Decoding the "Meh" – Assessment of Negative Symptoms in Psychosis

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ZUSAMMENFASSUNG

Negativsymptomatik beeinträchtigt die meisten Patienten mit Schizophrenie im Verlauf der Erkrankung. Sie stellt einen wichtigen Prädiktor für Krankheitsverlauf sowie soziale und berufliche Funktionsfähigkeit dar und ist bislang schwer positiv beeinflussbar. Um Negativsymptomatik als verlässlichen primären Endpunkt in Studien zu etablieren, muss das Konstrukt klar operationalisiert und validiert werden. Aktuelle Faktorenanalysen ergeben meist zwei Faktoren: Expressions-Defizite und Amotivation. Es finden sich konzeptionelle Überschneidungen zwischen Negativ- und depressiver Symptomatik. Zwei neu entwickelte Instrumente für Negativsymptomatik sind das Clinical Assessment Interview for Negative Symptoms (CAINS; Subskalen Expression und Motivation und Freude) sowie der Motivation and Pleasure – Self Report (MAP-SR; aus der „Motivation und Freude"-Skala des CAINS entwickelt). Wir evaluierten umfassend ihre psychometrischen Eigenschaften und untersuchen, ob das CAINS das Konstrukt Negativsymptomatik und der MAP-SR die Subdomäne Amotivation zuverlässig misst. Ebenfalls wurde untersucht, ob CAINS und MAP-SR sowie zwei Depressions-Testverfahren Patienten mit Schizophrenie, Patienten mit Depression und Kontrollpersonen differenzieren können. Die zweifaktorielle Struktur des CAINS konnte bestätigt werden; wir fanden weiter insgesamt gute Validität und Reliabilität. Der MAP-SR ist geeignet, Anhedonie zu messen, scheint aber weniger gut einsetzbar für die Beurteilung von Motivation. Die Expressions-Subskala des CAINS differenzierte Personen mit Schizophrenie und Personen mit Depression. Für die selbstbewertete Negativsymptomatik zeigte sich kein signifikanter Unterschied zwischen den psychiatrisch erkrankten Stichproben. Expressive Defizite und moderate Depressionswerte deuten auf ein Negativsyndrom hin, wohingegen eine relativ unbeeinträchtigte Expression und viel selbstberichtete depressive Symptomatik auf ein depressives Syndrom hinweisen. Es besteht Bedarf an validen und reliablen Selbstbeurteilungs-Instrumenten für Negativsymptomatik. Das CAINS ist insgesamt gut geeignet, Negativsymptomatik reliabel zu beurteilen; seine beiden Unterskalen messen klar und weitgehend reliabel unterschiedliche Aspekte von Negativsymptomatik.

ABSTRACT

Negative symptoms are prevalent in most patients with schizophrenia at some point of the illness. They constitute an important predictor of course of illness as well as social and occupational functioning and remain a major challenge with regard to treatment. For negative symptoms to become a reliable primary endpoint in studies, clear operationalization and construct validation is needed. Recent factor analyses mostly find the two factors diminished expression and amotivation. There is conceptual overlap between negative and depressive symptoms. Two recently developed instruments for negative symptoms are the Clinical Assessment Interview for Negative Symptoms (CAINS; subscales expression, and motivation and pleasure), as well as the Motivation and Pleasure – Self Report (MAP-SR, derived from the CAINS motivation and pleasure subscale). We comprehensively assessed their psychometric properties, inquiring whether the CAINS reliably measures the construct negative symptoms and the MAP-SR the subdomain amotivation. Further, we examined whether CAINS and MAP-SR and two depression ratings could differentiate subjects with schizophrenia, with depression and controls. We confirmed the CAINS' two-factorial structure with the domains expressive deficits and amotivation and found overall good validity and reliability. The MAP-SR was found adequate to assess anhedonia but less suitable when assessing motivation. Particularly the CAINS' expression subscale discriminated subjects with schizophrenia and subjects with MDE. The MAP-SR ratings showed no significant difference in self-rated negative symptoms between the psychiatric samples. Reduced expression and moderate levels of depression point to a negative syndrome, whereas relatively unimpaired expression and high scores of self-reported depressive symptoms indicate a depressive syndrome. There is need for valid and reliable self-rating instruments of negative symptoms. The CAINS is overall well suited to reliably assess negative symptoms; its two subscales clearly and mostly reliably measure distinct aspects of negative symptoms.

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CHAPTER 1: General Introduction

meh (mɛ) *excl* **1** *slang* an expression of indifference or boredom ▪ *adj* 2 *slang* mediocre or boring (Butterfield, 2011)

"I just don't really *feel* like I used to"

"I don't know what to talk about with my friends"

"He seems like a zombie – are you sure that's not the medication?"

"Yeah, group was OK – but I don't think I want to go next week"

1. Negative Symptoms

The following sections provide an overview of the concept *negative symptoms*: A brief placement in the context of the other symptom domains of psychotic disorders, a definition and demarcation (particularly from depression) of negative symptoms, an outline of the concept's history, some information on their course, subtypes, impact and treatment, as well as recent research on their factorial structure and how this is represented in established and novel instruments assessing negative symptoms.

1.1 Symptom Domains of Psychotic Disorders

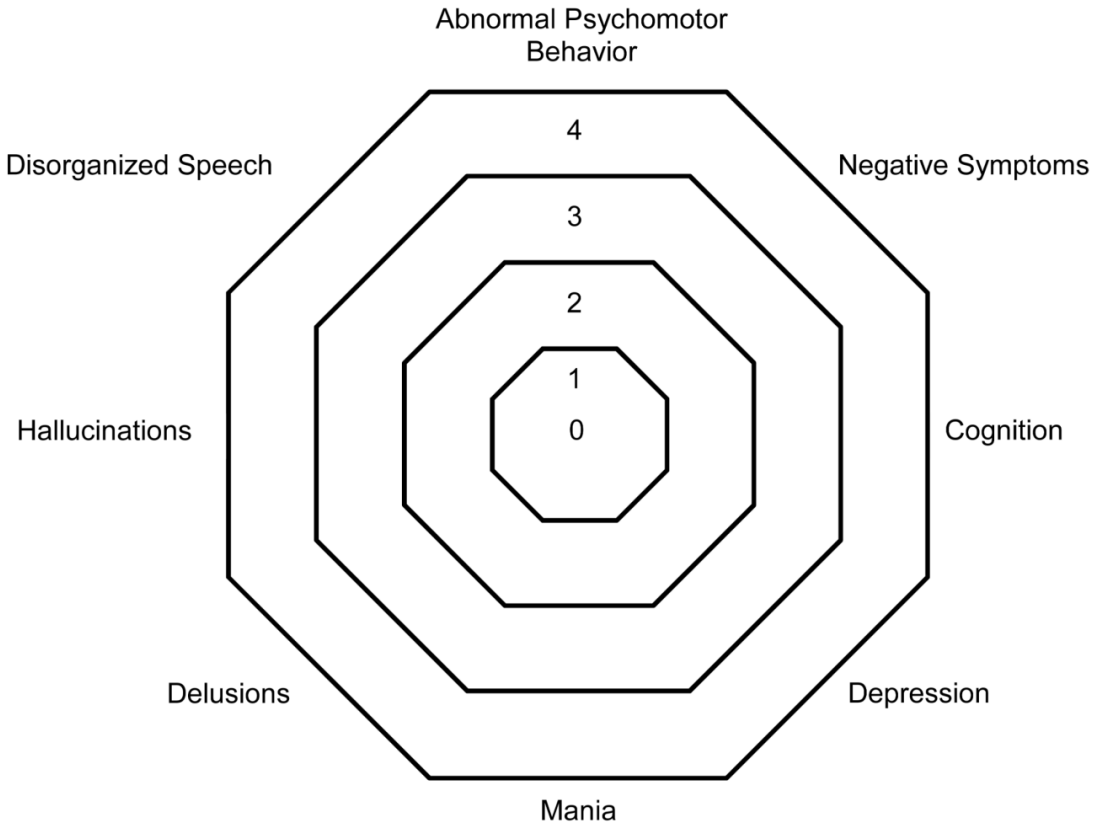
Psychosis is featured in a wide range of diagnoses in the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) which can be referred to as psychotic disorders. The most notable of the non-affective psychoses are schizophrenia, schizoaffective disorder, schizophreniform disorder, delusional disorder, and brief psychotic disorder. Substance- or medication-induced psychotic disorder and psychotic disorder due to another medical condition are also psychotic disorders (Heckers et al., 2013). Sometimes the affective psychoses, i.e. bipolar disorder with psychotic features and major depressive disorder with psychotic features, are included as well (Van Os & Kapur, 2009). These psychotic disorders differ i.a. in duration of illness, extent of dysfunction, co-presence of depression or mania, level of bizarreness of delusions, associated substance use, and presence of a somatic disorder (e.g. Van Os & Kapur, 2009). The A criteria for the diagnosis of schizophrenia consist of five psychopathological domains, namely hallucinations, delusions, disorganized speech, abnormal psychomotor behavior and negative symptoms. Symptom load can vary markedly within patients sharing the same diagnosis and the extent of severity of the symptom domains is important for differential diagnosis. Furthermore, there is evidence for shared genetic causes in the different psychotic disorders, as well as evidence for a continuum of "normal" thought to clinical psychosis (e.g. Allardyce, Suppes, & van Os, 2007). Thus, for quite some time researchers call

upon routinely including dimensional assessments of symptom domains to complement the standard categorical classifications; they argue this helps to more accurately determine prognosis and suitable treatments (Allardyce et al., 2007; Barch et al., 2013; Heckers et al., 2013; Van Os & Kapur, 2009).

According to Van Os and Kapur (2009), analysis of the psychopathology of psychotic disorders suggests that symptoms can be clustered into five main domains: 1) psychosis (i.e. delusions and hallucinations; the positive symptom domain), 2) changes in drive and volition (e.g. lack of motivation, reduction of spontaneous speech, and social withdrawal; the negative-symptom domain), 3) changes in neurocognition (deficits in memory, attention, and executive functioning; the cognitive symptom domain), and affective dysregulation with 4) depression and 5) mania. Aiming to merge this finding with the DSM-5's diagnostic criteria, Barch et al. (2013) argue for the assessment of eight domains, namely the above-mentioned five diagnostic A criteria for schizophrenia (i.e. hallucinations, delusions, disorganized speech, abnormal psychomotor behavior, negative symptoms) as well as depression, mania, and impaired cognition. They make the case for the inclusion of delusion and hallucinations as separate domains, noting that while both are signs of impaired reality testing, a) some of the psychotic disorders feature only delusions or hallucinations and b) since some treatments (e.g. cognitive behavioral therapy) target hallucinations and delusions differently, clinicians should be able to assess them separately. Conversely, for the negative symptom domain, Barch et al. (2013) argue against the division into the two subdomains *reduced expression* and *avolition* (which will be elaborated on in depth in section 1.6). They cite high correlations between the dimensions, current lack of effective treatment and the desire not to include too many dimensions. Concerning the three dimensions not featured in the A criteria for schizophrenia of the DSM-V, Barch et al. (2013) justify their inclusion thusly: For mania and depression, firstly, they point out evidence for schizoaffective disorder not being in an entirely distinct category separate from schizophrenia. Secondly, in patients with schizophrenia, the severity of mood symptoms is thought noteworthy with regard to prognosis

and outcome. Furthermore, they cite emerging evidence that treatment should specifically target affect. They did not consider cognition a differential diagnostic marker for schizophrenia and thus decided against including cognitive dysfunction in the A criteria, or the criteria for other psychotic disorders. However, they stress that a significant proportion of patients with psychotic disorders experience cognitive impairment, that there is a connection between cognitive function and functional status, and that cognitive deficits need specific treatments.

The DSM-5 includes the dimensional assessments of psychosis on those eight domains of psychopathology in section 3 (referred to for more study); see figure 1-1. The dimensions are to be rated for their current severity (most severe past month) on a five-point scale from 0 (*not present*) to 4 (*present and severe*). Scores equal to or higher than 2 imply that a criterion A diagnostic indicator for schizophrenia is fulfilled.



Notes. 0 = not present; 1 = equivocal; 2 = present, but mild; 3 = present and moderate; 4 = present and severe.

Figure 1-1. Dimensional assessment of psychosis according to DSM-V.

1.2 What Are Negative Symptoms?

Andreasen (1982) described five domains of negative symptoms that still stand to this day (Ahmed, Strauss, Fernandez-Egea, & Kirkpatrick, 2019; Millan, Fone, Steckler, & Horan, 2014). *Blunted affect* (or affective flattening or blunted expression) is characterized by lower intensity and smaller range of verbal and nonverbal expression of emotion including intonation (prosody), facial expression, hand-gestures and body movements. *Alogia* (or poverty of speech) is marked by decreased quantity of speech, reduced spontaneous speech and loss of conversational fluency (poverty of content of speech now is usually classed with disorganization (Millan et al., 2014)). *Social withdrawal* (or asociality) manifests itself by reduced interest in, motivation for, and joy in social interactions and close relationships. *Avolition* (or amotivation or loss of volition) is the lack of drive and motivation to begin and maintain goal-directed behavior, especially when requiring cognitive or physical effort and significant organization. This is further related to apathy and lack of energy. Lastly, *anhedonia* is characterized by the inability to experience joy and pleasure. With regard to anhedonia, anticipatory pleasure (i.e. looking forward to a reward, recreational or other pleasurable experience; "wanting") was found to be impaired more strongly than consummatory pleasure – the appreciation ("liking") of the experience itself (Gard, Kring, Gard, Horan, & Green, 2007; Millan et al., 2014). This points to a motivational deficit as opposed to a deficit of emotion perception (Foussias & Remington, 2010). Those five rationally derived symptom domains are strongly represented in assessment instruments. However, clinical studies rarely assess them separately (Kirkpatrick et al., 2006).

As there are different pathways leading to negative symptoms, the term *secondary negative symptoms* was introduced and highlights an important distinction (Carpenter, Heinrichs, & Wagman, 1988; Kirschner, Aleman, & Kaiser, 2017): While *primary negative symptoms* are caused directly by the disease of schizophrenia, secondary negative symptoms are induced by other factors. Kirschner et al. (2017) summarize that increased scores on negative symptom scales can be due to the following causes: 1) depression that includes i.a. anhedonia (e.g. Lako, Bruggeman,

et al., 2012), 2) positive symptoms that can lead to social withdrawal (e.g. Kelley, van Kammen, & Allen, 1999; Tandon et al., 2000), 3) side effects of medication that include emotional blunting (Kelley et al., 1999; Prosser et al., 1987), 4) substance use that can cause amotivation (e.g. Rovai et al., 2013), and 5) environmental conditions like social deprivation that can lead to avolition and social withdrawal (Kasanova, Oorschot, & Myin-Germeys, 2018; Oshima, Mino, & Inomata, 2005).

For quite some time, cognitive symptoms were thought of as part of the negative symptom domain. There are parallels with regard to prevalence, course of illness, role in prognosis, and correlation with functional impairment (e.g. Foussias & Remington, 2010; Harvey, Koren, Reichenberg, & Bowie, 2006). Furthermore, low-to-moderate correlations for negative symptoms and cognitive deficits were found (0.1 to 0.3; Dominguez Mde, Viechtbauer, Simons, van Os, & Krabbendam (2009)). However, some of this overlap could be explained by the sometimes imprecise definition of the negative symptoms domain. For example, "difficulty in abstract thinking" and "stereotyped thinking" feature in the Negative Scale of the Positive and Negative Symptoms Scale (PANSS, Kay, Fiszbein, & Opler (1987)), and there is an attention subdomain in the Scale for Assessment of Negative Symptoms (SANS, Andreasen (1989)). This can blur the line to the cognitive symptoms domain (Harvey, Green, Bowie, & Loebel, 2006). In a longitudinal study, Bell and Mishara (2006) found no link between change in negative symptoms and neurocognition. The authors conclude that while the symptoms co-occur, neither causes the other and they do not change at the same time, and thus, they represent semi-autonomous disease processes. Harvey, Koren, et al. (2006) reinforce this notion by scrutinizing four theoretical models by reviewing the available evidence, including recent path analysis studies. They conclude that negative and cognitive symptoms are separable, if not conceptually independent, domains of schizophrenia. As of now, cognitive symptoms are not thought of as part of the negative symptom domain anymore (e.g. Marder & Galderisi, 2017).

1.3 Distinction from Depression

Negative and depressive symptoms aren't trivial to differentiate, as there is considerable conceptual overlap. The main symptoms of depression – loss of interest, anhedonia, and reduced energy – can also be found in subdomains of negative symptoms: amotivation, avolition, and – to a certain extent – social withdrawal. However, emotional expression (i.e. speech, gestures and facial expressions) is often reduced in patients with schizophrenia compared to healthy controls and subjects with depression, with the latter nevertheless also showing expressional deficits (Berenbaum & Oltmanns, 1992; Gaebel & Wölwer, 2004; Riehle, Mehl, & Lincoln, 2018; Trémeau et al., 2005). Despite present affective blunting, patients with schizophrenia often report unimpaired subjective experiences of pleasure (e.g. Kring & Moran, 2008), whereas low, depressed mood is a main symptom of depression. Recent conceptualizations of anhedonia emphasize the importance of the (complex) reward system. Any reward system deficit (e.g. motivation, anticipatory pleasure, (cognitive) disorganization) can hinder the individual from generating pleasurable experiences and could then present as (secondary) consummatory anhedonia (Lambert et al., 2018). There are findings indicating that patients with depression experience consummatory and anticipatory anhedonia, whereas patients with schizophrenia mainly show a deficit in anticipatory pleasure (Gard et al., 2007; Lambert et al., 2018; Wu et al., 2017). The emergence of anticipatory pleasure is more complex than the experience of consummatory pleasure and hints at motivational deficits in schizophrenia as opposed to deficits in experiencing emotions (Foussias & Remington, 2010).

When taking the phase of illness into account, depressive symptoms don't seem to systematically correlate with negative symptoms. In patients with schizophrenia, Peralta, Cuesta, Martinez-Larrea, and Serrano (2000) found no relationship with negative symptoms on admission (0.01) and a large correlation (0.51) on discharge from psychiatric hospitals. Others found no significant (S.-W. Kim et al., 2006; Wallwork, Fortgang, Hashimoto, Weinberger, & Dickinson, 2012) or a significant but moderate relationship (Schrank, Amering, Hay, Weber, & Sibitz, 2014)

of negative and depressive symptoms in patients with schizophrenia. Nevertheless, comorbidity rates are high for schizophrenia and unipolar depression across stage and state of illness: In an acute psychotic episode up to 60% of patients experience a comorbid major depressive episode (MDE); post-psychosis 20% of chronic and 50% of first-episode patients have moderate to severe MDE (Upthegrove, Marwaha, & Birchwood, 2017). Longitudinally, up to 80% of patients with schizophrenia experience an episode of major depression (Upthegrove et al., 2010). Birchwood, Iqbal, and Upthegrove (2005) propose three pathways to depression in schizophrenia: 1) depression as intrinsic part of psychosis, 2) depression as a psychological reaction to the diagnosis and its implications for i.a. social status, and 3) depression as result of biographical childhood trauma. Childhood trauma now is a well-established risk factor for schizophrenia (e.g. Popovic et al., 2019). Concerning the second pathway, Upthegrove et al. (2017) summarize several findings indicating that the meaning and significance of the psychotic experience to the patient, and the impact of the diagnosis on social status influences the development of depression. Research on the first pathway is still in its early stages.

Of the utmost clinical relevance is the fact that depression is the most important indicator for completed suicide in patients with schizophrenia (Dutta, Murray, Allardyce, Jones, & Boydell, 2011). Since both the treatment of depression in schizophrenia and of negative symptoms remains inadequate (e.g. Fusar-Poli et al., 2015; Lako, Taxis, et al., 2012), it seems of particular importance to reliably delineate negative and depressive symptoms.

For schizophrenia patients, we found some evidence for overlap when measuring the two symptom domains (Engel, Fritzsche, & Lincoln, 2014; Engel & Lincoln, 2016; Hartmann, Fritzsche, & Lincoln, 2013; Kring, Gur, Blanchard, Horan, & Reise, 2013; Llerena et al., 2013; Park et al., 2012). Bottlender et al. (2003) found that negative symptoms (measured with the SANS) were significantly associated with depressive symptoms in MDE patients but not in patients with schizophrenia. This could be due to the SANS' item content that encompasses a lot of symptoms also germane to the depressive domain (e.g. affective nonresponsivity, poverty of

content of speech, increased latency of response) and symptoms that are not thought to be specific for negative symptoms anymore, i.e. attention/cognitive symptoms (e.g. Marder & Galderisi, 2017). They found persisting negative symptoms to be indicative for schizophrenia and not MDE.

