

Current Status of Research Concerning Incompleteness in Obsessive-Compulsive Disorder

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Obsessive-compulsive disorder · Self-related incompleteness · Not-just-right experiences · Diagnostic instruments · Empirical results · Theoretical conceptualization

Summary

In this article, the research on incompleteness experiences in obsessive-compulsive disorder (OCD) is reviewed. Empirical data concerning the phenomenological differentiation between self-related incompleteness (SI) and 'not just right experiences' (NJREs) are presented. Diagnostic instruments and empirical results concerning frequency, association with different symptom-based subtypes and with symptom severity as well as the specificity of NJREs for OCD are outlined. Considerations and results concerning the theoretical conceptualization of incompleteness phenomena are summarized (SI as an OCD-specific form of depersonalisation/derealization, with the 'Two-Stages-Model' as an etiological hypothesis; NJREs as sensation-based perfectionism related to obsessive-compulsive personality features and tic disorders, with a presumed neurobiological origin). So far, there is a lack of studies evaluating modifications of cognitive-behavioral methods tailored to incompleteness-related OCD.

Schlüsselwörter

Zwangsstörung · Selbstbezogenes Unvollständigkeitserleben · Nicht-genau-richtig-Erleben · Erhebungsinstrumente · Empirische Befunde · Theoretische Einordnung

Zusammenfassung

In der vorliegenden Arbeit wird ein Überblick über den Forschungsstand zum Unvollständigkeitserleben bei Menschen mit Zwängen gegeben. Empirische Daten zur phänomenologischen Differenzierung zwischen selbstbezogenem Unvollständigkeitserleben (SU) und Nicht-genau-richtig-Erleben («not-just-right experiences»; NJREs) werden vorgestellt. Erhebungsinstrumente und Befunde zur Auftretenshäufigkeit, zur Assoziation mit unterschiedlichen symptombasierten Subtypen und mit der Schwere der Zwänge sowie zur Spezifität von NJREs für Zwänge werden skizziert. Überlegungen und Befunde zur theoretischen Einordnung von Unvollständigkeitsphänomenen werden zusammengefasst (SU als zwangsspezifische Form von Depersonalisation/Derealisation mit «Zwei-Bühnen-Modell» als ätiologischer Hypothese; NJREs als empfindungsbasierter Perfektionismus mit Bezug zu zwanghaften Persönlichkeitsmerkmalen und Ticstörungen und mit vermuteter neurobiologischer Basis). Bislang fehlen Studien zur Evaluation auf unvollständigkeitsbetonte Zwänge zugeschnittener Modifikationen kognitiv-verhaltenstherapeutischer Verfahren.

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Introduction

Cognitive-behavioral research is primarily characterized by theoretical approaches viewing obsessive-compulsive disorder (OCD)

as an anxiety disorder with underlying dysfunctional cognitions such as an excessive sense of responsibility or an overestimation of threat [e.g., Obsessive Compulsive Cognitions Working Group, 2003, 2005]. However, such dysfunctional beliefs (e.g., inflated responsibility, overestimation of threat, need to control one's thoughts, overestimation of the importance of thoughts) – contrary to cognitive models – are a primary concern for only about half of the OCD sufferers [Calamari et al., 2006; Taylor et al., 2006; Chik et al., 2010], and are not OCD-specific [Tolin et al., 2006; Viar et al., 2011]. Furthermore, 40% of those affected are not afraid of any specific consequences if their compulsive rituals are not performed [Tolin et al., 2001]. So which are the relevant processes within the subgroup of people with OCD who lack the typical dysfunctional attitudes and resulting fears of disaster?

