

With reasonable simplifying assumptions, medical consultations in primary care may have an underlying structure that corresponds to the Prisoner's Dilemma game. In any consultation it is possible for the doctor either to act in the patient's best interests (*C*) or (whether through error, misjudgement, lack of skills, or conflicting goals) to take a course of action that is not in the best interests of the patient (*D*), leading to poor quality care. The patient, in any given consultation, has to decide whether to go along with the doctor's advice or prescribed course of treatment (*C*), or not (*D*).

The following hypothetical scenario will provide an intuitive interpretation of a prisoner's dilemma in a medical consultation. Let us suppose that during a busy Friday afternoon surgery at a general practice, a doctor is consulted by an adult patient who has had a sore throat for several days. The examination findings reveal a red throat, a slight fever, and slightly swollen cervical lymph nodes. The doctor considers whether, on the one hand, to give the patient a prescription for antibiotics, hence dealing with the patient in less than 5 minutes or, on the other, to undertake a full assessment of lifestyle and

other contributing factors and to give tailored written advice about self-management which would prolong the consultation to over 10 minutes. The patient can choose either to follow the course of treatment/advice or not to follow the course of treatment/advice (and to take other action which might include consulting another doctor in the same general practice for a second opinion). There are four possible outcomes:

- (*C*, *C*): the doctor spends time giving advice; the patient chooses to follow the advice.
- (*C*, *D*): the doctor spends time giving advice; the patient chooses not to follow the advice.
- (*D*, *C*): the doctor gives a prescription; the patient follows the course of treatment.
- (*D*, *D*): the doctor gives a prescription; the patient does not follow the course of treatment.

In this example there is an intuitive sense in which (*C*, *C*) is best all round—the doctor does best by the patient and the patient follows the doctor's advice without taking up valuable time of other doctors. But this outcome is not a Nash equilibrium. The unique Nash equilibrium is joint defection (*D*, *D*), as explained earlier. By choosing *D*, both doctor and patient avoid the risk of the worst possible outcome for themselves—that is, cooperating when the other player chooses to defect. If the doctor chooses to deal with the patient quickly by issuing a prescription rather than spending time to find a more appropriate management option, then the best outcome for the patient is achieved by choosing not to follow through with the treatment and getting a second opinion; and if the patient decides in this way, then the best option for the doctor is to deal with the patient quickly. However, (*D*, *D*) would clearly not make for good quality care and is obviously not the most desirable outcome. That is why the Prisoner's Dilemma game, and actual interactions which have its strategic structure, are considered somewhat paradoxical and problematic.

Factors promoting cooperation

In a single-play Prisoner's Dilemma game as described above, game theoretic principles show that cooperation is not a rational strategy. However, the situation is different when we consider interactions that are expected to continue indefinitely in the future. *Evolutionary game theory*, which rose to prominence in the 1980s, stimulated primarily by the work of Maynard Smith[11] and Axelrod,[9,10] focuses precisely on such indefinitely repeated games. Analysis of the indefinitely repeated Prisoner's Dilemma game reveals that, in this context, it is possible to find cooperative strategies that are Nash equilibria.[22] This suggests that cooperation is a rational strategy only when interactions are embedded in a sequence of repeated contacts that are expected to continue indefinitely in the future. Important factors that promote cooperation include players' anticipation of future interactions and their ability to recognise each other and recall past interactions.[9,23,24] If players anticipate interacting again in the future, then they can foresee future payoffs from mutual cooperation. In addition, the threat of recrimination from the other player in future interactions acts as a disincentive to defection.

In the context of the consultation, mutual cooperation becomes a more attractive prospect if future interactions are anticipated. There are incentives for the doctor to spend time finding an appropriate management approach: consultations with the same patient in the future are likely to take up less time and the doctor will have the

satisfaction of carrying a management plan through to completion. The patient is likely to follow through with the treatment if there is an expectation that the doctor will monitor his progress in the future. Both the doctor and the patient can anticipate future payoffs from this mutual cooperation, and this model implies that higher quality of care can be achieved when the patient sees the same GP repeatedly.

This consideration lies at the heart of the service quality models proposed by Gutek[17–19] and provides a valuable theoretical basis for models of the organisation of health care—in particular, the role of doctor-patient relationships in providing good quality care.