1.4 Historical Outline of the Concept

Early on, what we now call negative symptoms were considered a central and severely impairing aspect of schizophrenia. The first modern descriptions of the mental illness that would later be called schizophrenia emerged in mid 19th century Europe. In 1860, Bénédict Augustin Morel described *démence précoce*, in 1863 Karl Ludwig Kahlbaum characterized the catatonic syndrome, in 1871 Ewald Hecker wrote of *hebephrenia*, and in 1906 Thomas Smith Clouston described *adolescent insanity* (e.g. Jablensky, 2010). In 1896, Emil Kraepelin, however, was the first to summarize the different clinical pictures and to propose the distinct disease *dementia praecox*; he emphasized similar courses of illness leading to severe cognitive and behavioral impairment (e.g. Jablensky, 2010; Zec, 1995). Describing nine *clinical forms* and acknowledging the varied clinical pictures, he proposed two fundamental groups of disorders in patients with dementia praecox: *disorders of volition* and *psychic disintegration* (Kraepelin, 1913). According to Kraepelin (1913), the disorders of volition manifest in emotional dullness, failure of mental activities, loss of mastery over volition, loss of endeavor, and loss of ability for independent action, most of which correspond to the modern concept of negative symptoms. Eugen Bleuler (1911) coined the term *schizophrenia* and expanded Kraepelin's disorders with illnesses with less grim outcomes. He emphasized schizophrenia being a group of diseases and distinguished *basic* (obligatory) and *accessory* (supplementary) symptoms. Delusions and hallucinations were categorized as accessory symptoms, while basic symptoms were thought to characterize the illness and comprised deficits in associations, ambivalence, affective incongruence as well as withdrawal from reality, again showing similarities to present-time negative symptoms (e.g. Jablensky, 2010).

In the 1950s and 60s antipsychotic medication made possible a relatively satisfactory pharmacological treatment of positive symptoms of psychosis (Lehmann & Ban, 1997; Meyer & Simpson, 1997; Shen, 1999). This seemed to result in a stronger focus on this aspect of schizophrenia with regard to diagnosis, research and treatment (Foussias & Remington, 2010; Tandon et al., 2013). Maybe Kurt Schneider's first-rank symptoms already foreshadowed this development in 1950. He ascribed a decisive weight for the diagnosis of schizophrenia to auditory hallucinations (of voices), thought withdrawal and other interference with thought, thought broadcasting, somatic hallucinations, delusional perception, as well as the experience of impulses and feelings as caused by external agents (e.g. Jablensky, 2010; Soares-Weiser et al., 2015). They feature heavily in the current major classification systems DSM and the International Statistical Classification of Diseases and Related Health Problems (ICD), but may not be as decisive as formerly thought: less than 10% of cases were diagnosed only by first-rank symptoms in a field trial of the DSM-IV (Bertelsen, 2002; Flaum et al., 1998).

Berrios (1985) argues that the general differentiation between positive and negative symptoms originated with John Russel Reynolds in 1858. When describing epilepsy, Reynolds distinguished negative symptoms – the negation of vital properties, citing paralysis and anesthesia – and positive symptoms – the excess or alteration of vital properties, e.g. spasms, pain, and convulsions. John Hughlings Jackson used the positive-negative distinction from 1875 on with regard to "insanity", postulating that negative symptoms or the loss of higher-order nervous functioning leads to excessive lower-order functioning, i.e. positive symptoms (Berrios, 1985). In the 1930s and 40s – and not widely known – the French psychiatrist Gaëtan Gatian de Clérambault applied the positive-negative distinction to psychosis, differentiating interloping phenomena (i.e. positive symptoms) such as hallucinations and delusions from inhibitory phenomena (i.e. negative symptoms), in his case thought withdrawal, perplexity, and attentional impairment. Diverging from Reynolds and closer to the current view, he saw no interdependence of the symptom domains (Berrios, 1985, 1991).

With regard to schizophrenia, it took until the 1970s and early 1980s for the terms positive and negative symptoms to come into broader use, replacing the terms *defect symptoms* and *productive symptoms* (i.a. Berrios, 1985; Jablensky, 2010; Mackay & Crow, 1980; Wing, 1978). In 1980, Crow proposed two subtypes of schizophrenia with *type I* characterized by positive symptoms and *type II* marked by negative symptoms. Andreasen and Olsen (1982) suggested three subtypes: *positive*, *negative*, and *mixed schizophrenia*. They further proposed criteria and rating scales for positive (Scale for the Assessment of Positive Symptoms (SAPS)) and negative (SANS) schizophrenia (Jablensky, 2010). Further to that, Carpenter et al. (1988) identified a subtype of schizophrenia, the *deficit syndrome*, characterized by enduring primary negative symptoms reminiscent of Kraepelin's dementia praecox (Jablensky, 2010). The subtypes will be described in more detail in the next section. The more precise definitions of negative symptoms mentioned in section 1.2 were formulated during this period as well (e.g. Andreasen, 1982).

With regard to the impact of and the as of yet unsatisfying treatment options for negative symptoms (see section 1.5), in 2005, the National Institute of Mental Health Consensus Development Conference on Negative Symptoms (Kirkpatrick, Fenton, Carpenter, & Marder, 2006) reviewed the concept negative symptoms and called for intensified research efforts concerning the definition, assessment and treatment of the negative symptom complex. The effects and results of this will be further elaborated in sections 1.6 and 1.8.

1.5 Prevalence, Subtypes, Course, and Impact of Negative Symptoms

The initial diagnosis of schizophrenia is usually established with the first psychotic episode, i.e. above-threshold positive symptoms. This first psychotic episode typically happens in late adolescence and early adulthood (for women there is a second peak after 40); early-onset (< 18 years) schizophrenia affects less than one in five patients (Millan et al., 2014; Ochoa, Usall, Cobo, Labad, & Kulkarni, 2012; Schimmelmann, Conus, Cotton, McGorry, & Lambert, 2007). Only approximately 10-15% of patients recover; there usually is a fluctuating course with

intermittent psychotic crises (e.g. Millan et al., 2014). While we can differentiate secondary and primary negative symptoms by their cause, the course and extent of negative symptoms makes possible further distinctions: Tandon et al. (2000) propose different components affecting patients in different phases of the illness: 1) a premorbid component, present in the prodromal phase, 2) a phasic component during psychotic episodes, and 3) a deteriorative component, persisting over time.

Addington et al. (2015) assessed prodromal symptoms of 764 subjects at clinical high risk for psychosis and found at least one negative symptom in 82% and three or more in 44% of participants. Thus, many high-risk subjects experience relevant negative symptoms. Carrión et al. (2016) found negative symptoms to predate attenuated positive symptoms by approximately twelve months. The onset of negative symptoms in the prodromal phase is associated with social withdrawal and impaired social cognition, neurocognitive and mood deficits, and functional decline (e.g. Lyne et al., 2018; Millan et al., 2014). The acute phase component of negative symptoms is marked by decreased expression, further social withdrawal and functional impairment; in this phase, a substantial part of negative symptoms could be secondary negative symptoms (Lyne et al., 2018). Patel et al. (2015) analyzed routine clinical care records of 7 678 patients in the acute psychotic phase and found at least two negative symptoms in 41% of patients. Similar rates (40 to 58%) were found in previous studies (Bobes, Arango, Garcia-Garcia, & Rejas, 2010; C. I. Cohen, Natarajan, Araujo, & Solanki, 2013; Jäger et al., 2009).

The worsening, persisting component seems to be reflected in some of the proposed subtypes of schizophrenia first mentioned in section 1.4, namely Crow's (1980) type II syndrome, Andreasen and Olsen's (1982) negative schizophrenia, and Carpenter and colleagues' (1988) deficit syndrome. Type II syndrome is marked by negative symptoms (here: affective flattening and poverty of speech) and equivalent to the defect state, type I syndrome is characterized by positive symptoms (here: delusions, hallucinations, and thought disorder) and corresponding to acute schizophrenia. Crow (1980) considers these two subtypes not mutually exclusive. He

thought type I symptoms to be associated with dopaminergic dysfunction, possibly treatable with antipsychotics, and reversible. Type II is possibly associated with intellectual impairment and brain abnormalities, may be enduring, and predict poor outcome (Crow, 1980). According to Andreasen and Olsen (1982) prominent delusions, hallucinations, positive formal thought disorder, and persistently bizarre behavior mark positive schizophrenia, while negative schizophrenia is characterized by affective flattening, alogia, avolition, anhedonia, and attentional impairment. In mixed schizophrenia, either both negative and positive symptoms or neither are dominant.

The deficit syndrome of Carpenter et al. (1988) seems to have been taken up and expanded on the most by further researchers. It has been defined as the presence of at least two of six negative symptoms at a clinically significant level (restricted affect, diminished emotional range, poverty of speech, curbing of interest, diminished sense of purpose, and/or diminished social drive) that have been present for twelve months (including periods of clinical stability including chronic psychotic states) and are not secondary to factors other than the disease process (i.e. not secondary negative symptoms) in patients meeting the diagnostic criteria for schizophrenia (Wagman, Heinrichs, & Carpenter, 1987). In a review, Kirkpatrick, Buchanan, Ross, and Carpenter (2001) suggest that deficit schizophrenia constitutes a disease separate from non-deficit forms. Kirkpatrick, Mucci, and Galderisi (2017) argue that there may be more white matter changes in deficit compared to non-deficit patients and they may relate to problems in early brain migration; the two groups also seem to differ on metabolic measures prior to antipsychotic medication. Jablensky (2010) summarized research finding no difference of age at onset and duration of illness when comparing deficit syndrome and non-deficit syndrome patients. Furthermore, he cites a prevalence of the deficit syndrome of 16.5% in unselected epidemiological samples of patients with schizophrenia and 25-30% in samples of patients with chronic schizophrenia.

In 2005, the National Institute of Mental Health Consensus Development Conference on Negative Symptoms aimed to reduce the heterogeneity of negative symptoms by developing criteria easily applicable in the context of clinical trials (Kirkpatrick et al., 2006). They introduced the concept of *persistent negative symptoms* which are defined more broadly than the deficit syndrome. Persistent negative symptoms are negative symptoms of schizophrenia that 1) are either primary to the illness or are secondary, but unresponsive to usual treatments, 2) interfere with everyday functioning, 3) persist in clinically stable phases, and 4) represent an unmet therapeutic need (Kirkpatrick et al., 2006). The concrete criteria are an at least moderate severity of negative symptoms for an extended period of time (usually six months), a defined threshold level of positive symptoms, and no (or a low level of) depressive symptoms and extrapyramidal symptoms; all defined on an accepted and validated rating scale (Buchanan, 2007). For a retrospective study of 660 psychiatric inpatients, Buchanan (2007) reports a prevalence of persistent negative symptoms of 25.7% in subjects with schizophrenia, 8.1% for schizoaffective disorder, 2.3% for mood disorders, and 15.6% for psychotic disorders not otherwise specified. Galderisi, Mucci, et al. (2013) found persistent negative symptoms not confounded by depression or extrapyramidal symptoms in 6.7% of a sample of 345 first-episode patients with schizophrenia.

Data on the long-term course of negative symptoms is conflicting: A meta-analysis including 89 samples from 41 studies (n = 5944) mostly found improvement in negative symptoms in schizophrenia outpatients with effect sizes ranging from small to large; this was found for treatments as well as placebo (Savill, Banks, Khanom, & Priebe, 2015). However, possible moderators of improvement (e.g. changes in causes for secondary negative symptoms) were not analyzed in those studies (Galderisi, Mucci, Buchanan, & Arango, 2018). In a twenty-year follow-up study of 50 first-episode schizophrenia patients Kalisz and Cechnicki (2016) reported low rates of persistent negative symptoms and deficit syndrome after one year (4 and 6%, respectively), and no symptoms after twelve and twenty years. Negative symptoms were

present in 20% of the initially assessed patients after one year, and in 40% of that subsample in the follow-ups. However, Austin et al. (2015) assessed 496 patients with first-episode psychosis across ten years and found a continuous course of negative symptoms for 27% and a relapsing course for 26% of patients. Overall, negative symptoms showed less variation than positive symptoms. Furthermore, for the deficit syndrome, several studies report a long-term stability of 67 to 83% (Amador et al., 1999; Galderisi, Bucci, et al., 2013; Strauss, Harrow, Grossman, & Rosen, 2010).

Very early on, clinicians and researchers recognized that poor outcomes were associated with negative symptoms. Negative symptoms are consistently among the most important predictors for course of illness, social and occupational functioning as well as quality of life – all are worse with a greater extent of negative symptoms (e.g. Kaiser et al., 2017; Marder & Galderisi, 2017; Novick, Haro, Suarez, Vieta, & Naber, 2009; Rabinowitz et al., 2012). This especially holds true for patients with deficit syndrome (e.g. Kirkpatrick & Galderisi, 2008).

Despite their importance particularly in the long term, as of yet negative symptoms are difficult to treat both with medication and non-biological treatments (Arango, Garibaldi, & Marder, 2013; Lehman et al., 2004; Leucht, Arbter, Engel, Kissling, & Davis, 2009; Singh, Singh, Kar, & Chan, 2010; Turner, van der Gaag, Karyotaki, & Cuijpers, 2014; Velthorst et al., 2014). A recent meta-analysis found no clinically effective interventions, despite statistically significant results (Fusar-Poli et al., 2015). However, there are promising non-biological interventions that could be optimized and should be researched on further, namely cognitive-behavioral therapy, skills-based training (particularly social skills training (see also Turner et al., 2018), exercise, and music treatments (Lutgens, Gariepy, & Malla, 2017). A more precise definition of negative symptoms and sophisticated measurement instruments seem essential for progress in this area of research.

1.6 Factorial Structure of Negative Symptoms

The renewed interest in negative symptoms evident in the National Institute of Mental Health Consensus Development Conference on Negative Symptoms (Kirkpatrick et al., 2006) has lead to several inquiries on the structure of the construct. Factor analyses of different instruments measuring negative symptoms have found two- and three-factor models; there is sound evidence for overlap as well as distinction of the (rationally derived) subdomains affective blunting, alogia, social withdrawal, avolition, and anhedonia (e.g. Blanchard & Cohen, 2006; Galderisi et al., 2018). For the two classic instruments assessing negative symptoms – the SANS and the Schedule for the Deficit Syndrome (SDS, Kirkpatrick, Buchanan, McKenny, Alphs, and Carpenter (1989)) – two factors loading on the theoretically derived five subdomains were found with some consistency (Keefe et al., 1992; Kimhy, Yale, Goetz, McFarr, & Malaspina, 2006; Nakaya & Ohmori, 2008; Peralta & Cuesta, 1999; Strauss et al., 2013). One of the factors covers *expressive deficits* and consists of blunted affect and alogia, the other, *amotivation*, is comprised of items assessing avolition, anhedonia, and social withdrawal and points to issues of involvement with the surrounding environment (e.g. Blanchard & Cohen, 2006; Foussias & Remington, 2010; Kirkpatrick, 2014). These two factors were also found when analyzing the more global psychosis assessment instruments PANSS and Brief Psychiatric Rating Scale (BPRS, Overall and Gorham (1962)) on their items measuring negative symptoms (e.g. Blanchard & Cohen, 2006; Liemburg et al., 2013). Further, diminished expression and amotivation have been found as independent factors in first-episode and chronic patients, as well as in patients with deficit syndrome (e.g. Foussias, Agid, Fervaha, & Remington, 2014; Messinger et al., 2011). When analyzed, inappropriate affect, poverty of content of speech, and attention deficits – all symptoms formerly thought of as part of the negative symptom domain – were found to load on a third factor that seems to be more closely related to disorganized symptoms of schizophrenia (e.g. Foussias & Remington, 2010; Marder & Galderisi, 2017).

As of yet, the two-factorial structure of negative symptoms has become scientific consensus (Galderisi et al., 2018) and has been taken up in the DSM-V as diminished emotional expression and avolition. Testing a more sophisticated structure, a very recent factorial analysis of Ahmed et al. (2018) of a new instrument measuring negative symptoms, the Brief Negative Symptom Scale (BNSS, Kirkpatrick et al. (2011)), found two second-order factors: expression and amotivation, and five first-order factors: blunted affect, alogia, anhedonia, avolition, and asociality. Thus, despite major advancement in recent years, a final conclusion on the exact structure of negative symptoms has not yet been achieved. Nevertheless, diminished expression and amotivation feature dominantly in each of the models that are currently investigated.

Foussias and Remington (2010) summarize findings on the interrelatedness of the two domains citing inter-factor correlations of 0.47 to 0.57 as well as moderate interrelationships of SANS items across the two factors. They conclude that the two subdomains may have common as well as distinct underlying processes. Kaiser et al. (2017) find that models of amotivation are pointing to dysfunctions of the reward system and aspects of goal directed behavior and judge models of expressive deficits to still be in an early phase of development. Galderisi et al. (2018) hypothesize two underlying mechanisms/circuits for amotivation: 1) of the motivational value system leading to impaired anticipatory pleasure, valuation of action and stimuli, and instrumental learning, and 2) of the motivational salience system resulting in deficits with regard to orientation towards salient stimuli, cognitive activation, and general motivation. They argue that those two mechanisms should profit from different treatment approaches, calling for enhancement of instrumental learning and provision of external rewards in the case of dysfunction in the motivational salience circuit and for pharmacological and psychosocial treatments increasing salience of stimuli and activating cognition for a dysfunctional motivational value circuit. Marder and Galderisi (2017) cite contradictory findings for the link of a) avolition with global impairment in decision making and executive functioning, and b) social withdrawal with social cognition deficits, calling for further research. Expressive deficits seem to be associated with

neurocognitive impairment as well as social cognition deficits (Marder & Galderisi, 2017). Deficits in expression are more persistent (e.g. Kelley, Haas, & van Kammen, 2008), while motivational deficits correlate more strongly with functional outcome (e.g. Fervaha, Foussias, Agid, & Remington, 2014). Concerning psychotherapeutic interventions, there is preliminary evidence for different outcomes for the two domains: Amotivation seems to improve more with CBT and social skills training, while verbal and nonverbal expression profits from nonverbal treatments like body-oriented psychotherapy (e.g. Kaiser et al., 2017; Riehle, Pillny, & Lincoln, 2017).

Overall, these findings support negative symptoms as a multidimensional construct. Thus, early on there was a push for a broader assessment of the different domains to aid research on their possibly different etiologies, impact and treatment needs (Blanchard & Cohen, 2006). This lead to the development of new measurement instruments for negative symptoms, which were constructed with the empirically established factorial structure in mind (see section 1.8).

1.7 Established Instruments for the Assessment of Negative Symptoms

Until recently, negative symptoms were mostly assessed using the SANS (Andreasen, 1989) and PANSS (Kay et al., 1987), which will be the focus of the first part of this section (e.g. Galderisi et al., 2018). The SANS consists of 20 items (excluding global items) belonging to five subscales: *affective flattening*, *alogia*, *avolition/apathy*, *anhedonia/asociality*, and *inattention*. The PANSS' Negative Scale has seven items assessing blunted affect, emotional withdrawal, poor rapport, passive/apathetic social withdrawal, difficulty in abstract thinking, lack of spontaneity and flow of conversation, and stereotyped thinking (see also Blanchard & Cohen, 2006). While both scales deserve praise for prominently featuring negative symptoms and making structured research on them possible in the first place, recently, there has been criticism as they don't seem to reflect the current state of the art (e.g. Blanchard, Kring, Horan, & Gur, 2011; Marder & Galderisi, 2017; Millan et al., 2014). First of all, both scales assess cognitive symptoms, which are not thought of as part of the negative syndrome anymore. The PANSS does not cover all five subdomains of

negative symptoms since it doesn't assess anhedonia. Then, the scales focus to a relatively high degree on observable behavior during the interviews and report of functional deficits. While expressive deficits predominantly have to be observed, amotivation and its subdomains should be explicitly inquired to assess the patients' subjective, inner, emotional experience (e.g. Blanchard et al., 2011; Marder & Galderisi, 2017; Millan et al., 2014). The PANSS rates asociality with the items "poor rapport" (based on observed interpersonal behavior during interview) and "passive, apathetic social withdrawal" (based on primary care workers' or relatives' reports about patient's behavior). In the SANS, avolition/apathy is assessed by three items focusing on subject's behavior: "grooming and hygiene", "impersistence at work/school", and "physical anergia". The anhedonia/asociality domain includes the patient's subjective experience (e.g. ability to feel intimacy and closeness, sexual interest), as would be appropriate for this dimension of negative symptoms; however, it also inquires quantity of interests as well as frequency of social contact. Also, anticipatory and consummatory anhedonia are not assessed separately. This also means that some items lack clear definition and thus make it harder to extrapolate underlying psychological processes (e.g. Blanchard et al., 2011; Garcia-Portilla et al., 2015). Furthermore, using functional deficits as a marker for negative symptoms carries the risk of circular reasoning: When assessed as part of negative symptoms, functional deficits predict functional outcome (Blanchard et al., 2011). Finally and of minor importance but to be complete, the SANS surveys the last month and thus is not best equipped to monitor change (Blanchard et al., 2011; Millan et al., 2014)

The following further observer-rated measures were also designed to assess negative symptoms or aspects thereof but are not as widely used as the PANSS and SANS (Foussias & Remington, 2010; Lincoln, Dollfus, & Lyne, 2017). The BPRS (Overall & Gorham, 1962) and the Krawiecka-Manchester Scale (KMS, Krawiecka, Goldberg, and Vaughan (1977)) are global measures of psychopathology and mostly disregard the amotivation subdomain. Like the SANS, the following instruments were designed specifically for negative symptoms (see Foussias & Remington, 2010; Lincoln et al., 2017):

- The Schedule for the Deficit Syndrome (SDS, Kirkpatrick et al. (1989)) that taps restricted affect, diminished emotional range, poverty of speech, curbing of interests, diminished sense of purpose, and diminished social drive. It has not been primarily used to measure negative symptoms and their severity but to identify patients with deficit syndrome (Foussias & Remington, 2010).
- The Negative Symptoms Behavior Rating Scale (NSBRS, Pogue-Geile and Harrow (1984)) that mainly focuses on expressive deficits.
- The Negative Symptom Rating Scale (NSRS, Iager, Kirch, & Wyatt, 1985)) that includes thought-processes and cognition.
- The Schedule for Affective Disorders and Schizophrenia – Negative Symptom Scale (SADS-NSS, Lewine, Fogg, and Meltzer (1983)) that like the NSBRS and NSRS lacks data on its validity.
- The Negative Symptom Assessment (NSA, Alphs, Summerfelt, Lann, and Muller (1989)) that assesses a broad spectrum of negative symptoms but does not represent their two-factorial structure.
- The High Royds Evaluation of Negativity Scale (HEN, Mortimer, McKenna, Lund, and Mannuzza (1989)) that includes functioning.