Besides the reduction of anxiety, sufferers report a number of other motives for carrying out compulsions, including reduction or avoidance of disgust by washing compulsions [Deacon and Olatunji, 2007; Olatunji et al., 2007]. The 'feeling of incompleteness' is also increasingly being discussed as another, cross-subtype motive underlying OCD symptoms, which was mentioned, for the first time, in DSM-5 as one of the 'affective reactions' that occur in OCD [Falkai and Wittchen, 2015, p 325]. This is not least thanks to the empirical work stimulated by Summerfeldt's model [Summerfeldt et al., 2004; Summerfeldt, 2004, 2007, 2008; Summerfeldt et al., 2014]. Summerfeldt postulates 2 motivational-affective core dimensions of OCD: 'harm avoidance', which stresses anxious, exaggerated avoidance of potential risks, and which is common to OCD and other anxiety disorders, and an OCD-specific dimension of 'incompleteness'. Summerfeldt et al. emphasize [2004] that the same observable compulsive behavior can be associated with different underlying motivations in different sufferers: In addition to washing compulsions motivated by fear of contamination, there are also those intended only to achieve 'complete cleanliness' [Ecker and Gönner, 2006], and in addition to symmetry compulsions with fears of catastrophe based on magical thinking ('if my right knuckles crack spontaneously, I have to crack the left ones too, or my parents might have an accident'), there are those that serve to eliminate a 'not just right experience' (a variant of the feeling of incompleteness) ('I have to crack the ones on the other side, because otherwise it doesn't feel right') [Ecker et al., 2010].

Phenomenology of Feelings of Incompleteness

Feelings of incompleteness seem strange to us at first. This is not surprising, since the term was coined by Janet [1903] (*le sentiment d'incomplétude*) to characterize a typical experience of people with OCD which is difficult to put into words. It describes a peculiar inner experience, characterized by the feeling that one's actions, perceptions, or memories are experienced as distressingly incomplete, unfinished, or 'not just right', with no 'positive feeling of completion' [Heim and Bühler, 2003, p 214]. Two different aspects have been stressed in the adoption of Janet's work:

Self-related incompleteness (SI) means an altered self-experience during or immediately before/after a compulsive action. Hoffmann [2012, p 149] speaks of 'incompleteness related to oneself': Those afflicted feel 'not really there', alienated from themselves, as if in a trance, as if dreaming, 'standing alongside themselves', observing themselves from the outside, or acting mechanically, 'like robots'. This OCD-specific form of depersonalization can be accompanied by derealization and, in extreme cases, by bizarre, but clearly ego-dystonic experiences, e.g., when a sufferer, upon leaving the bathroom, has the feeling of 'not quite getting out of the mirror'. Another example is the following report from an OCD sufferer: 'I sat in the dark and wept bitterly, because I did not feel that I had really switched off the light'. This statement shows that SI during the compulsive action affects the immediate memory of the action. The person 'knows' that it is dark, but this knowledge of the *result* of the action does nothing for him. Reed [1991] observed early on that sufferers with checking compulsions often say that they already knew, e.g., that the door was closed before they checked it. Why then do they check? Answers like 'I think I remember all right. But it's blurry somehow – as though I'm not there' point to memory images with a lack of 'personal coloring'. The 'personal stamp' [Reed, 1991] is lacking; due to this 'impersonal quality', the remembered action is not experienced as a 'closed gestalt', but rather as unfinished and incomplete. So the question is: Did I lock the door? Or: Did I turn off the light? This lack of integration of the self into the memory of the action prompts repetitive behaviors to organically link the memory of the action to the person. However, since the encoding situation continues to be characterized by SI, the memory traces thus produced are incomplete just as they were before, so that the repeated failure to 'repair' the memory of the action is experienced as distressing and confusing.

The term 'not just right experiences' (NJREs [Coles et al., 2003, 2005]) describes a nagging inner dissatisfaction with one's actions or perceptions, which makes it difficult for people suffering from OCD 'to come to an end' [Summerfeldt, 2004]. NJREs lead to a compensatory 'just right' urge, which motivates sufferers to attempt to achieve a 'just right' feeling by repetitive behaviors. NJREs occur in different modalities, such as the visual (one's hair does not seem to be parted exactly in the middle), auditory (ritualized prayer does not sound exactly right), or proprioceptive (both shoelaces are not tied with 'exactly identical' tension). Other examples: a patient with washing compulsions reports that when he washes his hands, the water jet must strike his skin at the 'just right' angle, and in the shower, he has to repeatedly adjust the stream of water to achieve 'just the right angle of incidence' to his scalp. A patient with compulsive slowness, when getting dressed, repeatedly has the feeling that the garments 'are not positioned correctly' or 'do not feel right' (socks, underwear, collars, trouser legs, etc.), and therefore has to frequently repeat individual 'dressing procedures'. NJREs can also be found in non-clinical samples, in less intense form [Mathews et al., 2004].