Unequal payoffs in the Prisoner's Dilemma game

There are some potential problems with assuming that the Prisoner's Dilemma game would be an appropriate model of doctor-patient interactions. In particular, the Prisoner's Dilemma game as described above models player I and player II as interchangeable—the payoffs to each player under each condition are of the same value. However, in reality the doctor and patient occupy very different roles. In many ways the stakes are higher for patients than for doctors—it may be crucial for a patient that the doctor gives the most appropriate care or treatment, but a patient's choice of whether or not to follow advice may have little or no implication for the doctor. It may be more plausible to think of a medical consultation as having the basic strategic structure of the Prisoner's Dilemma game but with the payoffs having a far greater impact on the patient than the doctor (fig 2✦). As in any Prisoner's Dilemma game, each player benefits from the co-player's cooperation and both are better off if both cooperate than if both defect. But in fig 2✦ the payoffs reflect the fact that the doctor's (player I's) cooperation has a large impact on improving the patient's (player II's) payoffs, whereas the patient's cooperation leaves the doctor only slightly better off. Each player has reason to hope for cooperation from the other, and joint cooperation is in both players' interests, but it is more important to the patient that the doctor cooperates (by providing appropriate treatment or management advice) than it is to the doctor that the patient cooperates.

		II	
		C	D
I	C	3, 7	1, 8
	D	4, 0	2, 1

Figure 2 Modified Prisoner's Dilemma game. In this example the outcomes matter much less to the doctor (player I) than to the patient (player II)—in particular, the doctor's action has a much greater impact on the patient than vice versa.

OTHER GAME THEORY MODELS

Assurance game

The Prisoner's Dilemma game assumes that there is a conflict between self-interest and the benefits achieved through mutual cooperation. However, it may be that some types

of medical consultation are more accurately represented as coordination games[25] where both the doctor and patient benefit most from joint cooperation. The Assurance game, introduced by Sen,[26] models interactions where mutual cooperation is the best possible outcome, but where cooperation may involve an element of risk. In such situations both players need assurance or trust to risk cooperation. The Assurance game is shown in fig 3.

		II	
		C	D
I	C	4, 4	1, 2
	D	2, 1	3, 3

Figure 3 Assurance game: cooperation involves risk and therefore requires trust.

Sen gave the following illustrative interpretation of the game. Two people face the choice of going to a lecture (*C*) or staying at home (*D*). Both regard going to the lecture together to be the best alternative; both consider staying at home together to be the next best; and each considers going to the lecture without the other worst. The Assurance game differs from the Prisoner's Dilemma in that the (*C*, *C*) outcome is a Nash equilibrium—neither player can do better than to cooperate if the other chooses to cooperate. For player I, *C* is the best reply to player II's *C*, and for player II, *C* is the best reply to player I's *C*. But there is another Nash equilibrium at (*D*, *D*), where strategies are also best replies to each other. Furthermore, the Nash equilibrium that both prefer (that is, mutual cooperation) involves greater risk because each has to risk the worst possible payoff if they choose to cooperate and the co-player defects. This game models situations in which both participants are better off working together, but if either defects from a cooperative mode of interaction it is best for the other to do likewise because unilateral cooperation yields the worst possible payoff to the cooperator and does not bring much benefit to the co-player.

One intuitive example of the Assurance game in the context of a medical consultation might be health promotion activity, such as a doctor initiating a patient onto a smoking cessation programme. Clearly both the doctor and the patient are better off if the smoking cessation programme is initiated, but without the assurance that the patient will cooperate the doctor risks substantial losses. The worst payoff for the doctor would come from putting time and effort into initiating a programme when the patient has no intention of cooperating. Without assurance, the best strategy for the doctor would be defection—that is, not attempting to initiate the programme at all as this minimises the risk of ending up with the worst payoff.

Trust and assurance are crucial in promoting cooperation in the Assurance game. If each player can be relatively confident that the other will cooperate, then mutual cooperation

is a likely outcome. As in the case of the Prisoner's Dilemma game, the outcome will be influenced by whether the interaction is a "one-off" or is in the context of a series of repeated interactions. If the doctor and patient have a history of past interactions, then each will have information about the other on which to base judgements of how likely the other is to cooperate. Also, if the doctor and patient anticipate interacting again in the future, each can make clear their commitment to working together. Communication in the consultation is also likely to play an important role in the assessment of trust and assurance. The Assurance game may provide a valuable basis for research into trust in the consultation.