The five subdomains of negative symptoms can also be assessed more in detail. However, most of the following instruments were not specifically designed with patients with schizophrenia in mind (see Lincoln et al., 2017). Blunted affect can be assessed with the Emotional Blunting Scale (EBS, Abrams and Taylor (1978)), and the Affective Flattening Scale (AFS, Andreasen (1979); not specific for schizophrenia). Apathy can be measured with the Apathy Evaluation Scale (AES, Marin, Biedrzycki, and Firinciogullari (1991); not specific for schizophrenia), and the Lille Apathy Rating Scale (LARS, Sockeel et al. (2006); not specific for schizophrenia). Anhedonia can be inquired with the Specific Loss of Interest and Pleasure Scale (SLIPS, Winer, Veilleux, and

Ginger (2014); not specific for schizophrenia). Motor functioning and alogia can be tapped with the Motor Affective Social Scale (MASS, Trémeau et al. (2008)).

Interestingly enough, there are only a few established and well validated self-rating instruments for psychopathology in schizophrenia – for the most part, interview-based rating scales constitute the endpoints of clinical studies. Nevertheless, there are findings indicating that patients with schizophrenia can adequately assess at least some negative symptoms: Newer questionnaires of negative symptoms correlate strongly with observer-ratings, and patients with schizophrenia can differentiate loss of emotion from depressed mood – however, expressive deficits seem to be harder to self-assess than deficits in the amotivation domain (Dollfus, Mach, & Morello, 2016; Lincoln et al., 2017; Llerena et al., 2013).

There are three global self-rating scales that also assess negative symptoms: The Subjective Experience of Deficits in Schizophrenia (SEDS, Liddle and Barnes (1988)), the Subjective Deficit Syndrome Scale (SDSS, Jaeger, Bitter, Czobor, and Volavka (1990)), and the Community Assessment of Psychic Experiences (CAPE, Stefanis et al. (2002)). The SEDS and the SDSS feature only few items tapping negative symptoms (six of 21 and three of 19, respectively) and thus do not cover all domains comprehensively. The CAPE inquires life-time psychotic experiences in the general population. Its 14 items tapping negative symptoms are derived from the SANS and from a self-rating scale for negative symptoms, the Subjective Experience of Negative Symptoms (SENS, Selten, Sijben, van den Bosch, Omloo-Visser, and Warmerdam (1993)). Schlier, Jaya, Moritz, and Lincoln (2015) report a factorial analysis of the CAPE and found the factors *social withdrawal*, *affective flattening*, and *avolition* for the negative symptom items. However, those factors failed to significantly correlate with the PANSS Negative Scale and were associated with depression, indicating the need for further optimization (Lincoln et al., 2017).

With regard to self-rating instruments specifically and exclusively for negative symptoms, there appear to be the following three (Lincoln et al., 2017): the above-mentioned SENS (Selten

et al., 1993), the Self-Evaluation of Negative Symptoms (SNS, Dollfus et al. (2016)), and the *Motivation and Pleasure – Self Report* (MAP-SR, Llerena et al. (2013)). The MAP-SR is a measure under review in this research project and will be described in detail in section 1.8. The SENS derives from the SANS and is an interview-based self-rating focusing on awareness and causal attribution of as well as distress by negative symptoms. It asks the patient to assess his emotional range, quantity of speech and spontaneous elaboration, motivation and energy, expected and felt pleasures, as well as preference to be alone and desire for relationships. After each item is explained by the interviewer and the patient is given a cue card with possible answers, they are asked to rate the items comparing themselves to non-mentally ill people. The inclusion of an interviewer introduces a source of influence and makes the SENS quite time-consuming (up to 45 minutes). Furthermore, so far, there is no data on the SENS' construct validity, and some criticism of the SANS also applies to the SENS, e.g. the inclusion of cognitive deficits (Lincoln et al., 2017). Thus, the SNS could be the most up-to-date genuine self-rating instrument for negative symptoms (this also since the MAP-SR does not include expressive deficits). It taps emotional range and alogia as well as many aspects of amotivation and thus covers all five subdomains of negative symptoms. Factor analysis extracted the two factors *apathy* and *emotional* accounting for 75.2% of the variance, but did not clearly differentiate amotivation and expression (Dollfus et al., 2016). The SNS' convergent and discriminant validity has not yet been evaluated comprehensively (Lincoln et al., 2017).

The subdomain of negative symptoms with the most specific self-assessment scales is anhedonia; the following scales are being commonly used (Lincoln et al., 2017): the revised Social Anhedonia Scale (SAS, Eckblad, Chapman, Chapman, and Mishlove (1982) (as cited in Lincoln et al., 2017)), the revised Physical Anhedonia Scale (PAS, Chapman, Chapman, and Raulin (1976)), and the Snaith-Hamilton Pleasure Scale (SHAPS, Snaith et al. (1995)). To help discern anticipatory and consummatory pleasure, the Temporal Experience of Pleasure Scale (TEPS,

Gard, Gard, Kring, and John (2006)) and the Anticipatory and Consummatory Interpersonal Pleasure Scale (ACIPS, Gooding and Pflum (2014)) can be utilized.

1.8 Integrating Inner Experiences: The CAINS and the MAP-SR

The above-mentioned National Institute of Mental Health Consensus Development Conference on Negative Symptoms endorsed the five domains of negative symptoms and emphasized the need for new rating scales to adequately assess them (Kirkpatrick et al., 2006). In the following years, two next-generation observer-rated instruments for negative symptoms were developed: the BNSS (Kirkpatrick et al., 2011) and the *Clinical Assessment Interview for Negative Symptoms* (CAINS, Kring et al. (2013)). Both interviews were designed with an emphasis on the patients' inner experience and with the two factors expression and amotivation in mind; the two factors were confirmed in early exploratory analyses for both scales (Kring et al., 2013; Strauss et al., 2012). The CAINS is one of the measures under review in this research project; its development process, items and psychometric properties will be described in more detail in the following sections. The BNSS has 13 items (rated from 0 = *absent* to 6 = *severe*) forming the following six subscales: 1) anhedonia (tapping intensity of pleasure during activities, frequency of pleasure during activities, and intensity of expected pleasure from future activities), 2) distress (asking for presence or absence of distress), 3) asociality (assessing behavior and internal experience), 4) avolition (inquiring behavior and internal experience), 5) blunted affect (rating of facial and vocal expression as well as expressive gestures), and 6) alogia (rating of quantity of speech and spontaneous elaboration). Strauss and Gold (2016) compared the BNSS and the CAINS and found good psychometric properties for both scales, endorsing their use in clinical trials and laboratory-based studies, and pointing out that both are already being used widely. They found high correlations for blunted affect and alogia items between BNSS and CAINS, whilst avolition and asociality items correlated moderately to highly. However, the anhedonia items showed low convergence. Strauss and Gold (2016) hypothesize that this is due to considerable differences both in item content as well as precision of assessment in this domain, proposing that

the instruments measure different aspects of anhedonia. The authors conclude that the BNSS might be better suited in studies requiring shorter assessment times and high test-retest reliability, while the CAINS covers range and frequency of pleasurable activities with more nuances.

The Clinical Assessment Interview for Negative Symptoms (CAINS) was designed to address the conceptual and psychometric limitations of earlier instruments and to provide a validated, user-friendly, and comprehensive measure for researchers and clinicians alike (Kring et al., 2013). The interview combines observer-ratings of expression, assessments of behavioral engagement in relevant activities, and reported inner experiences of motivation and emotion. Particularly inner experience is considered pivotal for emotional, social and motivational deficits and different from behavior or functional outcome (e.g. Horan, Kring, Gur, Reise, & Blanchard, 2011; Kring et al., 2013). The interview was developed with input and feedback from industry, government, and academia and used a systematic data-analytic approach to scale development (Horan et al., 2011; Kring et al., 2013). The CAINS has so far been translated into at least Chinese (Mandarin and Cantonese), German, Russian, and Spanish.

An initial CAINS-beta measure was tested in a pilot study and included 23 items oversampling the five domains of negative symptoms (Horan et al., 2011; Kring et al., 2013). Horan et al. (2011) evaluated the CAINS-beta in a sample of 281 outpatients with schizophrenia or schizoaffective disorder. They found two moderately correlated factors: 1) *experiential impairments* with diminished motivation and enjoyment of social, vocational, and recreational activities, and 2) *expressive impairments* consisting of diminished non-verbal and verbal communication. They report good distributional properties, good interrater agreement, discriminating anchor points, and preliminary convergent and discriminant validity. Then, the CAINS-beta was revised with a multistep data-analytic approach guiding 1) the deletion of redundant items, items with poor psychometric properties, and items that did not load clearly on one of the factors, and 2) the modification of items to increase discriminatory power and to link more clearly to the underlying constructs (Horan et al., 2011; Kring et al., 2013). In the final

development study, Kring et al. (2013) evaluated a CAINS version with 16 items sampling 168 outpatients with schizophrenia or schizoaffective disorder. Three more items were deleted due to either a high extent of missing data, redundancy, or failure to load cleanly on one of the two factors (Kring et al., 2013).

The final CAINS (Kring et al., 2013) takes 15 to 30 minutes to administer and consists of 13 items rated from 0 = *no impairment* to 4 = *severe deficit* that are covering the five subdomains of negative symptoms. The interview is subdivided in a *motivation and pleasure* (CAINS-MAP) and an *expression* subscale (CAINS-EXP). CAINS-MAP represents the amotivation factor of negative symptoms and taps attitudes, intrinsic motivation as well as subjective experience and expectation of pleasure with nine items: 1) motivation for close family/spouse/partner relationships, 2) motivation for close friendships and romantic relationships, 3) past week frequency of pleasurable social activities, 4) next week frequency of expected pleasurable social activities, 5) motivation for work and school activities, 6) next week frequency of expected pleasurable work & school activities, 7) motivation for recreational activities, 8) past week frequency of pleasurable recreational activities, and 9) next week frequency of expected pleasurable recreational activities. CAINS-EXP rater-assesses expressive deficits straightforwardly with four items: 10) facial expression, 11) vocal expression, 12) expressive gestures, and 13) quantity of speech. Table 1-1 showcases i.a. the CAINS' items and subscales. There is a comprehensive manual providing a semi-structured interview and descriptive anchor points as well as illustrative vignettes (the German manual can be found in the supplements); training materials, including gold-standard videos are available after contact with the developers of the scale (Engel et al., 2014; Kring et al., 2013).

Table 1-1

Items of the CAINS and Corresponding MAP-SR Items

CAINS Subscales	CAINS Items (Rated 0 to 4)	MAP-SR Items (Rated 0 to 4)	MAP-SR Domains
Motivation & Pleasure	1) Reported motivation & desire for close family/spouse/partner relationships & engagement in relevant interactions	7) When it comes to close relationships with your family members, how important have these relationships been to you over the past week? *10) In the past week how motivated have you been to be around other people & do things with them? *11) In the past week how much effort have you made to actually do things with other people?	Feelings & motivations about close, caring relationships (item 7) Motivation & effort to engage in activities (items 10 & 11)
	2) Reported motivation & desire for close friendships & romantic relationships & engagement in relevant interactions	8) When it comes to having a close relationship with a romantic partner, how important has this type of relationship been to you over the past week? 9) When it comes to close relationships with your friends, how important have these relationships been to you over the past week? *10) In the past week how motivated have you been to be around other people & do things with them? *11) In the past week how much effort have you made to actually do things with other people?	Feelings & motivations about close, caring relationships (items 8 & 9) Motivation & effort to engage in activities (items 10 & 11)
	3) Reported number of days that pleasurable social activities were experienced	1) In the past week, what is the most pleasure you experienced from being with other people? 2) In the past week, how often have you experienced pleasure from being with other people?	Social pleasure
	4) Reported number of expected pleasurable social activities in the following week	3) Looking ahead to being with other people in the next few weeks, how much pleasure do you expect you will experience from being with others?	Social pleasure
	5) Reported motivation & desire for work or school & engagement in relevant activities	12) In the past week how motivated have you been to go to work or school or look for a job or class to take? 13) In the past week how much effort have you made to do things at work or school? (Or how much effort have you made to look for a job or go to school.)	Motivation & effort to engage in activities
	6) Reported number of expected pleasurable work or school activities in the following week	*6) Looking ahead to the next few weeks, how much pleasure do you expect you will experience from your hobbies, recreation, or work?	Recreational or work pleasure
	7) Reported motivation & desire for recreational activities & engagement in relevant activities	14) In the past week how motivated have you been to do hobbies or other recreational activities? 15) In the past week how much effort have you made to actually do any hobbies or recreational activities?	Motivation & effort to engage in activities
	8) Reported variety & daily frequency of pleasurable recreational activities	4) In the past week, what is the most pleasure you experienced from hobbies, recreation, or from work? 5) In the past week, how often have you experienced pleasure from hobbies, recreation, or from work?	Recreational or work pleasure
	9) Reported number of expected pleasurable recreational activities in the following week	*6) Looking ahead to the next few weeks, how much pleasure do you expect you will experience from your hobbies, recreation, or work?	Recreational or work pleasure
Expression	10) Observations of facial expression	Not assessed	
	11) Observations of vocal expression		
	12) Observations of expressive gestures		
	13) Observations of quantity of speech		

Note. CAINS = Clinical Assessment Interview for Negative Symptoms; MAP-SR = Motivation and Pleasure Scale – Self-Report;

* = MAP-SR items corresponding to more than one CAINS item.

In their final validation study, Kring et al. (2013) used exploratory principal-axis factorial analysis and hierarchical cluster analysis and found a two-factorial structure corresponding to the two subscales. They report a small to moderate correlation of 0.24 between the subscales, good internal consistency (CAINS: Cronbach's $\alpha = 0.76$, CAINS-EXP: $\alpha = 0.88$, CAINS-MAP: $\alpha = 0.74$), test-retest reliability (0.69 for both subscales) and interrater-reliability (CAINS-MAP: 0.93, CAINS-EXP: 0.77). Good convergent validity was established with regard to other rater assessments of negative symptoms (BPRS, SANS; the latter assessed by a different rater to counteract shared rater variance). CAINS-MAP showed small to moderate correlations to self-reports tapping anticipatory and consummatory pleasure as well as sociability. CAINS-EXP converged with self-reports on approach and avoidance motivation as well as with a measure assessing the subjects positive or negative facial expressions during the interview. Functional capacity (skills/capability) was not, but functional outcome (actual behavior) was linked to the measure and particularly CAINS-MAP. Thus, the CAINS seems to capture what the patient actually does, not what they can do. The authors found adequate discriminant validity regarding depression, medication side effects and cognitive functioning. Positive symptoms and agitation, however, were correlated with the amotivation subscale.

In the first validation of the German translation of the CAINS, Engel et al. (2014) assessed 53 in- and outpatients with schizophrenia or schizoaffective disorder. They used exploratory principal-axis factor analysis and also found the two-factor structure. They report a moderate correlation of the two subscales with 0.44. The internal consistency of CAINS and CAINS-MAP's were good (0.87, respectively), while CAINS-EXP's was acceptable (0.80). Inter-rater agreement was high for all CAINS items (≥ 0.73). With regard to convergent validity, there were high correlations between both CAINS scales and the PANSS Negative Scale. Both subscales were moderately related to self-rated consummatory but not anticipatory pleasure. CAINS-MAP correlated moderately with the Global Assessment of Functioning (GAF). Discriminant validity was good with no significant correlations with positive symptoms as

measured with the PANSS, self-rated depression (revised Beck Depression Inventory (BDI-II)) and general psychopathology assessed with the PANSS.

Further validation studies published after the initiation of this research project evaluated the Spanish, Korean, Chinese, and the English version of the CAINS and are reported on briefly hereinafter. Valiente-Gomez et al. (2015) assessed 100 in- and outpatients and found good inter-rater and intra-rater reliability. Convergent validity for the Spanish version of the CAINS and its subscales was established with the SANS as well as the PANSS Negative Scale. There were problems with discriminant validity since significant associations with positive symptoms, general psychopathology, and depression were found, however when overall severity of illness was controlled for these associations were markedly reduced. CAINS-EXP correlated with extrapyramidal symptoms. As in the former two validation studies, the authors employed exploratory factor analysis (EFA) and found a two-factorial structure with CAINS-MAP and CAINS-EXP that explained 67.44% of variance. In a sample of 119 Korean subjects, Jung, Woo, Kim, and Kwak (2016) report a confirmation of the two-factorial structure with CAINS-MAP and CAINS-EXP, however, their goodness of fit statistics were not acceptable. They found good inter-rater and test-retest reliability as well as convergent and discriminant validity. Xie et al. (2018) are to our knowledge the first to use a statistically rigorous confirmatory factor analysis approach on the Chinese CAINS in a large scale study with 185 patients with schizophrenia. They confirmed the two-factor solution with CAINS-MAP and CAINS-EXP. There was convergence of the CAINS with the SANS as well as the PANSS Negative Scale and PANSS Global Psychopathology; CAINS-MAP was correlated with consummatory pleasure. Discriminant validity to positive symptoms was established, but depression, extrapyramidal symptoms and cognitive deficits were not assessed separately. The authors found good discriminant validity when differentiating negative symptoms in people with schizophrenia, nonpsychotic first-degree relatives and people with social anhedonia. In Singapore, Rekhi, Ang, Yuen, Ng, and Lee (2019) initially found no acceptable fit for the two-factorial structure. After

exploratory factor analysis (split-half sample of 133 subjects), a confirmatory factor analysis (CFA) confirmed four factors: *motivation and pleasure social*, *motivation and pleasure vocational*, *motivation and pleasure recreational*, and *expression* (split-half sample of 141 subjects). Convergent validity with the SANS and the PANSS Negative Scores as well as discriminant validity with the positive and depressive symptoms was established.

Developing and implementing valid self-report measures seems to be the next logical step with regard to the current intensified focus on the patients' subjective experience. Those instruments could save cost and time when identifying patients with a relevant subjective burden and facilitate online research as well as large scale panel studies with community sampling.

As already mentioned in section 1.7, the Motivation and Pleasure Scale – Self Report (MAP-SR, Llerena et al. (2013)), is one of the few questionnaires assessing negative symptoms. Its precursor, the Clinical Assessment Interview for Negative Symptoms – Self Report (CAINS-SR, Park et al. (2012)) derives from the CAINS and was developed as a 30-item questionnaire assessing avolition, anhedonia and asociality – dubbed the experiential domain – and blunted affect and alogia – the expressive domain. They assessed 69 patients with schizophrenia or schizoaffective disorder and found good internal consistency, good convergent validity with CAINS-MAP, and good discriminant validity for the experience subscale. However, the expression subscale had poor psychometric properties. The authors concluded that self-reports of negative symptoms should focus on the experiential domain and then might complement the clinician-rated measures.

Llerena et al. (2013) aimed to refine the CAINS-SR by focusing exclusively on self-reported deficits in motivation and pleasure, arguing that they encompass many of the core deficits of negative symptoms that are directly related to functional impairment. The resulting MAP-SR is a self-report version of the CAINS-MAP subscale and does not cover all five negative symptom domains. Llerena et al. (2013) assessed a sample of 37 outpatients with schizophrenia or schizoaffective disorder and reduced an 18-item version of the MAP-SR to 15

items due to low item-total correlations for three items. The MAP-SR is rated on a 5-point Likert scale with higher scores reflecting greater pathology. Nine items assess the construct avolition by inquiring feelings and motivations about close, caring relationships as well as motivation and effort to engage in activities. Three of the MAP-SR's items assess anhedonia by asking about expected and experienced recreational and work pleasure. Asociality is measured by three items inquiring expected and experienced social pleasure. Table 1-1 lists the MAP-SR's items and domains as well as corresponding CAINS items and constructs.