Self-Related Feelings of Incompleteness and Not Just Right Experiences as Distinguishable Aspects of Feelings of Incompleteness

SI was introduced to the German OCD literature by Hoffmann [1998], who – as a native of Luxembourg – had read Janet in the French original. Internationally, however, understanding of incompleteness was until recently mostly limited to NJREs, since the first complete English translation of Janet was not available until 2013, only recently drawing the attention of English-speaking researchers to the dissociative and self-related aspects of Janet's clinical descriptions [Taylor et al., 2014]. Thus in the Summerfeldt model, incompleteness also exclusively relates to NJREs. In one of the first empirical studies of SI, Ecker et al. [2013a] demonstrated only a moderate correlation between SI and NJREs ($r = 0.45$), i.e., while the two constructs are not at all independent of each other, they represent clearly distinguishable aspects of the feeling of incompleteness. SI is highly correlated with depersonalization/derealization; NJREs have a medium correlation with OCD personality traits. SI is more closely correlated with depersonalization/derealization than with NJREs, while NJREs are more closely correlated with OCD personality traits than is SI. Thus, both variants show a differential pattern of correlations with anancastic and dissociative features. Ecker et al. [2013a] further demonstrated that both NJREs and SI independently contribute to the prediction of OCD severity, which underscores their clinical significance. For the reasons mentioned above, empirical findings otherwise almost exclusively refer to NJREs.

Diagnostic Instruments

Only diagnostic instruments published in the German language are described in somewhat greater detail. The Questionnaire on Self-Related Incompleteness (QSI-12) is a screening instrument for evaluating individual levels of SI in OCD which covers 4 clinically relevant subdimensions of SI (depersonalization, derealization, robot-like self-experience, lack of lively feelings) with 3 items per subscale. During or immediately before/after a compulsive action, SI shows itself in an altered experience of oneself ('I have the feeling that I am standing next to myself'), of reality ('my surroundings seem unreal'), of one's own actions ('I am acting somehow mechanically'), and of one's own feelings ('I do not feel really alive'). A linear structural equation model shows a good fit between the empirical data and the model structure. The internal consistency of the QSI-12 total scale and the individual subscales is excellent. The QSI-12 is also available in English and French translation; the first data with these versions are currently being gathered by the working group of Kieron O'Connor in Montreal.

Several instruments to assess NJREs are available in English: The Not Just Right Experiences Questionnaire-Revised (NJRE-QR) [Coles et al., 2005] gives 10 examples of not just right experiences (e.g., I had the sensation after getting dressed that parts of my clothes (tags, collars, pant legs, etc.) did not feel just right') and

asks whether these occurred within the past month. Then, with respect to the most recent not just right experience, 7 different ratings are compiled (including frequency, intensity, urge to respond behaviorally), the sum of which represents NJRE severity. The Obsessive-Compulsive Trait Core Dimensions Questionnaire (OCTCDQ) [Summerfeldt et al., 2001] consists of 20 items for the measurement of harm avoidance (10 items) and NJREs (10 items). The items are formulated in such a way as to avoid references to specific subtypes, e.g., 'Even if harm is very unlikely, I feel a need to prevent it at any cost' (harm avoidance) or 'Routine activities take me longer than they should, because they don't seem perfectly completed' (NJREs). Ecker et al. [2011] developed, based on a linear structural equation model, a shortened German revision with 10 items (6 for NJREs, 4 for harm avoidance) (Obsessive-Compulsive Trait Core Dimensions Questionnaire-German Revision; OCTCDQ-GR), with excellent internal consistency for NJREs and satisfactory internal consistency for harm avoidance ($\alpha = 0.88$ and 0.77 , respectively).