Centipede game

Both the Prisoner's Dilemma game and the Assurance game provide models of single interactions, although it is possible for these games to be played repeatedly by the same two players, each time with the same basic game structure. The two-person Centipede game, introduced by Rosenthal,[27] is less well known but is attracting increasing attention from game theorists. Rather than providing a complete model of a single interaction, the Centipede game is designed to model interactions repeated a certain number of times between a pair of players. A simple version with just two moves for each player each is shown in fig 4, but the game could be extended to any number of moves.

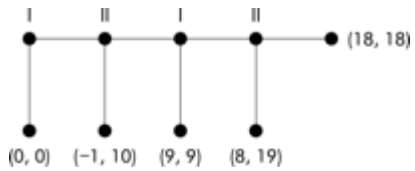

Figure 4 Centipede game. Starting at the left, players I and II alternate in choosing whether to defect by moving down or to cooperate by moving across. If a player defects, then the game stops at that point and the payoffs are shown in parentheses (in the order I, II).

The sequence of moves starts at the left. Players I and II alternate in choosing whether to defect (by moving down) or to cooperate (by moving across). If either player defects at any point, then the game stops and the players receive the payoffs shown in parentheses (player I's on the left, as usual). For example, if player I defects down on the first move, then the game stops and both payoffs are zero. But whenever a player makes a cooperative (across) move, that player loses 1 unit and the co-player gains 10. If player I cooperates on the first move, losing 1 unit and adding 10 to player II's payoff, and if player II promptly defects down, then the game stops and the payoffs are –1 to player I and 10 to player II, and so on. If both players cooperate on every move, then the game ends automatically after the fourth decision with a payoff of 18 to each player. The game could, of course, be much longer with even larger payoffs towards the Centipede's head.

This game has much in common with the Prisoner's Dilemma game, because both games model two-person interactions in which joint cooperation is in the interests of both players but each faces a temptation (in Centipede, an escalating sequence of temptations) to defect. In both games the players benefit from each other's cooperation. But the Centipede game obviously models a continuing relationship in which the mutual

benefit of cooperation *increases* over successive encounters, and in which mutual trust and trustworthiness are essential if cooperation is to be possible. This is often seen in the context of the doctor-patient relationship. Investment over time by the doctor and patient in an ongoing relationship can bring increasing mutual benefit—the doctor's personal knowledge of the patient is often helpful in making appropriate diagnosis and management plans, and the patient may have increasing confidence in the treatment. However, this is difficult if the doctor or patient are unable to rely on the other's cooperation.

The Centipede game provides an illuminating model of dyadic relationships in which the temptation to defect at each stage threatens the sequence of increasing payoffs. Patients and doctors may choose to defect from the relationship in a number of different ways. A defecting move by a patient might be non-acceptance of treatment or advice or, at the extreme, may involve literally terminating the relationship by switching to a different doctor. Defection by the doctor may involve asking the patient to see a different doctor, or stopping the Centipede game without actually breaking off the relationship. The latter might occur, for example, in response to a perceived abuse of the doctor-patient relationship by the patient, following which the doctor and patient continue to see each other in medical consultations but the relationship of trust is severed and the increasing mutual gains from reciprocal cooperation no longer apply. The Centipede game may also act as a useful model of interactions within a single consultation where a sequence of cooperative moves by a patient and doctor (for example, expression of empathy by doctor, disclosure of additional symptoms by patient) may build to a mutually rewarding outcome. In contrast, defection at any stage (for example, a rejection by the patient of the doctor's suggested diagnosis) may lead to termination of the consultation without benefit to either party.

Rosenthal[27] showed that defection is always rational, and the only Nash equilibrium involves player I defecting on the very first move. To see why this is so, consider the last decision node where player II can either defect and gain 19 or cooperate and gain 18. A rational player II would defect, but that means that, on the previous move, player I would anticipate this and would defect to gain 9 rather than 8, and this argument can be extended back to the first move. This conclusion highlights a weakness of formal game theory because intuition suggests, and experiments have confirmed, that people are far more cooperative—almost all cooperating on the first move and many even on the last—and as a result they gain substantial benefits. This is a striking example of human reciprocal cooperation with mutual benefit. Behavioural game theory, which has recently begun to attract a great deal of interest across the social and behavioural sciences,[7] is devoted precisely to discovering and explaining behaviour of this kind, even (or especially) when it deviates from the formal prescriptions of orthodox game theory.