For their sample of 37 patients, Llerena et al. (2013) report good internal consistency for the 15-item MAP-SR. Convergent validity was established with regard to the CAINS-MAP, social anhedonia, social closeness, and clinician-rated social functioning. No significant correlations were found for observer-rated positive symptoms and depression/anxiety as well as general cognitive abilities signifying adequate discriminant validity. Further validation studies were undertaken by Engel and Lincoln (2016) for the German version of the MAP-SR (n = 50) and J.-S. Kim et al. (2016) for the Korean MAP-SR (n = 137). Both found good internal consistency. Convergent validity was strong to moderate regarding correlations to CAINS-MAP as well as the PANSS Negative Scale (Engel & Lincoln, 2016) and the SANS (J.-S. Kim et al., 2016). No significant correlation with CAINS-EXP was found in the German study (Engel & Lincoln, 2016), whereas a weak correlation was reported by J.-S. Kim et al. (2016). Discriminant validity was widely established: Both research teams found no significant correlation with positive symptoms and rater-assessed depression/anxiety. J.-S. Kim et al. (2016) also assessed cognitive deficits and found no significant association. Engel and Lincoln (2016) found a moderate but significant correlation with self-rated depression.

The MAP-SR still is at an early stage with regard to the usual procedures in validating new measures. It was constructed to represent the amotivation factor of negative symptoms, but there is no empirical analysis of its factorial structure yet. The initial scale development study's sample size was quite small and the measures used to determine convergent and discriminant validity

have not been very comprehensive in the original as well as the German study. Moreover, both Llerena et al. (2013) and Engel and Lincoln (2016) suggested further research on the temporal stability of the MAP-SR.

2. Objective and Outline

Summarizing this chapter, negative symptoms are prevalent in most patients with schizophrenia at some point of the illness. They constitute an important predictor of course of illness as well as social and occupational functioning. Clinically effective interventions are scarce and the negative symptom domain remains a major challenge concerning treatment. For negative symptoms to become a reliable primary endpoint in treatment studies, clear operationalization and construct validation is needed. This holds true for rater-assessments as well as self-report measures, which could assist clinicians and researchers in identifying patients with a relevant subjective burden. It seems of particular importance to reliably differentiate negative and depressive symptoms, since depression is the most important indicator for completed suicide in patients with schizophrenia and its treatment in this population remains inadequate.

This thesis aims to contribute to current research on instruments measuring negative symptoms. In general, the questions are addressed, whether the CAINS reliably measures the construct negative symptoms and the MAP-SR the subdomain amotivation as well as whether both instruments can differentiate subjects with schizophrenia, those with depression and healthy controls.

In chapter 2, the research on the observer-rated CAINS' psychometric properties is presented. This is a confirmation of and substantial expansion on Engel et al. (2014) with a larger sample, a comprehensive multitrait-multimethod approach to convergent and discriminant validity, and an assessment of test-retest reliability. Additionally, at the conception of the research project there had been no confirmatory factorial analysis (CFA) of the CAINS' two-factorial

structure yet. The CAINS' two-factorial structure is confirmed, then, internal consistency, interrater and test-retest reliability as well as convergent and discriminant validity are assessed and discussed. Chapter 3 contains a thorough and critical assessment of the self-rating instrument MAP-SR with analysis at item level as well as of the scale and found subscales. There was no previous assessment of the MAP-SR's test-retest reliability and its factorial structure had not been empirically analyzed. The MAP-SR's factorial structure, internal consistency and test-retest reliability as well as the items' convergent validity and the scales' convergent and discriminant validity are examined and appraised. Chapter 4 comprises research on the discriminatory power of the CAINS, MAP-SR, Hamilton Rating Scale for Depression (HAMD-17, Hamilton (1967)), and Beck Depression Inventory (BDI, Hautzinger (1991)) when assessing subjects with schizophrenia, subjects with MDE, and healthy controls. In chapter 5 a general discussion of the results as well as an overarching outlook is presented.

Chapters 1 to 3 have been accepted for publication in their respective form and are thus separately readable manuscripts. This results in overlapping contents of this introduction, the general discussion, and the empirical chapters.

CHAPTER 2: Evidence for Two Distinct Domains of Negative Symptoms: Confirming the Factorial Structure of the CAINS[1]

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Abstract

Negative symptoms are an important predictor of course of illness as well as social and occupational functioning. Clinically effective interventions are scarce. For negative symptoms to become a reliable primary endpoint in treatment studies, clear operationalization and construct validation is needed. Recent factor analyses mostly find two main factors for negative symptoms: diminished expression und amotivation/anhedonia. The Clinical Assessment Interview for Negative Symptoms (CAINS) consists of the subscales "motivation and pleasure" and "expression". We assessed three samples of subjects with schizophrenia (n = 105) for different aspects of the scale's reliability and validity. A confirmatory factor analysis (CFA) of the CAINS confirmed its two-factorial structure. The subscales had distinct correlational profiles: "Motivation and pleasure" was strongly associated with functional outcome and depression and further with neurocognition, positive symptoms and social cognition. "Expression" seems independent of sources of secondary negative symptoms and neurocognition. We found good internal consistency and interrater agreement. Test-retest reliability was moderate for the CAINS and its "expression" subscale and low for the "motivation and pleasure" subscale. Our findings indicate that the CAINS differentiates reliably between the two main domains of negative symptoms with some questions remaining concerning the validity of the "motivation and pleasure" subscale.

1. Introduction

Psychotic disorders are characterized by cognitive dysfunctions as well as positive and negative symptoms (e.g. Owen, Sawa, & Mortensen, 2016). Positive symptoms have been relatively well defined for quite some time, whereas the construct „negative symptoms" wasn't theoretically refined and empirically tested until the 1980s by – amongst others – Andreasen (1982). The scientific discussion intensified with the development of interventions to treat

negative symptoms, since they are an important predictor of e.g. course of illness as well as social and occupational functioning (e.g. Kaiser et al., 2017; Marder & Galderisi, 2017). A meta-analysis on treatments for negative symptoms found no clinically effective (even if statistically significant) interventions so far (Fusar-Poli et al., 2015). The authors called for the development of new, specific treatments. According to Lutgens, Gariepy, and Malla (2017)'s meta-analysis on non-biological interventions, cognitive-behavioral therapy, skills-based training (and particularly social skills training (see also Kurtz & Mueser, 2008; Turner et al., 2018), exercise, and music treatments are promising. For negative symptoms to become a reliable primary endpoint in treatment studies, clear operationalization and construct validation is needed (e.g. Marder & Galderisi, 2017).

1.1 Subdomains of Negative Symptoms

The National Institute of Mental Health consensus document (Kirkpatrick, Fenton, Carpenter, & Marder, 2006) has reviewed the concept "negative symptoms" that refers to Andreasen (1982).They identified five dimensions of negative symptoms: emotional blunting (lower intensity and range of verbal and non-verbal emotional expression), alogia (lack of speech, latency, poverty of speech content), avolition (lack of drive and motivation), anhedonia (inability to experience pleasure) and social withdrawal (reduced interest in, motivation for and enjoyment of social interaction and close relationships). Concerning anhedonia, there are findings indicating that patients with schizophrenia mainly show a deficit in anticipatory pleasure whereas consummatory pleasure is largely unaffected (Gard, Kring, Gard, Horan, & Green, 2007; Lambert et al., 2018; Wu et al., 2017). As there are different pathways leading to negative symptoms, the term secondary negative symptoms has been introduced and explored (Carpenter, Heinrichs, & Wagman, 1988; Kirschner, Aleman, & Kaiser, 2017). Kirschner et al. (2017) argue that increased scores on negative symptom scales can be caused by depression (e.g. anhedonia (e.g. Lako et al., 2012)), positive symptoms (e.g. social withdrawal (e.g. Kelley, van Kammen, & Allen, 1999; Tandon et al., 2000)), side effects of medication (e.g. emotional blunting (Kelley et

al., 1999; Prosser et al., 1987)), substance use (e.g. amotivation (e.g. Rovai et al., 2013)), and environmental conditions like social deprivation (e.g. avolition, social withdrawal (Kasanova, Oorschot, & Myin-Germeys, 2018; Oshima, Mino, & Inomata, 2005)). In contrast, primary negative symptoms are thought to be directly linked to schizophrenia.

1.2 Relationships with Other Symptom Domains

When taking into account the phase of illness, positive symptoms and depressive symptoms don't seem to systematically correlate with negative symptoms. For positive symptoms, Peralta, Cuesta, Martinez-Larrea, and Serrano (2000) report a non-significant correlation of 0.23 on admission but a significant and strong correlation of 0.57 on hospital discharge. Others found no significant correlations with negative symptoms (Schrank, Amering, Hay, Weber, & Sibitz, 2014; Wallwork, Fortgang, Hashimoto, Weinberger, & Dickinson, 2012). Regarding depression, Peralta et al. (2000) found no relationship with negative symptoms on admission (0.01) and a large correlation (0.51) on discharge. Others found no significant (Kim et al., 2006; Wallwork et al., 2012) or a significant moderate relationship (Schrank et al., 2014) of negative and depressive symptoms. For cognitive dysfunction, there are small to moderate correlations with negative symptoms (0.07 to 0.29; Dominguez, Viechtbauer, Simons, van Os, & Krabbendam, 2009; Ventura, Hellemann, Thames, Koellner, & Nuechterlein, 2009).

1.3 Two-Factorial Structure of Negative Symptoms

Blanchard and Cohen (2006) present an overview of analyses of the factorial structure of negative symptoms. They found evidence for two replicable factors encompassing the above mentioned subdomains in factorial analyses of the Scale for the Assessment of Negative Symptoms (SANS), the Schedule for the Deficit Syndrome (SDS), the Positive and Negative Syndrome Scale (PANSS; two-factorial structure also found by Liemburg et al. (2013)) and the Brief Psychiatric Rating Scale (BPRS). The first factor entails "diminished expression" covering emotional blunting and alogia, the second "amotivation" which contains avolition, anhedonia and

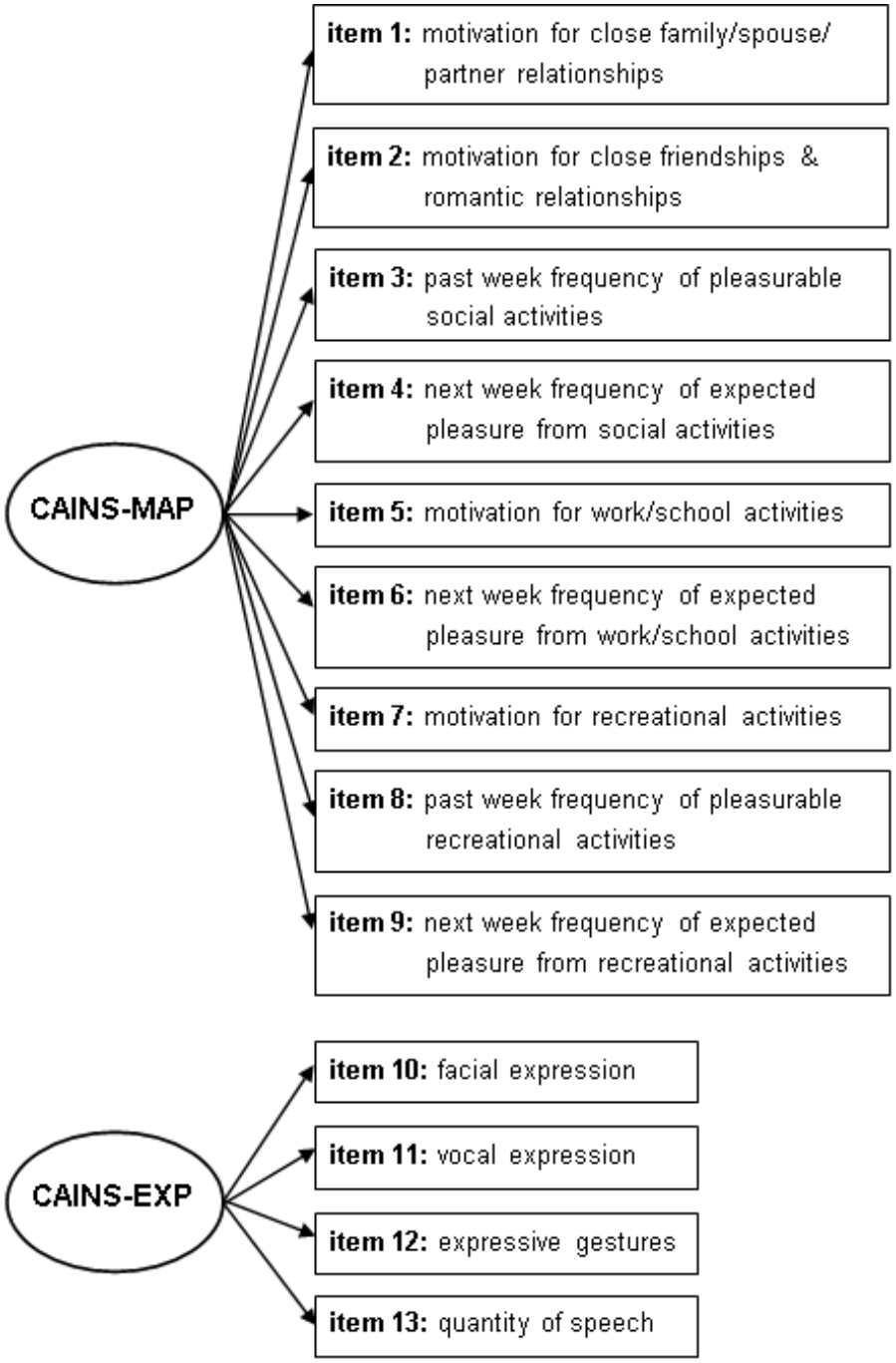
social withdrawal. When evaluated, inappropriate affect, poverty of speech content, and reduced attention load on a third factor representing cognitive deficits/disorganization, which are at this point not thought of as part of the negative symptom domain (e.g. Marder & Galderisi, 2017). The two main factors "diminished expression" and "amotivation" correlate moderately (0.47 to 0.57) indicating a common underlying process (Blanchard & Cohen, 2006; Foussias & Remington, 2010; Kirkpatrick, 2014).

In a review, Kaiser et al. (2017) summarized that models of amotivation are currently converging on reward system dysfunction and aspects of goal directed behavior, while models of expressive deficits are still in an early phase of development. They find behavioral and neuroimaging studies to support distinct underlying mechanisms. Expressive deficits seem to be more persistent (Kelley, Haas, & van Kammen, 2008) while amotivation correlates stronger with functional outcome (e.g. Fervaha, Foussias, Agid, & Remington, 2014). There is preliminary evidence for different outcomes for the two symptom domains concerning psychotherapeutic and pharmacological treatments as well as relapse (e.g. Kaiser et al., 2017; Riehle, Pillny, & Lincoln, 2017; Sayers, Curran, & Mueser, 1996).

1.4 The Clinical Assessment Interview for Negative Symptoms (CAINS)

Until recently, the SANS and the PANSS Negative Scale were most commonly used to assess negative symptoms. Both scales have been criticized for including items which presumably are not part of the negative syndrome and for featuring items that are not clearly defined. Also, the scales mostly assess behavior and rarely specifically inquire the patients' subjective experience. Overall, they don't seem to reflect the current state of the art in research anymore (Blanchard, Kring, Horan, & Gur, 2011; Marder & Galderisi, 2017; Millan, Fone, Steckler, & Horan, 2014). The Marder Negative Symptom Factor Score (Marder Negative; sum of PANSS items N1 to N4 and N6) aims to remediate some of the problems of the PANSS Negative Scale (Marder, Davis, & Chouinard, 1997). Both the Brief Negative Symptom Scale (BNSS, Strauss et al. (2012)) and

the measure under review here, the Clinical Assessment Interview for Negative Symptoms (CAINS, Kring, Gur, Blanchard, Horan, and Reise (2013)), are more recent instruments that refer to the above-mentioned two factors and confirmed those in exploratory analyses (Kring et al., 2013; Strauss et al., 2012). Both instruments facilitate differentiating amotivation and expression and thus advance the evaluation of new treatment options (Strauss & Gold, 2016).



Notes. CAINS-MAP = "motivation and pleasure" subscale; CAINS-EXP = "expression" subscale.

Figure 2-1. CAINS subscales with items and item content.

The CAINS encompasses the five subdomains blunted affect, poverty of speech, avolition, anhedonia and social withdrawal. When assessing the "avolition/amotivation" factor, it focuses on the patients' inner experience. This is considered pivotal for emotional, social and motivational deficits and seen as different from behavior or functional outcome (e.g. Kring et al., 2013). The CAINS' structure can be seen in figure 2-1 and consists of a "motivation and pleasure" subscale (CAINS-MAP) and an "expression" subscale (CAINS-EXP). CAINS-MAP taps attitudes, intrinsic motivation as well as subjective experience and expectation of pleasure with nine items. CAINS-EXP rater-assesses expressive deficits straightforwardly with four items.

When validating the CAINS, Kring et al. (2013) found a two-factorial structure using exploratory principal-axis factorial analysis and hierarchical cluster analysis. They reported a correlation of 0.24 between the subscales, good internal consistency (CAINS: Cronbach's α = 0.76, CAINS-EXP: α = 0.88, CAINS-MAP: α = 0.74), test-retest reliability (0.69 for both scales) and interrater-reliability (CAINS-MAP: 0.93, CAINS-EXP: 0.77). Good convergent validity was established with regard to other rater assessments of negative symptoms (BPRS, SANS), self-reports tapping pleasure, motivation and sociability and measures concerning the assessment of facial emotion expressions. Functional capacity (skills/capability) was not, but functional outcome (actual behavior) was linked to the measure. The authors found adequate discriminant validity regarding depression, medication side effects and cognitive functioning. However, positive symptoms and agitation were correlated with the "motivation and pleasure" subscale.

Engel, Fritzsche, and Lincoln (2014) evaluated a German translation of the CAINS. Their exploratory principal-axis factor analysis also found the two-factor structure. Here, the two subscales were moderately correlated (0.44). The CAINS' overall internal consistency and the CAINS-MAP's were good (0.87, respectively), the CAINS-EXP's was acceptable (0.80). Inter-rater agreement was high for all CAINS items ($\geq$ 0.73). Concerning convergent validity, there were high correlations between both CAINS scales and the PANSS Negative Scale. The subscales were significantly negatively related to self-rated consummatory pleasure but not to

anticipatory pleasure. Discriminant validity was good with no significant correlations with positive symptoms, depression and general psychopathology. CAINS-MAP was significantly correlated with the Global Assessment of Functioning (GAF).

1.5 Objectives

This validation of the German CAINS's psychometric properties aims to confirm and expand on Engel et al. (2014). We analyze a larger sample and – to our knowledge – this is the second confirmatory factorial analysis (CFA; the first being a Chinese sample (Xie et al., 2018)) of the CAINS' two-factorial structure. This is complemented by a comprehensive multitrait-multimethod approach to assess convergent and discriminant validity of the two subscales. Test-retest reliability has not been reported for the German version as of yet; we assessed this, as well as interrater reliability.

2. Methods

2.1 Participants

Three independently collected samples were used: a "convergent and discriminant validity" sample (sample V), a "test-retest and interrater reliability" sample (sample R) and an additional sample to increase the sample size of the pooled "confirmatory factor analysis" sample (CFA sample). Inclusion criteria across all samples were diagnosis of a psychotic disorder according to DSM-IV, age 18 to 65 years, sufficient German language skills, normal or corrected to normal vision and hearing as well as capability to give consent. Exclusion criteria were substance dependence as the leading clinical problem and intellectual disability (IQ < 70, approximated by level of education). In addition to these common inclusion and exclusion criteria, there were sample-specific differences.

Sample V was used to assess the CAINS' convergent and discriminant validity and included 70 outpatients in a stable phase. Since sample V was the baseline examination of a study that aimed to improve negative symptoms using individual- and group-CBT, the participants had to have relevant negative symptoms (sum of PANSS items N1 to 4, N6, G7 and G16 ≥ 10) and to be in outpatient treatment to be included. Sample V's additional exclusion criteria were severe depressive symptoms (PANSS, G5 > 4), structural brain lesions, severe extrapyramidal side effects (Modified Simpson-Angus Rating Scale (MSAS) > 11), and current psychotherapeutic treatment. The diagnosis of a psychotic disorder according to DSM-IV was established using the Structured Clinical Interview for DSM-IV (SCID-I) for sample V. Sample V's participants received a monetary compensation for their assessment, the other samples did not.

Sample R was primarily used to assess the scale's interrater- and test-retest reliability and comprised 25 in-patients; 19 of whom were still available for the second assessment. In sample R, the assessment was videotaped, so the participants had to agree to this.