Summerfeldt et al. [2014] recently presented 2 more detailed diagnostic instruments – the Obsessive-Compulsive Core Dimensions Interview (OC-CDI) and the 31-item Obsessive-Compulsive Core Dimensions Questionnaire (OC-CDQ) (17 items for NJREs, 14 for harm avoidance). In the OC-CDI, the interviewer first goes through the Yale-Brown Obsessive Compulsive Scale symptom checklist and asks to what extent reported symptoms are motivated by NJREs and/or harm avoidance; this allows for a 'combined' motivation by both NJREs and harm avoidance, which is certainly a common clinical phenomenon. As further clarifying questions are possible if needed, the OC-CDI is a semi-idiographic interview. The patients' ratings are transformed into NJRE and harm avoidance scores for obsessions and compulsions.

Finally, we have to mention the University of Sao Paulo Sensory Phenomena Scale (USP-SPS) [Rosário et al., 2009], which assesses the occurrence and severity of so-called *sensory phenomena* before and during repetitive actions. This term encompasses not only NJREs triggered by tactile, visual, auditory input or internal feelings, but also unpleasant physical sensations in the skin, muscles, or joints in specific parts of the body, 'energy-release' sensations (generalized inner tension or energy that compels one to release it by a movement or action), and the 'urge only' phenomenon (the urge to perform a motion without additional sensations or feelings) [Lee et al., 2009]. The USP-SPS thus also covers phenomena that are typical of tic disorders, and is well suited for the study of the overlap between OCD and tic disorders [Neal and Cavanna, 2013].

To our knowledge, there are still no clinical studies that have captured NJREs with several instruments. In the only relevant analog study [Cogle et al., 2013], the NJRE-related subscale of the OCTCDQ had only a medium-high correlation with the severity of NJREs as measured by the NJRE-QR ($r = 0.47$). Thus, findings ascertained with different instruments are not fully comparable.

There is so far no consensus on the definition of feelings of incompleteness [Prado et al., 2008]. Thus, 57% of OCD patients described these feelings as exclusively mental, but 42% as a phenomenon comprising both mental and physical components [Leckman

et al., 1995]. Coles et al. [2003, p 683] speak of sensory/sensation-based perfectionism, Szechtman and Woody [2004, p 111] of 'abnormal absence of a terminator emotion'. According to Taylor et al. [2006], it is unclear whether NJREs are a purely sensory or affective phenomenon or whether they include a cognitive component. Summerfeldt [2004] conceptualizes NJREs as an intrinsic sensory-affective disturbance possibly due to a neurological dysfunction which precedes cognitive appraisals and may only secondarily trigger them.

Since SI and NJREs constitute mental states which are hard to put into words, OCD sufferers often experience the item formulations of the self-assessment scales as helpful and apt 'verbalization aids'. In particular, sufferers are often relieved to find that their symptoms are typical of OCD.

Frequency, Occurrence in Different Subtypes of OCD, Relationship with Symptom Severity

In clinical studies, at least half of OCD patients, sometimes as much as 70–80%, report NJREs [Leckman et al., 1995; Miguel et al., 2000; Summerfeldt, 2007; Ferrão et al., 2012]. Pietrefesa and Coles [2008] found in an analog study that symmetry and ordering compulsions were more strongly correlated with NJREs than with harm avoidance, whereas obsessions were more strongly correlated with harm avoidance than with NJREs. Other symptom dimensions (washing, checking, neutralizing) were equally strongly associated with NJREs and harm avoidance. Coles et al. [2005] reported, in their analog study, a significant correlation between symmetry/ordering and the urge to respond to experimentally induced or naturally occurring NJREs. Ecker and Gönner [2008] found, using regression analyses in a clinical sample of OCD patients ($n = 202$), significant correlations of the symptom dimensions 'symmetry/ordering' and 'checking' with NJREs, as well as of the symptom dimensions 'obsessions' and 'checking' with harm avoidance. In contrast to 'symmetry/ordering' (primarily related to incompleteness) and 'obsessions' (primarily related to harm avoidance), 'checking' was shown to be motivationally heterogeneous, with substantial associations with both NJREs and harm avoidance. Contrary to expectations, no significant correlation was found between 'contamination/washing' and NJREs or harm avoidance, which in our view suggests a greater significance of disgust, which was not assessed in the study.