DISCUSSION

This review has indicated that game theory can be applied to the medical consultation and used to generate predictions about how the context of a doctor-patient interaction influences cooperation and quality of care. In particular, game theory models indicate that a history of past interactions between a doctor and patient and anticipation of future interactions make cooperation and good quality care more likely.

These principles formed the basis of the work by Gutek[17] who inferred that ongoing provider-customer relationships promote mutual cooperation and improved quality of service. Gutek's work highlights the potential for the use of game theory in the organisation and provision of health care, but this needs to be developed further. Not all repeated contacts between doctors and patients lead to cooperation; for example, some ongoing relationships are problematic and, in some cases, cooperation is difficult (or impossible) to get going. So-called "heartsink" patients are a clear example of this.[28] There would be value in further research based on predictions drawn from game theory to investigate which features of repeated doctor-patient interactions are more or less likely to lead to mutual cooperation and good quality care.

The Prisoner's Dilemma is the most commonly used game structure in game theoretic research.[29] However, there are many other possible game structures that might be appropriate models of the medical consultation, including the Assurance and Centipede games. We have given intuitive examples of how game theory models might apply to the medical consultation, but empirical work to identify and develop appropriate game theoretic models of the medical consultation would be of great value, and would open up further possibilities for the use of applied game theory in consultation research.

The development of game theory models of the doctor-patient interaction presents an interesting challenge because of the different and non-interchangeable roles of the doctor and patient within the interaction. Game theory models generally assume that the order of preference for outcomes is identical for both players, and that the players are essentially interchangeable. However, the doctor and patient may differ greatly in the value they put on different consultation outcomes, and their preferences for different outcomes may not be symmetrical. This needs to be addressed in future research.

Key messages

- Game theory provides a new perspective for research into the medical consultation.
- Doctors and patients have identifiable goals and aspirations, and this makes game theoretic models potentially relevant.
- Different game structures give insight into the underlying dynamics of different types or aspects of doctor-patient interactions.
- Game theory can provide the basis for empirically testable models of the doctor-patient interaction and the factors that promote quality of care.

Game theory allows us to model, and to make predictions about, the impact on trust, cooperation, and quality of care of contextual factors such as whether participants anticipate interacting in the future, whether they have a history of past interaction, and so on. These factors are potentially important, over and above the familiar and well researched individual factors such as the interpersonal or communication skills of the participants. Furthermore, contextual factors are potentially important inasmuch as the organisation of care is more amenable to change than are ingrained individual

characteristics. Insight into the effects of contextual factors on cooperative interaction in primary health care also opens up the possibility of predicting how organisational changes are likely to impact on these important process and outcome variables. Game theory provides a suitable conceptual framework within which past findings can be brought together into an integrated model to generate new hypotheses which can then be tested empirically.

Game theory was originally devised to model purely rational decision making in strategic interactions. Decades of experimental research have revealed, however, that human decision makers deviate from the prescriptions of the theory in certain games, including the Prisoner's Dilemma and Centipede games.[20] In particular, human decision makers often behave far more cooperatively than the theory predicts. Psychological game theory[6] and behavioural game theory[7] have been developed specifically to explain such behaviour and to provide more accurate models of real human interaction. This new and developing field has much to contribute to new understandings of the doctor-patient interaction and its organisational context.

CONCLUSIONS

Game theory can allow us to represent some of the fundamental features of medical consultations and their organisational context, and the theory provides a strong conceptual and theoretical basis for empirical work from which it is possible to generate empirically testable hypotheses about interactions between patients and doctors. While this review has illustrated the applicability of game theory to models of the medical consultation, it is acknowledged that game theory has a wider applicability to different healthcare provider-patient interactions. The authors are currently involved in a programme of work to develop the application of game theory to the medical consultation in primary care.

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FOOTNOTES

See editorial commentary, p 415

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