The additional sample comprised 12 inpatients and outpatients used to increase the overall sample size for the CFA. Sample R and the additional sample were diagnosed with the German Brief Diagnostic Interview of Mental Disorders (Mini-DIPS).

Both sample V and R as well as the additional sample (n = 105 because of overlap between the samples) were used for factorial analysis and to assess the internal consistency of the measure. Demographic and clinical characteristics of the samples can be found in table 2-1.

Table 2-1

Demographics of Sample V, Sample R and the CFA-Sample

	Sample V (*n* =70)	Sample R (*n* =25)	CFA-Sample (*n* =105)
Age (yrs)	39.92 (11.06)	38.16 (10.68)	39.11 (10.94)
Male (%)	71.4	60	69.5
Age at 1st Hospitalization (yrs)	25.82 (8.64)	24.04 (8.10)	25.47 (8.13)
Univ. Entrance Qualification (%)	58.6	44.0	60.0
Diagnosis (%)			
Schizophrenia	85.7	76	85
Schizoaffective disorder	14.3	24	15
PANSS Total Score	62.16 (12.35)	66.80 (20.87)	63.87 (14.83) (n=93)
PANSS Positive Score	12.79 (4.67)	13.36 (5.31)	13.00 (4.86) (n=93)
PANSS Marder Negative Score	20.27 (4.75)	14.20 (7.65)	16.21 (4.86)
CDSS Total Score	4.23 (4.30)		
PSP	48.40 (13.00)		

Note. Univ. = University; PANSS = Positive and Negative Syndrome Scale; CDSS = Calgary Depression Scale for Schizophrenia; PSP = Personal and Social Performance Scale.

2.2 Procedures and Measures

The study protocol was approved by the ethics committee of the University of Tuebingen's medical faculty. After giving informed consent, all screened participants that met inclusion criteria were interviewed using the following measures: 1) a structured interview to obtain basic demographic data, 2) the PANSS (30-item clinician-rated measure of psychosis symptoms scored on a 7-point Likert scale ranging from 1 (absent) to 7 (extreme)) as well as 3) the CAINS (13-item semi-structured interview scored on a 5-point Likert scale ranging from 0 (no impairment) to 4 (severe deficit)). All raters were trained by observing experienced raters conduct the CAINS, applying the CAINS themselves using the manual and discussing the assessment amongst each other.

Sample V was assessed by two raters (MCE, KK); this took approximately four hours and included the following additional measures: 1) the Time Budget Measure (TBM) whose structured retrospective assessment of the past week is intended to reflect the actual level of activity, 2) the Calgary Depression Scale for Schizophrenia (CDSS), 3) the Personal and Social Performance Scale (PSP) as a rating of psychosocial functioning as well as 3) the Modified Simpson-Angus Scale (MSAS) assessing extrapyramidal side effects. Additionally, there was a performance assessment of social skills using role play, the Social Skills Performance Assessment (SSPA), which was audio recorded. Furthermore, we assessed cognitive functioning employing 1) the Trail Making Test A and B (TMT-A, TMT-B), 2) the German version of the auditory verbal learning test (VLMT), 3) the Tower of London (ToL) as well as 4) the Wechsler Adult Intelligence Scale‘s Digit Span task (WAIS-IV-DS). Lastly, the participants were asked to fill in additional questionnaires: 1) the Frankfurt Self-Concept Scales (FSKN), assessing components of self-concept including the subscale “appreciation by others” as a measure of social cognition (FSWA; tapping feelings of insufficiency and rejection in social situations) and 2) the Temporal Experience of Pleasure Scale (TEPS), assessing anticipatory und consummatory pleasure.

Sample R’s initial assessment lasted approximately one hour during which the CAINS interview was videotaped. The raters CB and LS conducted one half of the interviews, respectively and assessed the videos of the other half. 14 (+/- 5) days after the first assessment, participants were evaluated again, which took about 25 minutes.

The additional sample’s assessment was done by the raters LH and SR, included further measures and took approximately 1.5 hours.

The German versions of the CAINS and TEPS were kindly made available to us by the research group led by Tania Lincoln, Department of Clinical Psychology and Psychotherapy, University of Hamburg. The German manual and rating sheet of the CAINS can be found in our supplementary data as well as downloaded free of charge under the creative commons license here: http://dx.doi.org/10.23668/psycharchives.775. The English versions of the TBM and

SSPA were translated into German by our research group and retranslated by an English native speaker. Differences to the original English versions were discussed among the translators and a consensus was agreed on.

2.3 Data Analysis

For demographic data a rate of missing items ≤ 10% was not reported. When calculating the scale composites, a rate of 5% and 10% of missing values for assessments and self-ratings respectively were tolerated and replaced by the scale's mean. Data points with more missing items were excluded from the respective analysis. The data quality of the CAINS, its subscales and items was high with no missing data.

Using SPSS v24 and AMOS v21, we assessed 1) the CAINS' and its two subscales' internal consistency, test-retest reliability and interrater reliability, 2) the CAINS' latent structure using confirmatory factor analysis (CFA) and 3) the scales' and its subscales' convergent and discriminant validity.

We tested for normal distribution and homoscedasticity. Pearson or Spearman correlations respectively were used to evaluate test-retest reliability as well as convergent and discriminant validity. There, Holm-Bonferroni sequential correction was used to deal with the multiple comparisons problem. For interrater reliability the average Intraclass Correlation Coefficient (ICC) estimate and 95% confidence intervals were calculated based on a mean-rating (k = 2), absolute-agreement, two-way random model.

Concerning confirmatory factor analysis, we follow the recommendations of Jackson, Gillaspy Jr, and Purc-Stephenson (2009). With regards to sample size, Jackson, Voth, and Frey (2013) propose to take p/f ratios (number of measured variables loading on each factor), number of latent variables and loading size into account. Their results suggest that for our two factors, a p/f of 4 and 9 and expected loading sizes between 0.4 and 0.9, a sample size of 50 to 100 could be sufficient. Curve estimation for all relationships in our model found them to be sufficiently

linear. We then assessed univariate and multivariate normality. Skewness and kurtosis values for the items were all < |2| and < 7 respectively, suggesting adequately normal distribution. Mardia's coefficient, however, was 9.21 with a critical ratio of 2.39 (cut-off < 1.96) which suggests significant – but not excessive – multivariate non-normality (Byrne, 2010). There were no multivariate outliers identified via Mahalanobis distance at $\alpha = 0.001$ and nine at $\alpha = 0.05$ (Tabachnick & Fidell, 2007); there was no justification for the exclusion of any outliers (Byrne, 2010).

For the CFA, the analysis was performed on the observed covariance matrix. We used maximum likelihood estimation which is thought to be robust to minor deviations from normality (e.g. Chou & Bentler, 1995). To account for the multivariate non-normality we used Bollen-Stine bootstrapping to adjust *p*-values for the χ^2 goodness-of-fit test of our model (Byrne, 2010). We report goodness-of-fit statistics CMIN, Comparative Fit Index (CFI; > 0.9 indicating adequate and > 0.95 good model fit), Root Mean Square Error of Approximation (RMSEA; < 0.08 is considered adequate (Browne & Cudeck, 1992), < 0.05 good (Steiger, 1990)), and Akaike Information Criterion (AIC; with smaller numbers indicating better fit). Fan, Thompson, and Wang (1999) consider RMSEA and CFI to be less sensitive to sample size compared to other indices. We used the bias-corrected percentile method to calculate confidence intervals for the standardized regression weights and covariances (Byrne, 2010).

3. Results

3.1 Internal Consistency (CFA Sample)

The internal consistency of the scale was good: Cronbach's $\alpha = 0.87$, with no "α if item deleted" > 0.87. For the subscales, we found good internal consistency as well: CAINS-MAP's Cronbach's $\alpha = 0.83$, CAINS-EXP's Cronbach's $\alpha = 0.86$.

3.2 Interrater Reliability (Sample R)

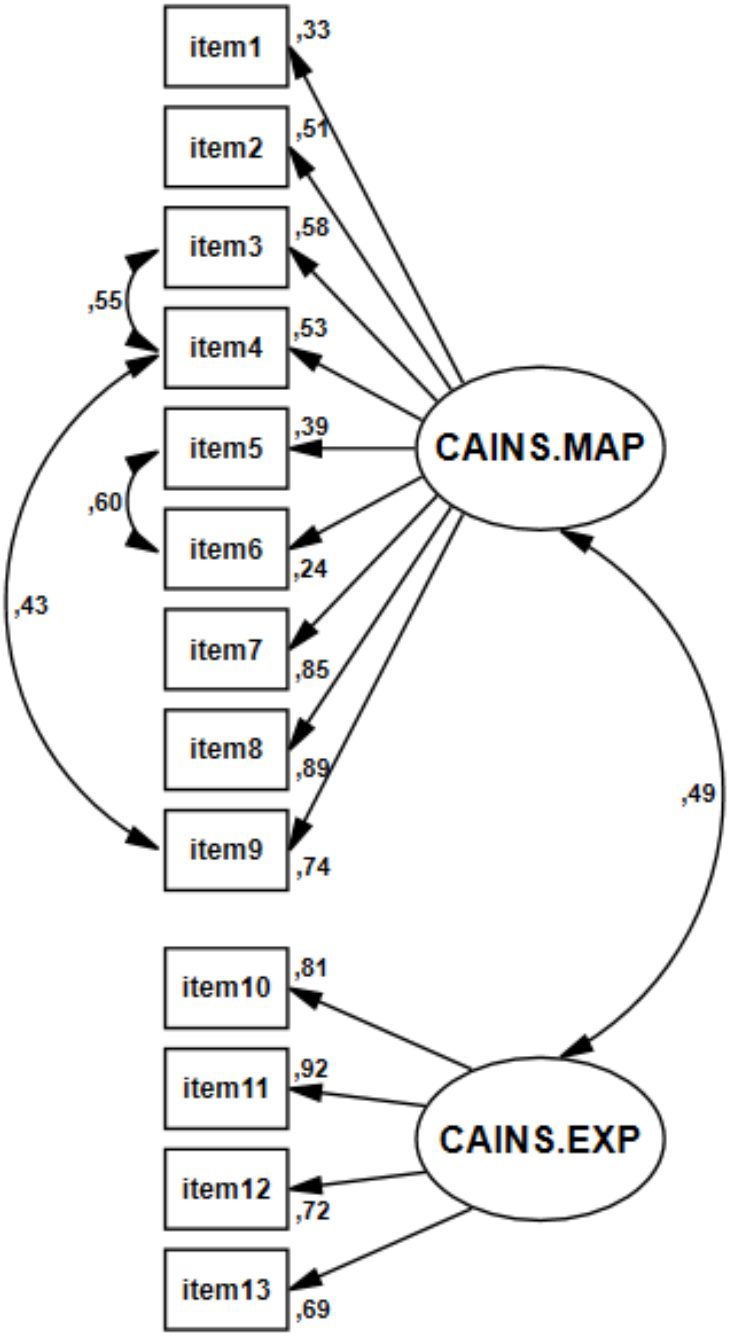
The single measure ICC was 0.81 (CI 0.61 - 0.91; ($F(24) = 9.17$, $p < 0.001$) indicating good reliability. For the subscales, interrater reliability was 0.81 for CAINS-MAP (CI 0.61 - 0.91; ($F(24) = 9.23$, $p < 0.001$) and 0.80 (CI 0.60 - 0.91; ($F(24) = 8.70$, $p < 0.001$) for CAINS-EXP.

3.3 Test-Retest Reliability (Sample R)

For the CAINS we found a test-retest reliability of 0.71, $p = 0.001$, which is considered acceptable. CAINS-EXP had good test-retest reliability ($r = 0.82$, $p < 0.001$); CAINS-MAP's was poor to moderate ($r_S = 0.57$, $p = 0.011$).

3.4 Confirmatory Factor Analysis (CFA Sample)

The CFA of a two-factorial structure of the CAINS with items 1 to 9 loading on the "motivation and pleasure" factor and items 10 to 13 loading on the "expression" factor had no cross-loadings but proved to be no good fit for the data ($\chi^2(64) = 197.57$, Bollen-Stine $p < 0.001$; CFI = 0.79, RMSEA = 0.14 (90%-CI 0.12 - 0.16), AIC = 251.57). Inspection of modification indices showed high covariances between some error terms of the "motivation and pleasure" scale. We iteratively included them in post hoc model fitting to account for the relevant item overlaps in the "motivation and pleasure" scale (e.g. Jöreskog & Long, 1993). The final model still had items 1 to 9 loading on the "motivation and pleasure" factor and items 10 to 13 loading on the "expression" factor and included overlap of items 3 and 4, 5 and 6, as well as 4 and 9: $\chi^2(61) = 93.28$, Bollen-Stine bootstrap $p < 0.98$; CFI = 0.95, RMSEA = 0.07 (90%-CI 0.04 - 0.10), and AIC = 153.28. Its structure, standardized regression weights and covariances can be found in figure 2-2. We compared the two nested models and found a significantly worse fit for the original model: $\Delta\chi^2(3) = 104.29$, $p < 0.001$. Table 2-2 shows estimates and confidence intervals for its standardized regression weights as well as covariances of the subscales.



Notes. CAINS.MAP = "motivation and pleasure" subscale; CAINS.EXP = "expression" subscale; item 1 to item 13 = CAINS items.

Figure 2-2. Plot of the two-factor-CFA (final model) with covariances and standardized regression weights.

Table 2-2

Estimates&Confidence Intervals for the Final Model's Standardized Regression Weights&Covariances

Parameters		Estimates (CIs)	*p*
Standardized Regression Weights			
CAINS-MAP	item 1	0.33 (0.08 - 0.55)	0.011
	item 2	0.52 (0.30 - 0.67)	0.002
	item 3	0.58 (0.37 - 0.72)	0.002
	item 4	0.53 (0.30 - 0.68)	0.001
	item 5	0.39 (0.18 - 0.55)	0.001
	item 6	0.24 (-0.03 - 0.45)	0.082
	item 7	0.85 (0.77 - 0.91)	0.001
	item 8	0.89 (0.80 - 0.95)	0.002
	item 9	0.74 (0.59 - 0.84)	0.001
CAINS-EXP	item 10	0.81 (0.71 - 0.88)	0.001
	item 11	0.92 (0.83 - 0.98)	0.001
	item 12	0.72 (0.58 - 0.83)	0.001
	item 13	0.69 (0.55 - 0.80)	0.001
Covariances			
CAINS-MAP - CAINS-EXP		0.37 (0.19 - 0.56)	0.001
item 5 - item 6		0.74 (0.47 - 1.07)	<0.001
item 3 - item 4		0.35 (0.23 - 0.53)	<0.001
item 4 - item 9		0.23 (0.14 - 0.33)	0.001

Note. CIs = confidence intervals; CAINS-MAP = "motivation and pleasure" subscale; CAINS-EXP = "expression" subscale, item 1 to item 13 = CAINS items.

3.5 Convergent and Discriminant Validity (Sample V)

Table 2-3 shows correlations of the CAINS and its subscales CAINS-MAP and -EXP with supposed related and unrelated domains. The CAINS-MAP was found to be strongly associated with functional outcome and depression and further with neurocognition, positive symptoms and social cognition. CAINS-EXP was independent from positive and extrapyramidal symptoms, depression and neurocognition.

Table 2-3

Correlations of the CAINS, its 'Motivation and Pleasure' and 'Expression' Subscales, and Relevant Domains

Domain	Measuring Instrument	CAINS	CAINS-MAP	CAINS-EXP
Negative Symptoms	PANSS Marder Negative	r = .53***, *p*<.001	r = .40**, *p* =.008	r_S= .49***, *p*<.001
	Anticipatory Pleasure (TEPS-ANT)	r = -.28, *p* =.080	r = -.30*, *p* =.040	r_S= -.11, *p* =1
Functional Outcome	Psychosocial Functioning (PSP)	r_S= -.56***, *p*<.001	r_S= -.57***, *p*<.001	r_S= -.26, *p* =.256
	Level of Activity (Time Budget Measure)	r_S= -.27, *p* =.080	r_S= -.30*, *p* =.040	r_S= -.06, *p* =1
	Social Competence (SSPA)	r_S= -.61***, *p*<.001	r_S= -.58***, *p*<.001	r_S= -.40**, *p* =.009
Social Cognition	Appreciation by Others (FSKN-WA)	r = -.25, *p* =.080	r = -.32*, *p* =.036	r_S= .00, *p* =1
Neurocognition	Index of VLMT, Digit Span, TMT, Tower of London	r = -.34*, *p* =.042	r = -.32*, *p* =.040	r_S= -.20, *p* =.763
Positive Symptoms	PANSS Positive Symptom Scale	r_S= .29, *p* =.070	r_S= .33*, *p* =.036	r_S= .10, *p* =1
Depression	Calgary Depression Scale for Schizophrenia (CDSS)	r = .38**, *p* =.007	r_S= .40**, *p* =.008	r_S= .19, *p* =.763
EPS	Modified Simpson Angus Rating Scale (MSAS)	r_S= .12, *p* =.312	r_S= .10, *p* =.400	r_S= .05, *p* =1

Note. EPS = extrapyramidal symptoms; *r* = Pearson correlation; r_S = Spearman correlation; *p*-values Holm-Bonferroni-adjusted for each scale/subscale (hence $p = 1$ in some cases); * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

4. Discussion

To further establish the two factors of negative symptoms, firstly the instruments that try to measure them have to have adequate reliability. Secondly, distinct profiles should be found and replicated for structure as well as content. Summarizing the results, we found good internal consistency for the CAINS and its subscales. Interrater agreement was good for all scales. We confirmed the CAINS' two-factorial structure with minor adjustments for the "motivation and pleasure" subscale. The two subscales showed distinct patterns of association with related symptoms and domains.

4.1 Test-Retest Reliability

This is the first evaluation of the test-retest reliability of the German translation of the CAINS, which was in a medium range for the CAINS (r = 0.71) and its "expression" subscale (r = 0.74) and low for the "motivation and pleasure" subscale (r = 0.57). The CAINS' and CAINS-EXP's stability is in line with the original validation study (Kring et al. (2013), n = 162, two-week interval, r = 0.69, for CAINS-EXP and CAINS-MAP), and two further studies (Blanchard et al. (2017), n = 447, three-month interval, CAINS-EXP: r = 0.75, CAINS-MAP: r = 0.80; Xie et al. (2018), n = 23, two-week interval, r = 0.68 for CAINS, 0.63 for CAINS-EXP and 0.68 for CAINS-MAP). We expected higher test-retest reliability for the CAINS-MAP considering the short period of time between the assessments and the widely reported (moderate) stability of negative symptoms (e.g. Ventura et al., 2015). We found no blatant differences between the other studies' and our samples that could explain the differences in the CAINS-MAP's test-retest reliability. However, our test-retest reliability sample R is small and mainly consists of in-patients (although most were in the stabilization phase). Thus, we might have measured a non-negligible amount of possibly less stable secondary negative symptoms. Consistent with our results, both Galderisi et al. (2013) and Kelley et al. (2008) found diminished expression to be more persistent across time; amotivation seems to be more sensitive to changes. The CAINS-MAP's focus on

inner experience as opposed to observable behavior could entail a higher variability of answers when retesting. We think for the CAINS, further evaluation of mainly the "motivation and pleasure" subscale's stability is needed; overall, the stability of all different aspects of negative symptoms (deficit syndrome, persistent negative syndrome, primary and secondary negative symptoms as well as the two (possibly five) factors of negative symptoms) seems to be worth looking into.

4.2 Confirmatory Factor Analysis

Since this is a smaller sample, we did not compare different factorial models. There is a recent comprehensive factor-analysis on the Brief Negative Symptom Scale (BNSS, Strauss et al. (2012)) that found the best fit for a hierarchical 5-factor model with two second-order factors reflecting "expression" and "amotivation" as well as 5 first-order factors reflecting blunted affect, alogia, anhedonia, avolition, and asociality which seems worth exploring in further studies (Ahmed et al., 2018). However, we confirmed previous exploratory analyses of the CAINS that overwhelmingly yielded two factors. We consider the CFA's final model an overall well fitting and parsimonious model that confirms the two-factorial structure of the CAINS. There were no cross-loadings of CAINS-MAP items to the CAINS-EXP subscale and vice versa. Hence, the individual items are specific for their respective scales. The loadings of items 10 to 13 on the "expression" subscale are both high and reliable. However, there is some concern with some items of the "motivation and pleasure" subscale. The lower bound of the item loadings' confidence intervals is below 0.3 for items 1, 5 and 6. These items tap motivation for family relationships as well as motivation for and expectation of pleasure at work and/or school, respectively. The original validation study's exploratory factor analysis found factor loadings of 0.33 for item 1 (there: 1. social: family relationships), of 0.24 for item 5 (there: 6. vocational: motivation) and of 0.39 for item 6 (there 8. vocational: expected pleasure). Those three items were in the bottom four of factor loadings (Kring et al., 2013). Substantial conceptual overlap between some CAINS-MAP items was not unexpected. Relevant overlap was found for items 5

and 6 which inquire motivation for and expectation of pleasure at work and/or school, for items 3 and 4 which appraise past-week and expected pleasure concerning social activities as well as for items 4 and 9 which assess expected pleasure in regard to social and leisure activities, respectively. We consider all CAINS item contents important, however, to further establish the relevance and validity of the specific items of the "amotivation" factor, further analysis of a larger sample would be interesting. A first step could be exploratory factor analysis to determine, whether Ahmed et al. (2018)'s hierarchical 5-factorial model of the BNSS also holds true for the CAINS. It should be noted, however, that partly the two-factorial solution could be explained by common-method variance: CAINS-MAP mainly assesses verbal report of experience; CAINS-EXP is a rating of within-interview behavior.