A correlation of the intensity of NJREs with symptom severity is found in several studies [e.g., Ferrão et al., 2012; Sibrava et al., 2016]. According to Sibrava et al. [2016], a clinically significant level of NJREs is also associated with higher comorbidity and poorer functional status. Ecker and Gönner [2008] report that OCD severity contributes independently to the intensity of NJREs, but not to the extent of harm avoidance, if anxiety and depression are controlled. The authors assume that harm avoidance primarily plays a role for the initiation of compulsions (e.g., compulsions to check the stove because of fear of fire), while NJREs are responsible for the fact that OCD patients find it difficult to 'terminate' their ritu-

als. The more frequently OCD rituals have to be repeated in pursuit of a 'just right experience', the stronger and more debilitating the symptoms. The hypothesis that the two motivational factors play different roles in various phases of the compulsion (initiation of the action vs. difficulty in terminating the action) seems plausible, especially to explain motivationally heterogeneous compulsions (checking compulsions, perhaps obsessive rumination), but has not yet been empirically confirmed.

Further Evidence of the Importance of Not Just Right Experiences for OCD

According to the empirical findings of Coles et al. [2012], patients with OCD retrospectively reported that the 'just right' urge often played an important role in the transition from subclinical to clinical OCD symptoms. In a longitudinal analog study [Sica et al., 2012], NJREs predicted variations in obsessive-compulsive symptoms over a 1-year period, even if general distress and 'looming style' (a catastrophizing cognitive style) were statistically controlled. In 2 experimental analog studies [Cougle et al., 2011, 2013], the number and intensity of NJREs predicted the time spent hand washing and the urge to check. In an analog study by Pietrefesa and Coles [2009], NJREs correlated significantly with the desire to perform certain experimental tasks perfectly or 'just right'. In an analog study with 382 students, 318 of their mothers, and 288 of their fathers, Sica et al. [2013] showed that the intensity of the fathers' NJREs predicted the level of obsessive-compulsive symptoms in their sons, while intensity of the mothers' NJREs were not predictive. This was true even when parental anxiety symptoms and their level of OCD-associated beliefs were controlled. By contrast, none of the psychological variables of the parents that were assessed could predict OCD symptoms in the daughters. The authors raise the question of whether this selective prediction effect from fathers to sons – given the indications of a stronger genetic factor for OCD in men – could point to a role for NJREs as a psychological marker identifying a vulnerability for OCD, especially if such a finding could be replicated in a clinical trial.

Specificity of Not Just Right Experiences for OCD

According to Summerfeldt [e.g., 2004, p 1464], NJREs are 'unique to obsessive-compulsive phenomena', whereas harm avoidance is also typical of other anxiety disorders. The first part of this postulate was supported by a finding of Ghisi et al. [2010]: The severity of NJREs discriminated among OCD patients ($n = 30$), patients with other anxiety disorders ($n = 12$), and patients with depression ($n = 11$), even if the influence of OCD-associated dysfunctional beliefs was controlled. Conversely, these beliefs did not discriminate among the groups if severity of NJREs was controlled.