4.3 Validity Assessment

With the two-factorial structure of the CAINS adequately established, a nuanced discussion of the validity assessment is warranted. Overall, there seem to be distinct correlational profiles for the two subscales; this further substantiates them measuring different aspects of negative symptoms. The "expression" subscale might be less impacted by secondary negative symptoms (Farreny, Savill, & Priebe, 2018). The "motivation and pleasure" scale has more positive associations with related domains than the "expression" subscale. This mirrors the more advanced theoretical models for the "amotivation" subdomain (Kaiser et al., 2017). Both subscales correlate well with the PANSS Marder Negative score and moderately (CAINS-EXP) to strongly (CAINS-MAP) with social competence. For the "expression" domain, Marder and Galderisi (2017) suggested that abnormal functioning of the mirror neuron system could explain deficits of 1) social perception and 2) motor activity which might affect social competence. Fittingly, Riehle, Mehl, and Lincoln (2018) found significantly fewer positive facial expressions in subjects with schizophrenia with predominantly expressive deficits than in those without as well as in controls; the former were also rated significantly lower on social performance skills assessed by role-play. Furthermore, it is highly likely for assessments derived from behavioral observation

– i.e. both in interview and role-play – to overlap. For the "motivation and pleasure" domain, poor social cognition seems linked to asociality/social withdrawal, although the direction of that link is unclear up to now (e.g. Marder & Galderisi, 2017). Blanchard, Park, Catalano, and Bennett (2015) also found strong associations for CAINS-MAP symptoms with performance-based affiliative skills (i.e. responding to a video) as well as role-play; this could point to an influence of social amotivation. We think those aspects could partially explain the observed association of social competence and both CAINS-MAP and CAINS-EXP. The self assessed anticipatory anhedonia (TEPS-ANT) correlates moderately with the CAINS-MAP. Anticipatory anhedonia was consistently found to be associated with motivational processes specific to the "amotivation" domain of negative symptoms (Gard et al., 2007). Functional outcome consistently is linked more strongly to amotivation than expressive deficits (Marder & Galderisi, 2017); we also found this in our data. The CAINS' "motivation and pleasure" subscale has a significant but smaller than expected correlation with the very meticulously measured level of activity (Time Budget Measure). This probably is due to the CAINS-MAP focusing on inner experience as opposed to mainly assessing behavior. Experience sampling depends on the symptoms being accessible, identifiable and reportable for the patient. When using more behavior-based assessments, however, confounding symptoms and outcome is a significant issue. Correctly identifying the origin of symptoms (primary, secondary) is difficult for assessments based on self-report as well as performance-based measures. Assessing "true amotivation" will probably remain difficult and will need assessment from more than one perspective (i.a. to rule out confounding aspects). Maybe a compound score of performance assessment, experience sampling, and self-report could achieve this aim.

In qualification it should be noted, that the validity sample V consisted of outpatients with relevant negative symptoms, whereas depressive symptoms had to be below "severe". Also, our sample showed a very low rate of extrapyramidal symptoms. The subjects often were assessed shortly after hospital discharge; this is a phase of illness associated with less positive and

more depressive symptoms (Peralta et al., 2000). Overall, there are high comorbidity rates for schizophrenia and unipolar depression across stage and state of illness (Upthegrove, Marwaha, & Birchwood, 2017). Even though we excluded severely depressed patients, the "motivation and pleasure" subscale is weakly linked to positive and depressive symptoms. The latter could be due to conceptual overlap of depressive and negative symptoms. Mainly the "avolition" factor entails symptoms that are also main symptoms of depression: loss of interest, anhedonia, and reduced energy. For schizophrenia patients and the CAINS or its "motivation and pleasure" subscale's self rating MAP-SR, some researchers found no significant associations with measures of depression (Engel et al., 2014; Kring et al., 2013; Llerena et al., 2013) while others found a weak to moderate correlations (Engel & Lincoln, 2016; Park et al., 2012). Shared method variance could also play a part in the overlap of mainly "amotivation" and positive and depressive symptoms.

We found no significant association of our global index of neurocognition and CAINS-EXP and a moderate correlation for the CAINS-MAP. Marder's 2017 review reports amotivation to be linked to deficits in abstraction/flexibility and executive functioning – deficits in executive functions probably impair action planning and lead to apathy. Strauss, Morra, Sullivan, and Gold (2015) found low cognitive effort to be associated with severe negative symptoms; both predicted global neurocognitive impairment. However, diminished expression usually correlates with impaired overall cognitive performance (Hartmann-Riemer et al., 2015). A. S. Cohen, Mitchell, and Elvevåg (2014) proposed a cognitive resources limitation model with speech reduction as reaction to cognitive overload, hence a specific relationship of alogia and verbal fluency. Overall, our neurocognitive index seems too global to clarify the complex association between cognitive dysfunction and the two factors of negative symptoms.

4.4 Conclusion

To relevantly improve negative symptoms, we need to 1) increase our understanding of the symptom complex, 2) develop specific treatment strategies aiming at different aspects of negative symptoms, and 3) precisely assess these interventions. We consider the CAINS to be overall well suited to promote these purposes. We would recommend against solely using the composite CAINS score, but to take into account both CAINS subscales separately. Researchers interested in utilizing the results of our CFA more specifically could use the following formulas to compute the CAINS subscales: CAINS-MAP = (0.33 × item 1 + 0.51 × item 2 + 0.58 × item 3 + 0.53 × item 4 + 0.39 × item 5 + 0 .24 × item 6 + 0.85 × item 7 + 0.89 × item 8 + 0.74 × item 9) ÷ 9; CAINS-EXP = (0.81 × item 10 + 0.92 × item 11 + 0.72 × item 12 + 0.69 × item 13) ÷ 4. Since there are only four CAINS-EXP items to nine CAINS-MAP items, the motivation aspect is overrepresented in the total score. Moreover, we think the CAINS-MAP subscale might benefit from more research clarifying the individual items' specific subdomains, importance for the subscale, and stability as well as discriminant validity with depression. Overall, the two subscales clearly and mostly reliably measure distinct aspects of negative symptoms; we think the research on negative symptoms could benefit from consistently taking note of both.

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CHAPTER 3: Self-Assessment of Negative Symptoms – Critical Appraisal of the Motivation and Pleasure – Self-Report's (MAP-SR) Validity and Reliability[2]

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Abstract

The negative symptom domain remains a major challenge concerning treatment. A valid self-report measure could assist clinicians and researchers in identifying patients with a relevant subjective burden. The Motivation and Pleasure - Self Report (MAP-SR) derives from the CAINS and is supposed to reflect the "amotivation" factor of negative symptoms. We evaluated different aspects of the scale's reliability and validity. This is the first factorial analysis as well as the first analysis of test-retest reliability. We assessed three samples of subjects with schizophrenia or schizoaffective disorder (n = 93) and a broad spectrum of related domains. We explored a 3-, 2- and 1-factor solution (explaining 50.93, 44.85 and 36.18% of variance, respectively). The factor "pleasure and hedonic activity" consists of eight items and was most robust; the factors "social motivation" and "motivation for work" were problematic. Test-retest reliability of the scale was adequate (r_S = 0.63, p = .005). Neither the MAP-SR nor the "pleasure and hedonic activities" factor are associated with the PANSS negative symptom scale. There are significant associations with the observer-rated CAINS-MAP scale, experiences of pleasure, and social cognition but none with functional outcome. Discriminant validity could not be established with regards to depression and extrapyramidal symptoms. We found that the MAP-SR is adequate to assess anhedonia but is less suitable when assessing motivation. Therefore, we propose using the "pleasure and hedonic activity scale" to cover the "anhedonia" sub domain. We think the "motivation" part of the instrument requires reconstruction.

1. Introduction

Negative symptoms remain a major challenge in the treatment of schizophrenia (Fusar-Poli et al., 2015). It seems critically important to further our understanding of the symptom complex, try to develop specific treatment strategies for different aspects of negative symptoms, and precisely assess these treatments. To establish negative symptoms as primary endpoint in

treatment studies, clear operationalization and construct validation of measuring instruments is needed (e.g. Marder & Galderisi, 2017).

The first factorial conceptualization of negative symptoms comprised emotional blunting, alogia, avolition, anhedonia, social withdrawal and attention deficits (Andreasen, 1982). Most diagnostic instruments aiming to measure negative symptoms inquire these symptom domains. However, recent studies on the factorial structure of negative symptoms suggest that some of the subdomains overlap, while others can be distinguished from each other. Overall, the models converge towards a two-factorial structure with a) "diminished expression" which covers emotional blunting and alogia and b) "amotivation" which contains avolition, anhedonia and social withdrawal. Inappropriate affect, poverty of content of speech, and reduced attention load on a third factor which isn't considered part of the negative symptom domain anymore and seems to correspond to cognitive dysfunction and disorganization. "Diminished expression" and "amotivation" correlate moderately (0.47 - 0.57) (e.g. Marder & Galderisi, 2017). A recent factorial analysis of Ahmed et al. (2018) found a hierarchical 5-factor model for the Brief Negative Symptom Scale (BNSS) with two second-order factors reflecting "expression" and "amotivation" as well as 5 first-order factors reflecting blunted affect, alogia, anhedonia, avolition, and asociality. The factors might respond differently to treatment (e.g. Kaiser et al., 2017; Riehle, Pillny, & Lincoln, 2017): for instance, amotivation seems to improve more with CBT and social skills training, blunted affect with nonverbal treatments (i.e. body-oriented psychotherapy).

The National Institute of Mental Health consensus document (Kirkpatrick, Fenton, Carpenter, & Marder, 2006) called for the development of rationally constructed scales that refer to the two-factorial structure of negative symptoms. Subsequently, the BNSS (Kirkpatrick et al., 2011) and the Clinical Assessment Interview for Negative Symptoms (CAINS, Kring, Gur, Blanchard, Horan, and Reise (2013)) were developed with this in mind. Both measures have good internal consistency, convergent validity, and discriminant validity (Strauss & Gold, 2016). The

CAINS consists of two scales: the "motivation and pleasure" scale (CAINS-MAP) strives to measure attitudes, intrinsic motivation and subjective experience of pleasure, the "expression" subscale (CAINS-EXP) asks the rater to assess vocal prosody, gestures, facial expression and quantity of speech (Kring et al., 2013).

Interestingly, there are only few established self-rating measures in the field of psychosis – the majority of endpoints in clinical studies are derived from interview-based rating scales. However, there are findings indicating that patients with schizophrenia can adequately assess at least parts of the negative symptom complex (Dollfus, Mach, & Morello, 2016; Lincoln, Dollfus, & Lyne, 2017; Llerena et al., 2013). A valid self-report measure could assess subjective aspects of negative symptoms and assist clinicians and researchers in time-savingly identifying patients with a relevant subjective burden. Furthermore, it could enable online research and large scale panel studies with community samples.

As far as we are aware, there are only three specific self-rating negative symptom measures (Lincoln et al., 2017): the Subjective Experience of Negative Symptoms (SENS, Selten, Sijben, van den Bosch, Omloo-Visser, and Warmerdam (1993)), the Self-Evaluation of Negative Symptoms (SNS, Dollfus et al. (2016)), and the Motivation and Pleasure - Self Report (MAP-SR, Llerena et al. (2013)). The SENS derives from the SANS and is interview-based. Thus, it is quite time-consuming, might be influenced by the interviewer, and also includes items outside the amotivation and expression domains. So far, there is no data on its convergent or discriminant validity. The SNS could be the most up-to-date instrument, since it evaluates emotional range and alogia as well as amotivation and thus covers the five domains of negative symptoms. Factor analysis extracted two factors ("apathy" and "emotional") that accounted for 75.2% of the variance, but did not clearly differentiate amotivation and expression. Furthermore, its convergent as well as discriminant validity have not yet been evaluated comprehensively. The MAP-SR derives from the "motivation and pleasure" subscale of the CAINS and was developed as a self-rating instrument for avolition in schizophrenia. Its precursor, the Clinical Assessment

Interview for Negative Symptoms – Self Report (CAINS-SR, Park et al. (2012)) also tried to assess expressive deficits but found poor psychometric properties for this subscale. They concluded that self-reports of negative symptoms should focus on the experiential domain. Six of the MAP-SR's items tap social pleasure, recreational pleasure and work pleasure, six feelings and motivations about close, caring relationships, and six motivation and effort to engage in activities (social, recreational and occupational). Looking at the usual procedure in validating new measures, the MAP-SR is still at an early stage. For the original version of the scale, Llerena et al. (2013) found good internal consistency (Cronbach's $\alpha = 0.9$) after a scale reduction (18 to 15 items, $n = 37$). Convergent validity to the "motivation and pleasure" scale of the CAINS ($r = 0.65$), social anhedonia ($r = 0.48$) and social engagement ($r = 0.57$) was established. No significant correlations were found for positive symptoms and depression/anxiety as well as general cognitive abilities signifying adequate discriminant validity. Further validation studies were undertaken by Engel and Lincoln (2016) for the German version of the MAP-SR ($n = 50$) and Kim et al. (2016) for the Korean MAP-SR ($n = 137$). Both found good internal consistency, strong to moderate convergent validity regarding correlations to the "motivation and pleasure" scale of the CAINS as well as other measures for negative symptoms. No significant correlation with the "expression" subscale of the CAINS was observed in the German study (Engel & Lincoln, 2016), whereas a weak correlation was observed in the Korean study (Kim et al., 2016). This partially supports the distinction between these subdomains; however, Engel and Lincoln (2016) discussed a possible lack of commonality between the avolition and expression aspects of negative symptoms. Discriminant validity was established finding no significant correlation with positive symptoms and rater-assessed depression/anxiety; Kim et al. (2016) also found no significant link to neurocognition. Engel and Lincoln (2016) found a moderate but significant correlation with the BDI-II. The authors of previous validations called for investigation of temporal stability (Engel & Lincoln, 2016; Llerena et al., 2013). The MAP-SR was constructed to

represent the "amotivation" factor of negative symptoms, so far there was no empirical analysis of its factorial structure.

The objective of this paper is to evaluate the German version of the MAP-SR regarding factorial structure, validity, and reliability.

2. Methods

2.1 Participants

Three independently collected samples were used: a "convergent and discriminant validity" sample (sample V), a "test-retest and interrater reliability" sample (sample R) and an additional sample to increase the sample size of the pooled "exploratory factor analysis" sample (EFA sample). Inclusion criteria across all samples were diagnosis of a psychotic disorder according to DSM-IV, age 18 to 65 years, sufficient German language skills, normal or corrected to normal vision and hearing as well as capability to give consent. Exclusion criteria were substance dependence as the leading clinical problem and intellectual disability (IQ < 70, approximated by level of education). In addition to these common inclusion and exclusion criteria, there were sample-specific differences.

Sample V was used to assess the MAP-SR's convergent and discriminant validity and included 55 outpatients in a stable phase. Since sample V was the baseline examination of a study that aimed to improve negative symptoms using individual and group CBT, the participants had to have relevant negative symptoms (PANSS items N1 to N4, N6, G7 und G16 ≥ 10) and to be in outpatient treatment to be included. Sample V's additional exclusion criteria were severe depressive symptoms (PANSS, G6 > 4), structural brain lesions, severe extrapyramidal side effects (Modified Simpson-Angus Rating Scale (MSAS) > 11), and current psychotherapeutic treatment. The diagnosis of a psychotic disorder according to DSM-IV was established using the

Structured Clinical Interview for DSM-IV (SCID-I) for sample V. Sample V's participants received a monetary compensation for their assessment, the other samples did not.

Sample R was primarily used to assess the scale's interrater- and test-retest reliability and comprised 25 patients in the stabilization phase; 19 of whom were still available for the second assessment. In sample R, further assessment was videotaped, so the participants had to agree to this.

The additional sample comprised 15 inpatients and outpatients used to increase the cumulated sample size for the EFA. Sample R and the additional sample were diagnosed with the German Brief Diagnostic Interview of Mental Disorders (Mini-DIPS).

Both sample V and R as well as the additional sample (n = 93 because two subjects partook in sample V and R) were used for exploratory factorial analysis and to assess the internal consistency of the measure. The samples were also used to further assess the CAINS; publication is planned. Demographic and clinical characteristics of the samples can be found in table 3-1.

Table 3-1

Demographics of SampleV, Sample R and the EFA-Sample

	Sample V (n=55)	Sample R (n=19)	EFA-Sample (n=93)
Age (yrs)	40.56 (10.96)	36.26 (10.86)	38.99 (10.99)
Male (%)	67.3	53	66.7
Age at 1st hospitalization (yrs)	25.55 (8.70)	22.78 (7.22)	25.33 (8.08)
Diagnosis (%)			
Schizophrenia	85.5	74	85
Schizoaffective disorder	14.5	26	15
PANSS Total score	64.38 (12.42)	64.26 (22.41)	64.83 (15.63) (n=81)
CDSS Total score	3.67 (3.79)		
PSP	59.27 (13.34)		

Notes. PANSS = Positive and Negative Syndrome Scale; CDSS = Calgary Depression Scale for Schizophrenia; PSP = Personal and Social Performance Scale.

2.2 Procedures and Measures

The study protocol was approved by the ethics committee of the University of Tuebingen's medical faculty. After giving informed consent, all screened participants that met inclusion criteria were interviewed using the following measures: 1) a structured interview to obtain basic demographic data, 2) the MAP-SR, 3) the PANSS (30-item clinician-rated measure of psychosis symptoms, scored 1 (absent) to 7 (extreme); Cronbach's α = .74 to .83) as well as 4) the CAINS (13-item semi-structured interview scored 0 (no impairment) to 4 (severe deficit), Cronbach's α = .76).

Sample V's assessment took approximately four hours and included the following additional measures: 1) the Time Budget Measure (TBM; 28-item semi-structured interview, scored 0 (nothing) to 4 (variety of demanding independent activities)) whose structured retrospective assessment of the past week is intended to reflect the actual level of activity, 2) the Calgary Depression Scale for Schizophrenia (CDSS; nine-item structured interview of depressive symptoms in schizophrenia scored 0 (absence) to 3 (highest severity); Cronbach's α = .79), 3) the Personal and Social Performance Scale (PSP; 100-point single-item rating scale) as a rating of psychosocial functioning as well as 4) the Modified Simpson-Angus Scale (MSAS; 10 items scored 0 (normal) to 4 (severe); Cronbach's α = .79) assessing extrapyramidal side effects. Additionally, there was a performance assessment of social skills using role play, the Social Skills Performance Assessment (SSPA; two 3-min role-plays (greeting a new neighbor and lodging a complaint with the landlord); performance scored 1 (poor) to 5 (excellent)), which was audio recorded. Furthermore, we assessed cognitive functioning employing 1) the Trail Making Test A and B (TMT-A, TMT-B), 2) the German version of the auditory verbal learning test (VLMT), 3) the Tower of London (ToL) as well as 4) the Wechsler Adult Intelligence Scale's Digit Span task (WAIS-IV-DS). Lastly, the participants were asked to fill in additional questionnaires: 1) the Frankfurt Self-Concept Scales (FSKN; 48 items scored 1 (I strongly agree) to 6 (I strongly disagree); Cronbach's α = .93 to. .97), assessing components of self-concept including the

subscale "appreciation by others" (FSWA) as a measure of social cognition and 2) the Temporal Experience of Pleasure Scale (TEPS; ten items assessing anticipatory, eight consummatory pleasure scored 1 (very false for me) to 6 (very true for me); Cronbach's α .71 to .79).

Sample R's initial assessment lasted approximately one hour during which the CAINS interview was videotaped. 14 (+/- 5) days after the first assessment, participants were evaluated again, which took about 25 minutes.

The additional sample's assessment included further measures and took approximately 1.5 hours.

The German versions of the CAINS and TEPS were kindly made available to us by the research group led by Tania Lincoln, Department of Clinical Psychology and Psychotherapy, University of Hamburg. The English versions of the MAP-SR, TBM and SSPA were translated into German by our research group and retranslated by an English native speaker. Differences to the original English versions were discussed among the translators and a consensus was agreed on.

2.3 Data Analysis

Using SPSS 25.0, we first assessed 1) the MAP-SRs factorial structure, 2) internal consistency including item-level descriptives "α if item deleted", 3) stability of items using test-retest correlations as well as 4) the items' convergent validity with corresponding CAINS items. We tested for normal distribution and homoscedasticity. Pearson or Spearman correlations respectively were used for these correlational analysis and we used Holm-Bonferroni sequential correction to deal with the multiple testing problem. For demographic data a rate of missings ≤ 10% was not reported. When calculating the scale composites, up to 5% and 10% missing values for assessments and self-ratings respectively were replaced by the scale's mean. Measures with more missing data were excluded from the analysis.

The EFA sample (n = 93) was used for the exploratory factor analysis. Kass and Tinsley (1979) recommend ≥ 5 participants per variable (here: 15 items, $n \geq 75$); therefor our sample size (n = 93) could be adequate. According to Fabrigar, Wegener, MacCallum, and Strahan (1999) communalities > 0.6 suggest a sample size < 100 may be adequate. The communalities of items 3, 6,7, 8, 9 and 13 are < 0.6, > 0.20. Kolmogorov-Smirnov tests indicated non-normally distributed data, but skewness and kurtosis values were all < |2| and < 7 respectively. Visual inspection of inter-item scatter plots suggests sufficient linearity. There were two multivariate outliers identified via Mahalanobis distance at $\alpha = 0.001$ and 11 at $\alpha = 0.05$; there was no theoretical justification for the exclusion of any outliers. The KMO measure of sampling adequacy was 0.80 suggesting 'great' common variance for factor analysis. The diagonals of the anti-image correlation matrix (Measures of Sampling Adequacy) were all > 0.5. Bartlett's test of sphericity was significant (χ^2 (105) = 618.64; $p < .001$), pointing to large enough item correlations for analysis. Concerning multicollinearity, tolerance values were well above 0.10, VIFs < 3.7. However, the determinant of the correlation matrix as well as Haitovsky's test suggest multicollinearity. The greatest inter-item correlation was 0.81 for items 4 and 5; we do not consider this high enough for elimination. Hence, the possible multicollinearity is a limitation of the statistic method.

Initial analysis yielded four eigenvalues > 1 (Kaiser Criterion), explaining 66.99% of the variance; 40.23% thereof explained by factor 1, 10.44 by factor 2, and 8.40% by factor 3. The scree plot can be found in figure 3-1. Verlicers' Minimum-Average-Partial-Test (1976) suggests one, the 2000-version three factors for extraction. The theoretical framework for the scales' initial construction suggests one factor - supposedly the "amotivation" or "motivation and pleasure" factor of negative symptoms. Ahmed et.al (2018)'s hierarchical model of negative symptoms found three sub factors for amotivation: anhedonia, asociality and avolition. We decided to present the 1-, 2-, and 3-factor-solution to see how the MAP-SR fits with those considerations.

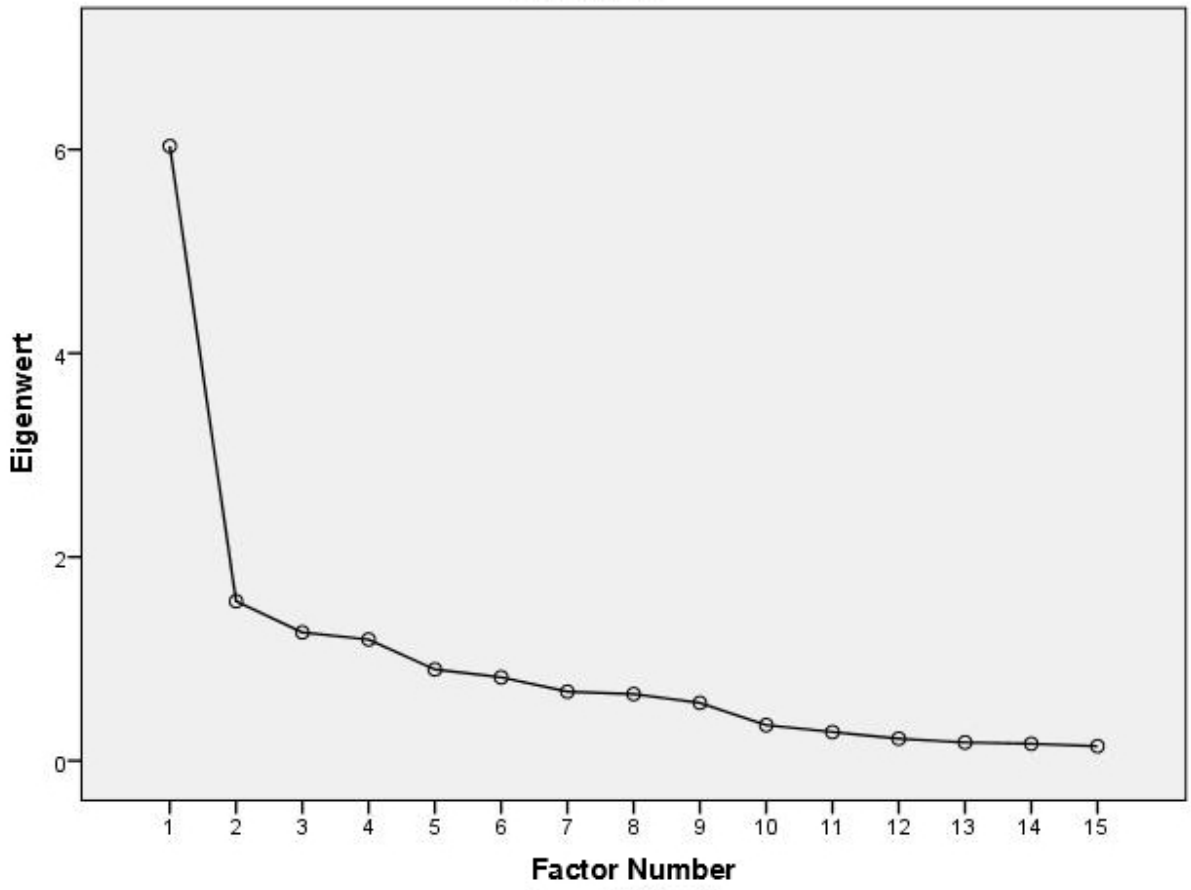

Figure 3-1. Scree plot of the exploratory factor analysis.

The maximum likelihood method is thought to be adequately robust given the preconditions (e.g. Chou & Bentler, 1995). We performed a maximum likelihood factor analysis for one, two and three factors (the two latter with *oblique* rotation (direct *oblimin*)). Stevens (2002) suggests 0.57 as critical value for relevant loadings in sample sizes around 80 and 0.51 for a sample size of 100. Guadagnoli and Velicer (1988) consider factors with four or more loadings > 0.6 reliable regardless of sample size. We decided to consider loadings ≥ .55 adequately reliable.

Pearson or Spearman correlations respectively were used to evaluate convergent and discriminant validity of the scale and found subscales. Since we consider this part of the analysis exploratory, we did not account for multiple testing.

3. Results

3.1 Scale Construction/Item Analysis

3.1.1 Factorial Validity

Table 3-2 highlights the loadings of the 1-, 2- and 3-factor-solutions as well as the percentage of explained variance for each factor (EFA sample, n = 93). The 3-factor-version explains 50.93% of the variation, the 2-factor 44.85% and the 1-factor-solution 36.18%. The factors of the 2-factor solution correlated with r = -0.41. For the 3-factor solution, "pleasure and hedonic activity" and "social motivation" correlated with r = 0.32, "pleasure and hedonic activity" and "motivation for work" with r = 0.37, and "social motivation" and "motivation for work" with r = 0.45.

3.1.2 Internal Consistency of the MAP-SR and Subscales

Cronbach's α for the MAP-SR was 0.87 (EFA sample, n = 81) with no relevant gain in discarding any item (no "α if item deleted" > 0.88).

For the subscale "pleasure and hedonic activity" (items 1 to 6, 14 and 15) Cronbach's α was 0.89 (n = 91) with no "α if item deleted" > 0.88, for "social motivation" (items 10 and 11; n = 93) 0.86 and for "motivation for work" (items 12 and 13; n = 91) 0.82.

3.1.3 Stability

Table 3-3 shows sub-sample R's test-retest reliability correlations (n = 19) for the items as well as the MAP-SR composite score (r_S = 0.63, p = .005). The subscales "pleasure and hedonic activity" had a test-retest reliability of r = 0.57, p = .011, "social motivation" of r = 0.03, p = .906, and "motivation for work" of r_S = 0.75, p < .001.

3.1.4 Correlation with Corresponding CAINS Items/Constructs

The correlations with corresponding CAINS items or constructs can be found in table 3-3 (EFA sample, n = 93).

Table 3-2

Relevant Factor Loadings and Explained Variance for the 1-, 2- and 3-Factor Solutions

	1-Factor Solution	2-Factor Solution		3-Factor Solution			
Item	Pleasure & Hedonic Activitiy	Pleasure & Hedonic Activitiy	Social Motivation	Pleasure & Hedonic Activitiy	Social Motivation	Motivation for Work	Item Domain
1	**.69**	***.77***	-.21	***.74***	.23	.39	Pleasure: Social
2	**.70**	***.77***	-.25	***.72***	.26	.41	Pleasure: Social
3	**.64**	***.68***	-.25	***.65***	.26	.33	Pleasure: Social
4	**.80**	***.75***	-.51	***.80***	.51	.38	Pleasure: Hobbies&Work
5	**.83**	***.80***	-.44	***.86***	.44	.33	Pleasure: Hobbies&Work
6	**.67**	***.64***	-.35	***.67***	.35	.33	Pleasure: Hobbies&Work
7	.24	*.28*	-.03	*.26*	.04	.13	Motivation: Family
8	.29	*.31*	-.14	*.28*	.15	.24	Motivation: Partner
9	.50	*.47*	-.43	*.44*	.43	.31	Motivation: Friends
10	.53	.39	***-.97***	.38	***.99***	.28	Motivation: Social
11	.51	.49	***-.77***	.38	***.76***	.29	Motivation: Social
12	.52	*.49*	-.38	.45	.37	***.83***	Motivation: Work
13	.47	*.48*	-.17	.44	.16	***.83***	Motivation: Work
14	**.67**	***.63***	-.42	***.62***	.42	.46	Motivation: Hobbies
15	**.63**	***.59***	-.39	***.58***	.38	.42	Motivation: Hobbies
PEV	36.18	29.04	15.54	25.55	19.39	5.99	

Note. PEV: percentage of explained variance; 2- and 3-factor-solution oblique rotation (direct oblimin); bold: relevant factor loadings (≥ .55); cursive: part of factor (for the 2- and 3-factor solution).

3.1.5 Missings

Analysis of data showed 10.8% of item 8 missing; all other items were missing ≤ 2.2%; see table 3-3 (EFA sample, *n* = 93).

Table 3-3

Relevant Results of Item Analysis

Item	Factor Loadings '1'	Factor Loadings '2'	Factor Loadings '3'	Stability	CAINS items /constructs	CAINS-MAP	Missings	Item Domain
1	**.69**	**Factor 1: .77**	**Factor 1: .74**	.38	-.30* [a]	-.34*	1.1	Pleasure: Social
2	**.70**	**Factor 1: .77**	**Factor 1: .72**	.64*	-.36*** [a]	-.33*	1.1	Pleasure: Social
3	**.64**	**Factor 1: .68**	**Factor 1: .65**	.54*	-.26 [b]	-.23	2.2	Pleasure: Social
4	**.80**	**Factor 1: .75**	**Factor 1: .80**	.55	-.16 [c]	-.22	.0	Pleasure: Hobbies&Work
5	**.83**	**Factor 1: .80**	**Factor 1: .86**	.29	-.19 [c]	-.21	.0	Pleasure: Hobbies&Work
6	**.67**	**Factor 1: .64**	**Factor 1: .67**	.78***	-.18 [d]	-.17	1.1	Pleasure: Hobbies&Work
7	.24	Factor 1: .28	Factor 1: .26	.06	-.45*** [e]	-.34*	.0	Motivation: Family
8†	.29	Factor 1: .31	Factor 1: .28	.89***	-.29 [f]	-.14	10.8	Motivation: Partner
9	.50	Factor 1: .47	Factor 1: .44	.48	-.26 [f]	-.15	1.1	Motivation: Friends
10	.53	**Factor 2: -.97**	**Factor 2: .99**	.00	-.02 [g]	-.05	.0	Motivation: Social
11	.51	**Factor 2: -.77**	**Factor 2: .76**	.00	-.09 [g]	-.11	.0	Motivation: Social
12	.52	Factor 1: .49	**Factor 3: .90**	.66*	-.38*** [h]	-.22	2.2	Motivation: Work
13	.47	Factor 1: .48	**Factor 3: .83**	.58	-.42*** [h]	-.18	1.1	Motivation: Work
14	**.67**	**Factor 1: .63**	**Factor 1: .62**	.49	-.27 [i]	-.26	.0	Motivation: Hobbies
15	**.63**	**Factor 1: .59**	**Factor 1: .58**	.00	-.26 [i]	-.21	.0	Motivation: Hobbies
MAP-SR				.63**		-.35**	1.1	

Note. † = possibly inadequate question. Holm-Bonferroni Sequential Correction was used for correlations per columns excluding the MAP-SR total score. * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$. Bold: factor loadings ≥ .55. a = CAINS item 3: past week social pleasure; b = CAINS item 4: expected social pleasure; c = CAINS item 8: past week pleasure from hobbies; d = mean of CAINS items 6&9: expected pleasure work, school&hobbies; e = CAINS item 1: family relationships; f = CAINS item 2: friendships; g = mean of CAINS items 1&2: family relationships&friendships; h = CAINS item 5: motivation for work&school; i = 7: motivation for hobbies.

3.2 Convergent and Discriminant Validity of the MAP-SR

Table 3-4 shows the MAP-SR's as well as the subscales "pleasure and hedonic activity" "social motivation" and "motivation for work"'s convergent and discriminant validity (sample V, *n* = 55).

Table 3-4

Convergent and Discriminant Validity of the MAP-SR and Subscales

Domain	Measuring Instrument	MAP-SR		PHA		Social Motivation		Motivation Work	
Negative Symptoms	PANSS Negative Symptom Scale	r = -.00	p=.978	r = -.04	p=.769	r_S= .01	p=.942	r_S= .11	p=.417
	CAINS	r = -.26	p=.065	r = -.25	p=.071	r_S= -.04	p=.749	r_S= -.06	p=.647
	CAINS - Motivation&Pleasure Subscale	**r = -.34***	**p=.013**	**r = -.30***	**p=.028**	r_S= -.11	p=.440	r_S= -.19	p=.163
	CAINS - Expression Subscale	r_S= -.01	p=.922	r_S= -.07	p=.600	r_S= -.03	p=.842	r_S= .08	p=.546
	Temporal Experience of Pleasure Scale (TEPS)	**r = .46****	**p=.001**	**r = .55****	**p<.001**	r_S= .09	p=.509	r_S= .22	p=.112
Functional Outcome	Psychosocial Functioning (PSP)	r_S= .13	p=.131	r_S= .04	p=.801	r_S= .12	p=.405	r_S= .16	p=.252
	Level of Activity (Time Budget Measure)	r_S= .10	p=.467	r_S= -.01	p=.958	r_S= .14	p=.322	r_S= .15	p=.276
	Social Competence (SSPA)	r_S= .16	p=.245	r_S= .12	p=.376	r_S= .14	p=.298	r_S= .11	p=.430
Social Cognition	Appreciation by Others (FSKN-WA)	**r = .51*****	**p<.001**	**r = .35****	**p=.010**	**r_S= .28***	**p=.035**	r_S= .23	p=.092
Neurocognition	Index of VLMT, Digit Span, TMT, Tower of London	r = -.05	p=.744	r = -.02	p=.868	r_S= -.03	p=.822	r_S= -.04	p=.787
Positive Symptoms	PANSS Positive Symptom Scale	r_S= -.04	p=.773	r_S= .07	p=.615	r_S= -.21	p=.128	r_S= -.05	p=.712
Depression	Calgary Depression Scale for Schizophrenia (CDSS)	**r_S= -.34***	**p=.014**	**r_S= -.27***	**p=.044**	**r_S= -.37****	**p=.006**	r_S= -.11	p=.436
	PANSS Depression Item	r_S= -.03	p=.835	r_S= -.08	p=.562	r_S= -.17	p=.227	r_S= -.13	p=.357
EPS	Modified Simpson Angus Rating Scale (MSAS)	**r_S= .30***	**p=.029**	**r_S= .33***	**p=.014**	r_S= .21	p=.126	r_S= .08	p=.556

Note. PHA = pleasure and hedonic activity; PANSS Marder Negative = sum of PANSS items N1 to N4, N6, G7, and G16; PANSS Dysphoric Mood = sum of PANSS items G1 to G4, and G6; EPS = extrapyramidal symptoms; r = Pearson correlation; r_S = Spearman correlation; bold = significant p-values; * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$; not Holm-Bonferroni sequential corrected.

4. Discussion

This is a comprehensive analysis of the psychometric properties of the MAP-SR and its items. The sample size met methodological requirements for analysis. We assessed a broad spectrum of related domains and – to our knowledge – this is the first factorial analysis as well as the first analysis of test-retest reliability.

4.1 Item Analysis and Scale Construction

Concerning the items, the six MAP-SR items designed to tap "pleasure" seem to be robust: with reliable factor loadings on all factor solutions, hinting at adequate test-retest reliability and convergent validity and with no relevant missing data. For the nine-item "motivation"-part of the scale, there are less sound findings. For the 1-factor-solution, there are two relevant item loadings assessing motivation for hobbies (i.e. hedonic activities which seems close to the pleasure construct) with no significant test-retest correlations as well as no significant correlation with corresponding CAINS items/constructs. For the 2- and 3-factor-solutions, the items tapping motivation for social activities load on a common factor but show less than satisfactory item stability and convergent validity. The items assessing motivation for work constitute one factor of the 3-factor-solution, show good convergent validity with CAINS items/constructs as well as sufficient stability. Three items (7, 8 and 9) do not load reliably on any of the factors. Item 9 does not correspond significantly to the CAINS as well. Item 7 corresponds well to the CAINS and has no missings but is not stable over time. Item 8 has good test-retest reliability but a lot of missing data – presumably because it asks about partners and could be difficult to answer for those participants not in a romantic relationship.

The MAP-SR set out to represent one of the two subdomains of negative symptoms, the „amotivation" factor. The 1-factor-solution, however, mainly seems to encompass items designed to measure pleasure or anhedonia. The results of the factorial analysis could be interpreted in light of a recent factorial analysis on the rater-assessed Brief Negative Symptom Scale: Ahmed et

al. (2018) found the best fit for two second-order factors reflecting "expression" and "amotivation" as well as 5 first-order factors reflecting blunted affect and alogia as well as anhedonia, avolition and asociality. For the three-factor-solution Ahmed et al. (2018)'s anhedonia could overlap with our "pleasure and hedonic activity", their avolition with our "motivation for work" and asociality with our "social motivation". It should be kept in mind, however, that both additional factors only consist of two items, and that those items with rather poor stability and relatively low factor loadings have the greatest loadings on the "pleasure and hedonic activities" factor.

Concerning test-retest reliability, the MAP-SR as well as the "pleasure and hedonic activities" and "motivation for work" factor seem promising. It should be kept in mind that our sample R is small (n = 19), and featured in-patients in the stabilization phase.

Overall, we think of the three factors the "pleasure and hedonic activities" factor shows the most promise. Thus, we will discuss the MAP-SR in its entirety and this factor with regards to convergent and discriminant validity.

4.2 Validity Analysis

There are interesting results for the validity analysis. Concerning convergent validity, neither the MAP-SR nor the "pleasure and hedonic activities" factor are associated with the PANSS negative symptom scale. It has to be stated, however, that there is criticism on this specific PANSS scale: its seven items include "abstract thinking" and "stereotyped thinking"; both are not considered part of the negative symptom domain anymore. There are significant associations with the observer-rated CAINS-MAP scale, the TEPS (sampling experiences of pleasure) and social cognition but none with functional outcome. This might point to a possible benefit of the instrument: It could measure aspects of the negative symptom domain, which might not be picked up reliably by the observer ratings, namely the area that is far from functional outcome but close to subjective experience: e.g. inner need for

company/engagement/activities vs. mere attendance, experienced pleasure vs. observed expression of emotion. It should be mentioned, though, that there could be some common-method bias, since mainly the other self-rating instruments correlate highly.