Since the Summerfeldt model posits that harm avoidance is not OCD-specific, but is also an important motivational factor for

other anxiety disorders, Ecker et al. [2014] compared the severity of NJREs and harm avoidance for OCD patients ($n = 170$), patients with anxiety disorders ($n = 38$) and depression ($n = 45$), and a non-clinical control group ($n = 220$). Their findings predominantly supported the Summerfeldt model: Severity of NJREs was significantly higher in the OCD group than in both of the other clinical groups and the non-clinical controls ($p < 0.001$). Moreover, the diagnosis 'OCD' contributed independently to the severity of NJREs ($\beta = 0.51$), whereas the diagnosis of an anxiety disorder did not. Contrary to the hypotheses, the diagnosis of a depressive disorder also contributed significantly to the severity of NJREs, albeit to a much lesser extent ($\beta = 0.1$). As hypothesized, OCD patients and those with anxiety disorders did not differ significantly concerning their level of harm avoidance. Harm avoidance was higher in the OCD group than in the depressive group and the non-clinical control group; in the anxiety group, on the other hand, it was higher than in the non-clinical control group, but not significantly higher than in the depressive group (although it was numerically higher). The diagnoses OCD ($\beta = 0.5$) and anxiety disorder ($\beta = 0.17$) were significant contributors to the level of harm avoidance, but – contrary to expectations – the same applied to the diagnosis of a depressive disorder ($\beta = 0.09$), although to a lesser degree.

So while NJREs appear to be relatively OCD-specific when comparing OCD with anxiety disorders and also (to a lesser extent) with depressive disorders, their occurrence in other disorders from the DSM-5 Category 'OCD and related disorders' – as well as in disorders so far being discussed only as 'candidates' for inclusion in this obsessive-compulsive spectrum – has not yet been adequately investigated. There are already clear indications that NJREs are part of the typical clinical picture of tic disorders [Prado et al., 2008; Neal and Cavanna, 2013] and autism spectrum disorders [Kloosterman et al., 2013].

With regard to the debate over specificity, it should be noted that NJREs are also found in a milder form in non-clinical samples [Mathews et al., 2004]. Finally, the analog study by Fergus [2014] indicates that, after taking into account control variables, not only OCD symptoms, but also symptoms of generalized anxiety disorder, may be related to NJREs.

Theoretical Conceptualization of Incompleteness Phenomena

Ecker and Gönner [2006] view SI as an OCD-specific variant of depersonalization/derealization, i.e., as a dissociative phenomenon (see also the findings of Ecker et al. [2013a]). A connection between dissociation and traumatic experiences has often been hypothesized [Maier et al., 2009]. Clinical experience shows that SI often arises in the context of emotionally distressing experiences (which do not have to involve trauma in the narrow sense).

According to Hoffmann [1998; Hoffmann and Hofmann, 2012], incompleteness feelings often develop biographically as a direct result of strong, confused, not fully expressed emotions in the con-

text of 'existential, deeply unsettling events' associated with feelings of powerlessness, helplessness, failure, and guilt [Oberhummer, 2001, p 279]. The key seems to be that an appropriate expression of the relevant feelings and their solution-oriented processing is not possible, for example due to lack of social support or deficient internal regulatory mechanisms [Hoffmann, 1998]. In many cases, such events, which coincide with the beginning of OCD symptoms, are not mentioned by the patients or not even remembered, because negative emotions associated with them are avoided, especially since not infrequently 'what happened was primarily not verbalizable' [Oberhummer, 2001, p 275].

Hoffmann and Hofmann [2002] described a patient who developed strong SI immediately after his very surprising, extremely humiliating dismissal after many years of employment with a company: 'I suddenly felt so uprooted, a frightening sense of hovering above the ground, of being set adrift in the world without support and security. Everything seemed blurred'. For this man, the 'ground was pulled out from under his feet'. He responded to his SI with a compensatory search for stability: 'Details of the outside world' moved 'to the center of his attention' and enabled him to regain 'pseudo-control of his inner world', of the inner feeling of chaos, on an external 'auxiliary stage' [Hoffmann and Hofmann, 2012, pp 198–199]: this process is illustrated by what happened immediately after the patient's dismissal, after he had just managed to drive home: 'When I was staggering along, barely able to stand, in front of the garage door of our house I saw a crack, and that was when the compulsion really began'. Subsequently, he was able, by observing compulsive rules in a 'secondary theater of war' (here: to avoid stepping on cracks), to regain a subjective sense of control in the short term. According to this 'two-stage model', developed over many years of clinical experience, but not yet scientifically validated [Hoffmann and Hofmann, 2012, p 138], SI occurs in the context of a lack of emotional processing of difficult biographical events. These are coped with by symbolically 'settling' the problem in the outside world, thus transforming it into a soluble problem.

NJREs and the compensatory 'just right' urge are often described as 'somewhere between mental and physical' [Leckman et al., 1995]. Due to the physical component, the 'just right' urge resembles the 'sensorimotor anticipation' [Rothenberger, 2002] prior to the onset of tics in motor tic disorders or Tourette syndrome, a disease characterized by motor and vocal tics [de Mathis et al., 2006]. People with tic disorders, if their tics come on suddenly and without sensory warning, often have the 'after-feeling' that the spontaneous tic was 'not right', and the urge to repeatedly and deliberately improve the 'not just right' movement pattern of the tic. Further evidence of an affinity between compulsions motivated by NJREs and tics is that NJREs occur more frequently in OCD patients with comorbid tic disorders than in OCD patients without tic disorders [Miguel et al., 2000; Diniz et al., 2006].

Family studies show a genetic affinity of at least a subset of OCD patients with tic disorders. There are higher rates of OCD in relatives of Tourette patients, as well as higher rates of tics and Tourette syndrome in first-degree relatives of OCD patients – the latter even when these OCD patients have no tics themselves [summa-

alized by de Mathis et al., 2006]. It is suggested that a so-called tic-related OCD phenotype [Rothenberger, 2002], often motivated by a ‘just right’ urge and associated with early onset, could be genetically – and also with regard to suspected neurobiological causes – related to tic disorders.

Many authors believe there is a neurobiological basis for NJREs. According to Summerfeldt [2004], NJREs result from the malfunction of an internal signal that normally terminates behaviors by producing a ‘feeling of knowing’, i.e., from an impairment of our normal ‘feeling of knowing’ [Szechtman and Woody, 2004]. However, there are only few empirical studies of hypothesized neurobiological correlates of such ‘false alarms’ which make it difficult to terminate compulsions. These studies point out that similar areas of the brain are affected as in tic disorders. Thus, Subirà et al. [2015] found an increase in the volume of gray matter in the left sensorimotor cortex in OCD patients with sensory phenomena compared to OCD patients without sensory phenomena.

Unlike authors who are neurobiologically oriented, cognitive theorists ‘normalize’ NJREs [Salkovskis and McGuire, 2003; Wahl et al., 2008]. They argue that most people, when confronting particularly important decisions (e.g., whom to marry or which house to buy), use an ‘emotion-based criterion’ like a ‘just right feeling’. However, OCD patients would overestimate the significance of everyday decisions because of subjective feelings of a threat of harm to themselves or others, resulting in ‘elevated evidence requirements’ (e.g., the experience of a ‘just right feeling’) for the decision to terminate an action. These authors therefore see the urge to achieve a ‘just right feeling’ as a secondary consequence of cognitions focusing on harm avoidance. It should be noted, however, that OCD symptoms motivated by NJREs not infrequently lack any harm-avoidant cognitive component.

NJREs are sometimes conceived as an OCD-specific variant of perfectionism [Frost et al., 2002], as sensation-based or sensory perfectionism [Coles et al., 2003]. Consistent with this hypothesis, patients mainly motivated by NJREs are more perfectionist than patients motivated mainly by harm avoidance [Summerfeldt et al., 2001]. There are also indications that the former, besides perfectionism, have additional obsessive-compulsive personality traits, either a normal ‘diligent personality style’ or a more extreme obsessive-compulsive personality disorder [Summerfeldt, 2004, 2007, 2008; Sibrava et al., 2016].

Clinical observations suggest that there is a close relationship between obsessive-compulsive personality traits and NJREs. People with obsessive-compulsive traits seem to suffer from NJREs and a compensatory ‘just right’ urge, regardless of whether they have additional OCD symptoms: Excessive striving for perfection leads them to want to do things ‘just right’ and, in extreme cases, where this does not seem possible, not to do them at all (‘no half-measures’). This often leads to an inability to make decisions because of endless weighing of all the pros and cons, with an agonizing ‘failure to achieve closure’ [Reed, 1991]. Excessive preoccupation with details also serves to avoid NJREs: Every problem has to be meticulously analyzed so as not to overlook anything and to be able to work out a perfectly correct solution. Ethical and religious scrupu-

lousness corresponds to a lack of tolerance for ‘not just right’ values and behavior, i.e., a ‘just right feeling’ can only be achieved via a morally flawless, ‘perfect record’. Even problematic interaction styles (reluctance to delegate tasks, inability to work as a team, rigidity and stubbornness, insistence on the subordination of others to one’s own habits) are fuelled by the urge to keep to ‘just right’ rules and to enforce their maintenance – i.e., others are subjected to the sufferer’s behaviors so that the sufferer can avoid intolerable NJREs [Ecker and Gönner, 2007].

Could NJREs thus be a motivational ‘common denominator’ of obsessive-compulsive symptoms and obsessive-compulsive personality traits motivated by NJREs? In accordance with this hypothesis, Ecker et al. [2013b] showed that obsessive-compulsive personality traits tend to be selectively linked with symptom dimensions frequently motivated by NJREs (symmetry/ordering and checking compulsions), but not with washing compulsions and obsessions which are more rarely motivated by NJREs. They were also able to show that the correlation of NJRE-motivated obsessive-compulsive symptoms with obsessive-compulsive personality traits is moderated to a large extent by NJREs. This relationship in fact tends toward zero if the influence of NJREs is partialled out statistically, whereas it is preserved after statistical control of anxiety, depression, pathological worry, and harm avoidance.

Effect on Treatment Effectiveness for Obsessive-Compulsive Disorders

As far as we know, there are no direct comparisons yet of the effectiveness of cognitive-behavioral methods for incompleteness-related versus non-incompleteness-related OCD. Regarding the effectiveness of pharmacotherapy with clomipramine or selective serotonin reuptake inhibitors, the few studies performed show very inconsistent results – i.e., OCD patients with sensory phenomena in some cases show worse, in some cases equally good, and in some cases better responses to treatment than those without sensory phenomena [summary in Prado et al., 2008]. Therefore, it must currently remain an open question whether the often-expressed hypothesis that incompleteness-related OCD symptoms are harder to treat [e.g., Summerfeldt, 2004] is correct.

Conclusion and Outlook

Although research on feelings of incompleteness in OCD could only be outlined very incompletely here for space reasons, it should be clear that incompleteness is a common and clinically relevant phenomenon, which is positively correlated with OCD symptom severity and can be differentiated in SI and NJREs. There are German-language diagnostic instruments for both variants. The empirically better-studied NJREs are more frequently but not exclusively found in certain subtypes (especially symmetry/ordering and checking compulsions). Compared with anxiety and depressive disorders, they are relatively OCD-specific, are considered OCD-

specific variants of perfectionism ('sensation-based perfectionism'), and show connections with tic disorders and obsessive-compulsive personality traits. SI is an OCD-specific form of depersonalization/derealization. Etiological hypotheses focus on learning history (such as the not yet empirically validated 'two-stage model') for SI, on neurobiological correlates for NJREs. However, neurobiological research on NJREs is still in an early stage.

Further research is urgently needed. There are too few studies with OCD patients; for example, analog studies that demonstrate a prediction of behavioral data by NJREs (e.g., with respect to washing/checking) have not yet been replicated with OCD patients. Serious research gaps also exist with respect to SI. Finally, clinically useful modifications of the cognitive-behavioral approach tailored

to incompleteness-related OCD which are described in detail elsewhere [Ecker et al, 2010; Ecker, 2014] need to be empirically evaluated.

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