Furthermore, there is evidence for overestimation by patients and/or underestimation by therapists when assessing e.g. quality of life (rated more poorly by mental health workers than their clients (Ofir-Eyal, Hasson-Ohayon, Bar-Kalifa, Kravetz, & Lysaker, 2017)) or medication side effects (reported more frequently and rated more severe by patients than clinicians (Lindström et al., 2001)). With regard to functional status, Bowie et al. (2007) compared underestimating, accurate and overestimating patients. Underestimators performed better cognitively and reported more depressive symptoms than overestimators. Accurate raters had better social skills than both other groups. Overestimators were most cognitively and functionally impaired. Over-/underestimation also could play a role when reporting or observing negative symptoms; this may be moderated by factors such as depression, positive symptoms, cognitive functioning, and insight. Selten, Wiersma, and van den Bosch (2000) looked for predictors for discrepancy between patients and psychiatrists concerning negative symptoms. They found that depression impacts discrepancy scores negatively and anxiety positively; there was no association for insight into positive symptoms. Even still, small-scale studies show that patients can correctly self-assess some symptoms of psychosis: Liraud, Droulout, Parrot, and Verdoux (2004) found this for individual positive and negative symptoms, except for persecutory delusion and alogia. Hamera, Schneider, Potocky, and Casebeer (1996) report that self-report of positive and nonpsychotic symptoms may be more congruent to rater assessment than self-report of negative or deficit symptoms; however, those were only assessed with two items, i.e. emotional withdrawal and motor retardation. Considering all known rater biases in clinical assessments (Hoyt, 2000), it seems sensible to complement them with self-reports. We consider this even more important in this specific area of research: In patients with difficulties in expressing emotions, self-reports could reflect the inner experience of patients more validly.

Concerning discriminant validity there are problems with regards to depression and extrapyramidal symptoms. The validity sample V comprised outpatients with relevant negative symptoms, but with depressive symptoms below "severe". There was a very low rate of extrapyramidal symptoms; hence correlation of the MAP-SR and of the "pleasure and hedonic activity" factor and the measure of extrapyramidal symptoms could be due to the low variance in the latter measure. The correlation of the MAP-SR, the "pleasure and hedonic activity" factor and the "social motivation" factor with the CDSS could also be due to the fact that depression and mainly the "amotivation" factor of negative symptoms overlap (loss of interest, anhedonia, and reduced energy) and thus are not trivial to differentiate. In their validation study of the German MAP-SR Engel and Lincoln (2016) also found significant correlations with the BDI-II; they contemplated problems in differentiating negative and depressive symptoms when exclusively self-report are utilized. Papsuev, Movina, Minyaycheva, and Luther (2017) investigated the association between self-rated and clinician-rated motivation, and (i.a.) depression. They also found correlations for self-rated motivational deficits and observer-rated depression and speculate that patients could be less aware of primary negative symptoms, and instead rate secondary negative symptoms caused by depression.

4.5 Conclusion

There are only few self-rated specific negative symptom measures, the MAP-SR being one of them. Other authors already mentioned shortcomings like absence of an expression subscale (thus no coverage of alogia and affective blunting) as well as the challenge to self-evaluate consummatory and anticipatory pleasure (Lincoln et al., 2017). We found that the MAP-SR is adequate to assess anhedonia but is less suitable when assessing motivation. Therefore, we propose to use items 1 to 6 and item 14 and 15 as a "pleasure and hedonic activity scale" covering the "anhedonia" sub domain of the "amotivation" factor of negative symptoms. We think the "motivation" part of the instrument requires reconstruction. It might benefit from new and more items covering different aspects of motivation. Motivation for social relations and

motivation/drive for (work) activities could be surveyed more in detail and might benefit from more straightforward questions. They could try to cover Ahmed et al. (2018)'s "asociality" and "avolition". Pointers to possible item content could be taken from the CAINS' and the BNSS' related items and their probe questions. For "sociability" in addition to the two items assessing motivation to be around others and effort to do things with others, the amount and intensity of contact with family and friends, who mainly initiated contact, feelings of closeness to other people and desire for contact could be inquired. For "avolition" items assessing the amount of time spent doing something vs doing nothing and personal initiative and perseverance when doing projects, could complement the two items inquiring motivation for and effort to do things at work or school. The validity and reliability of this resulting scale should be evaluated in further studies.

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CHAPTER 4: Measurement of Negative and Depressive Symptoms: Discriminatory Relevance of Affect and Expression[3]

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Abstract

There is conceptual overlap between negative and depressive symptoms: Mainly the 'avolition' factor of negative symptoms also encompasses main symptoms of depression. However, whereas in depression mood is low, mainly anticipatory anhedonia can be found in negative symptoms. Moreover, patients with schizophrenia (SCZ) show greater expressive deficits than those with Major Depressive Episode (MDE). We investigated if measures of depressive and negative symptoms differentiate SCZ subjects, subjects with MDE, and healthy controls (HC). 21 SCZ, 22 MDE, and 25 HC subjects were examined with a rater assessment and a self-rating for negative symptoms (Clinical Assessment Interview for Negative Symptoms (CAINS); Motivation and Pleasure – Self-Report (MAP-SR)) and depressive symptoms (Hamilton Rating Scale for Depression (HAMD-17); Beck Depression Inventory (BDI)). All measures differentiated the psychiatric samples from HC (all p's < 0.01). The ratings of depressive symptoms (HAMD-17, BDI) and rater assessment of negative symptoms (CAINS) – specifically its sub scale measuring expressive deficits – managed to discriminate between subjects with schizophrenia and those with MDE (SCZ > MDE > HC for negative, MDE > SCZ > HC for depressive symptoms, all p's < 0.05). The self-rating of negative symptoms (MAP-SR) did not. To differentiate negative symptoms and depression clinicians might look for (self-)reported low mood and observer-rated reduction in speech as well as in gestures and facial expression. Reduced expression and moderate levels of depression point towards a negative syndrome, whereas mostly unimpaired expression and high scores of self-reported depressive symptoms are more likely to indicate a depressive syndrome.

1. Introduction

1.1 Schizophrenia and Depression

There is sound evidence pointing to a two-factorial structure of negative symptoms; the

first factor being "diminished expression" with blunted expression of emotions and poverty of speech and the second being "avolition" with amotivation, anhedonia and social withdrawal (e.g. Marder & Galderisi, 2017). Secondary negative symptoms are caused by positive symptoms, substance use, medication side effects and/or – particularly important here – depression (e.g. Kirschner, Aleman, & Kaiser, 2017). Negative and depressive symptoms can't be differentiated easily, since there is considerable conceptual overlap. Mainly the avolition factor of negative symptoms encompasses symptoms that also belong to the main symptoms of depression: loss of interest, anhedonia, and reduced energy.

Comorbidity rates are high for schizophrenia and unipolar depression across stage and state of illness (acute psychotic episode: up to 60% comorbid major depressive episode (MDE); post-psychotic: moderate to severe MDE in 20% of chronic patients and 50% of first-episode patients); there seem to be shared etiological aspects (Upthegrove, Marwaha, & Birchwood, 2017). Longitudinally, up to 80% of patients with schizophrenia experience an episode of major depression (Upthegrove et al., 2010). Depression is the most important indicator for completed suicide in patients with schizophrenia (Dutta, Murray, Allardyce, Jones, & Boydell, 2011). Since both the treatment of depression in schizophrenia and of negative symptoms remains inadequate (e.g. Fusar-Poli et al., 2015; Lako et al., 2012), it seems of particular importance to reliably delineate negative and depressive symptoms.

1.2. Expression, Mood and Subtypes of Anhedonia Might Differentiate Schizophrenia and Depression

Emotional expression (i.e. speech, gestures and facial expressions) often is reduced in patients with schizophrenia compared to healthy controls and subjects with depression, which are nevertheless also showing expressional deficits (Berenbaum & Oltmanns, 1992; Gaebel & Wölwer, 2004; Riehle, Mehl, & Lincoln, 2018; Trémeau et al., 2005). Despite affective flattening, patients with schizophrenia often report unimpaired subjective experiences (e.g. Kring & Moran,

2008), whereas low, depressed mood is a main symptom of depression. Recent conceptualizations of anhedonia emphasize the importance of the (complex) reward system. Any reward system deficit (e.g. anticipatory or motivational anhedonia, disorganization) can hinder the individual from generating pleasurable experiences and could then present as (secondary) consummatory anhedonia (Lambert et al., 2018). There are findings indicating that patients with depression experience consummatory and anticipatory anhedonia whereas patients with schizophrenia mainly show a deficit in anticipatory pleasure (Gard, Kring, Gard, Horan, & Green, 2007; Lambert et al., 2018; Wu et al., 2017). The emergence of anticipatory pleasure is more complex than the experience of consummatory pleasure and hints at motivational deficits in schizophrenia as opposed to deficits in experiencing emotions (Foussias & Remington, 2010).

1.3. Correlations of Rating Scales for Depression and Negative Symptoms

Research on negative symptoms in the context of MDE seems scarce. Bottlender et al. (2003) found that negative symptoms (measured with the Scale for the Assessment of Negative Symptoms (SANS)) were significantly associated with depressive symptoms (measured with the Montgomery-Asberg Depression Rating Scale) in MDE patients but not in patients with schizophrenia. This could be due to the SANS' item content that encompasses a lot of symptoms also germane to the depressive domain (e.g. affective nonresponsivity, poverty of content of speech, increased latency of response) and symptoms that are not thought to be specific for negative symptoms anymore, i.e. attention/cognitive symptoms (e.g. Marder & Galderisi, 2017). They found persisting negative symptoms to be indicative for schizophrenia and not MDE.

For schizophrenia patients, Park et al. (2012) found a weak correlation between observer-rated negative symptoms (CAINS) and the rater assessed Calgary Depression Scale for Schizophrenia (CDSS), Kring, Gur, Blanchard, Horan, and Reise (2013) found none. Engel, Fritzsche, and Lincoln (2014) reported no significant association of CAINS and self-assessed BDI-II. Llerena et al. (2013) found no significant correlation of self-rated negative symptoms

(MAP-SR) with the CDSS. Hartmann, Fritzsche, and Lincoln (2013) reported no significant correlation between the BDI-II and PANSS-rated negative symptoms (however, it should be noted that two of the seven PANSS negative items assesses cognitive symptoms (e.g. Marder & Galderisi, 2017)). However, Engel and Lincoln (2016) reported a moderate and significant correlation of the MAP-SR with the BDI-II (r = 0.39). Overall, we found some – if scarce – evidence for overlap when measuring the two symptom domains in patients with schizophrenia. Concerning self- vs. observer-ratings, Engel and Lincoln (2016) debated an underestimation of shared variance of negative and depressive symptoms when compared across sampling methods.

1.4. Objectives

We investigated if a) measures of negative symptoms and b) measures of depressive symptoms could differentiate between subjects with MDE, subjects with schizophrenia and healthy controls. We expect subjects with schizophrenia to show the greatest extent of negative symptoms and subjects with depression to show the greatest extent of depressive symptoms. Because of the overlap between negative symptoms and depression we expect subjects with schizophrenia to display more depressive symptoms and subjects with MDE to report more negative symptoms than healthy controls. We expect mainly the "expression" factor of negative symptoms and the assessments of depressive mood to reliably differentiate MDE and schizophrenia subjects.

1.5 Selection of Instruments

To assess the scope of negative symptoms we used the Clinical Assessment Interview for Negative Symptoms (CAINS, Engel et al. (2014)) and the self-rating instrument Motivation and Pleasure Scale – Self-Report (MAP-SR, Engel and Lincoln (2016)). The CAINS has been designed to assess negative symptoms according to the current conceptualization (Marder & Galderisi, 2017) and consists of two scales: "motivation and pleasure" (CAINS-MAP) and "expression" (CAINS-EXP). CAINS-EXP straightforwardly rater-assesses expressive deficits

with four items. CAINS-MAP focuses on aspects of inner experience with its authors arguing that this is central for the emotional, social and motivational deficits and to be distinguished from behavior or functional outcome (Kring et al., 2013). In the original validation study, the two factors correlate moderately (r = 0.24), show good internal consistency as well as test-retest reliability and interrater reliability. Convergent and discriminant validity (also to depressive symptoms) was established (Kring et al., 2013). A further validation study found good psychometric properties for the German CAINS as well, with high internal consistency, a moderate correlation between the two factors (r = 0.44), good inter-rater agreement as well as convergent and discriminant validity; the latter also with depression (Engel et al., 2014). The MAP-SR assesses the "avolition" factor of negative symptoms as a self-report and is based on the CAINS' "motivation and pleasure" scale. It taps social pleasure, recreational or work pleasure, feelings and motivations about close, caring relationships as well as motivation and effort to engage in activities. Llerena et al. (2013) found good internal consistency as well as convergent validity with the CAINS-MAP (r = 0.65) and social anhedonia (r = 0.48). For social performance, there was no significant correlation. Discriminant validity was established (i.a. for depression/anxiety). For the German MAP-SR, Engel and Lincoln (2016) also found high internal consistency as well as mostly good convergent and discriminant validity. However, there was a moderate correlation with the BDI-II (r = 0.39).

To assess the scope of depressive symptoms, we used the Beck Depression Inventory (BDI, Hautzinger (1991)) as self-rating and the Hamilton Depression Scale (HAMD-17, Hamilton (1967)) as rater assessment. Both tap emotional, cognitive, behavioral, and physical symptoms of depression. The BDI consists of 17 items and shows good validity, adequate test-retest reliability, and good inner consistency (Beck, Steer, & Carbin, 1988). For the German BDI high internal consistency and good convergent validity is reported (Hautzinger, 1991). Concerning the observer rating, we expect greater discriminatory power from the HAMD's 17-item version as opposed to HAMD-21, since this version doesn't assess paranoia and

depersonalization. The HAMD-17 is widely used and has good to adequate psychometric properties (e.g. Bagby, Ryder, Schuller, & Marshall, 2004). Because we expect items associated with mood to have the most discriminatory power, we researched established subscales with emphasis on mood for BDI and HAMD-17, respectively. The BDI subscale "cognitive/affective" consists of the first 14 items excluding somatic and functioning items (Beck et al., 1988). The Maier-Philipp Severity subscale of the HAMD-17 comprises the items assessing depressed mood, feelings of guilt, work and interests, retardation, agitation, and anxiety – psychic (Maier & Philipp, 1985).

2. Methods

2.1. Participants

We included 21 participants with schizophrenia (SCZ), 22 participants with MDE and 25 healthy controls (HC). The patients were recruited from in-patient settings. Inclusion criteria were diagnosis of a psychotic disorder (SCZ) or major depressive episode (MDE) or no diagnosis (HC) according to DSM-IV (assessed with the German Brief Diagnostic Interview of Mental Disorders (Mini-DIPS)), age 18 to 65 years, sufficient German language skills, normal or corrected to normal vision and hearing as well as capability to give consent. To avoid overlap between the psychiatric groups we did not include subjects with schizoaffective disorder or a MDE with psychotic symptoms. Since we wanted to measure present symptoms, we excluded patients in remission (i.e. only met "life time" criteria in the diagnostic interview). Further exclusion criteria were substance dependence as leading clinical problem and intellectual disability. To keep the sample structure comparable, we included healthy controls that corresponded in age and gender to the recruited SCZ patients. Since depressed patients skew older and female and we prioritized a representative sample, we refrained from doing that with

the MDE sample. Demographic and clinical characteristics of the samples can be found in table 4-1.

Table 4-1

Demographics

	SCZ (n=21)	MDE (n=22)	HC (n=25)
Age (yrs)	35.10 (11.68)	42.36 (15.05)	34.28 (14.24)
Male (%)	86	50	68
Abitur (~A-level; %)	81	54	88
Age at 1st hospitalization (yrs)	23.71 (4.37)	35.36 (13.11)	-

Notes. SCZ = participants with schizophrenia; MDE = participants with major depressive disorders; HC = healthy controls.

2.2. Measures and procedure

The study protocol was approved by the ethics committee of the University of Tuebingen's medical faculty. After obtaining informed consent, screened participants who met inclusion criteria were interviewed and asked to fill in questionnaires (duration approx. 1.5 hours). Diagnosis was confirmed using the parts of the German Brief Diagnostic Interview of Mental Disorders (Mini-DIPS) that assess psychotic and affective disorders.

The German translation of the CAINS was kindly made available to us by the research group led by Tania Lincoln, Department of Clinical Psychology and Psychotherapy, University of Hamburg. The English version of the MAP-SR was translated into German by our research group and retranslated by an English native speaker. Differences to the original English versions were discussed among the translators and a consensus was agreed on.

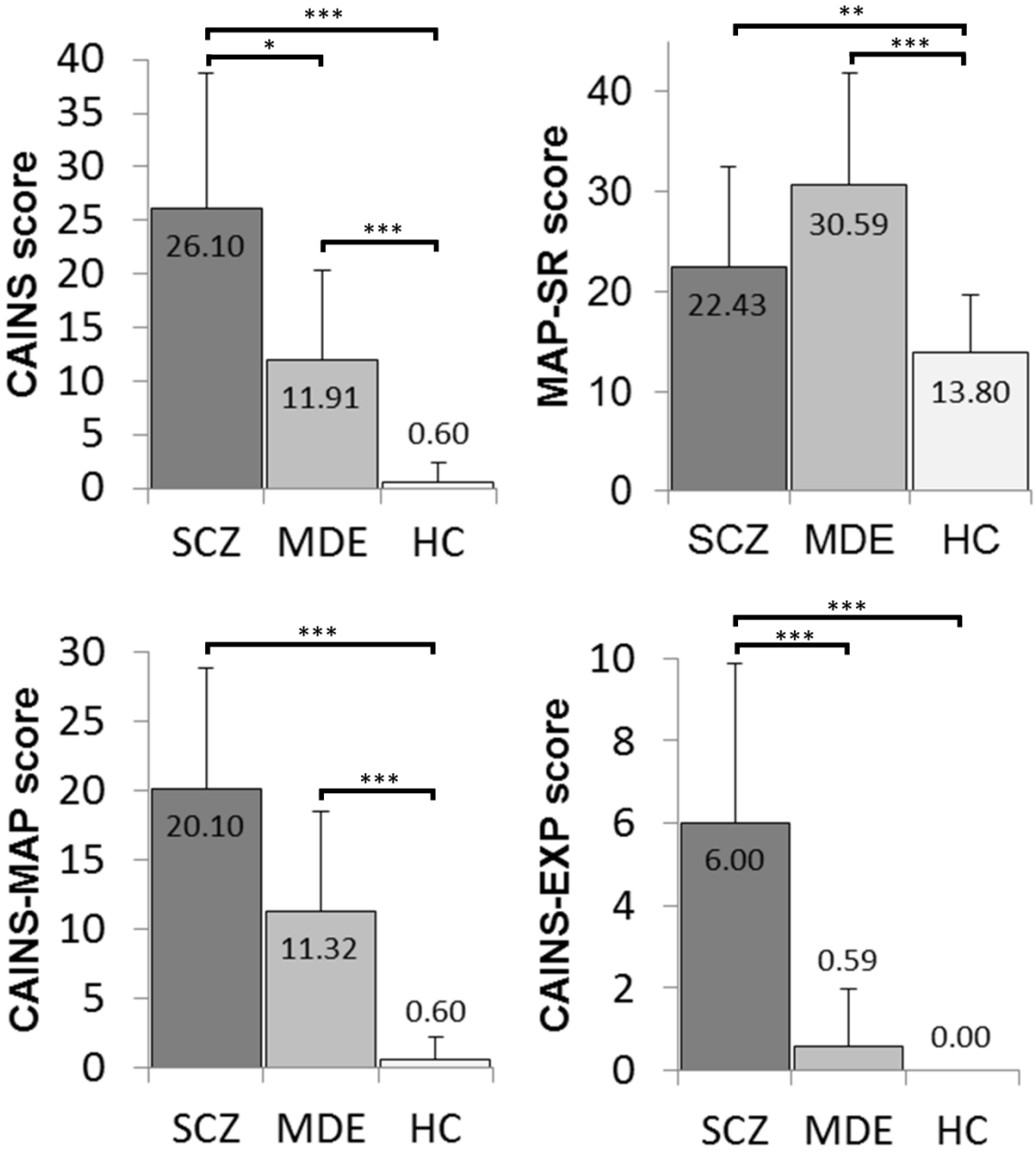
2.3. Data analysis

For demographic data a rate of missings < 10% was not reported. When calculating the self-ratings' scale composites, a rate of 10% of missings was tolerated and replaced by the scale's mean. Measures with more missing data were excluded from the analysis (one data point for

MAP-SR and BDI, respectively). There were no missing data for the rater assessments. Scores for the MAP-SR were inverted so that larger scores indicate a greater extent of negative symptoms. With SPSS 25.0 we tested for normal distribution with the Shapiro-Wilk test. Since CAINS, MAP-SR, HAMD-17 and BDI and their subscales were all non-normally distributed in the control group, we used the non-parametrical Kruskal-Wallis-Test to assess the between-group effects. Post-hoc pairwise comparisons were performed using Dunn tests with Bonferroni correction.

3. Results

For the CAINS we found between-group differences in the scope of negative symptoms ($H(2, N = 68) = 48.65$, $p < .001$). Post-hoc analysis revealed significant differences between all groups: SCZ > MDE > HC, $p < .05$. MAP-SR also revealed differences between the groups ($H(2, N = 68) = 25.77$, $p < .001$). Here, post-hoc analysis showed SCZ = MDE > HC with $p < .001$ for MDE and controls and $p = .007$ for SCZ and controls. Because of the MAP-SR's failure to differentiate SCZ and MDE, we further analyzed the CAINS' two subscales and found that only its expression subscale significantly differentiated between subjects with depression and schizophrenia (SZC > MDE > HC). The group comparisons of the negative symptom scales can be found in figure 4-1.

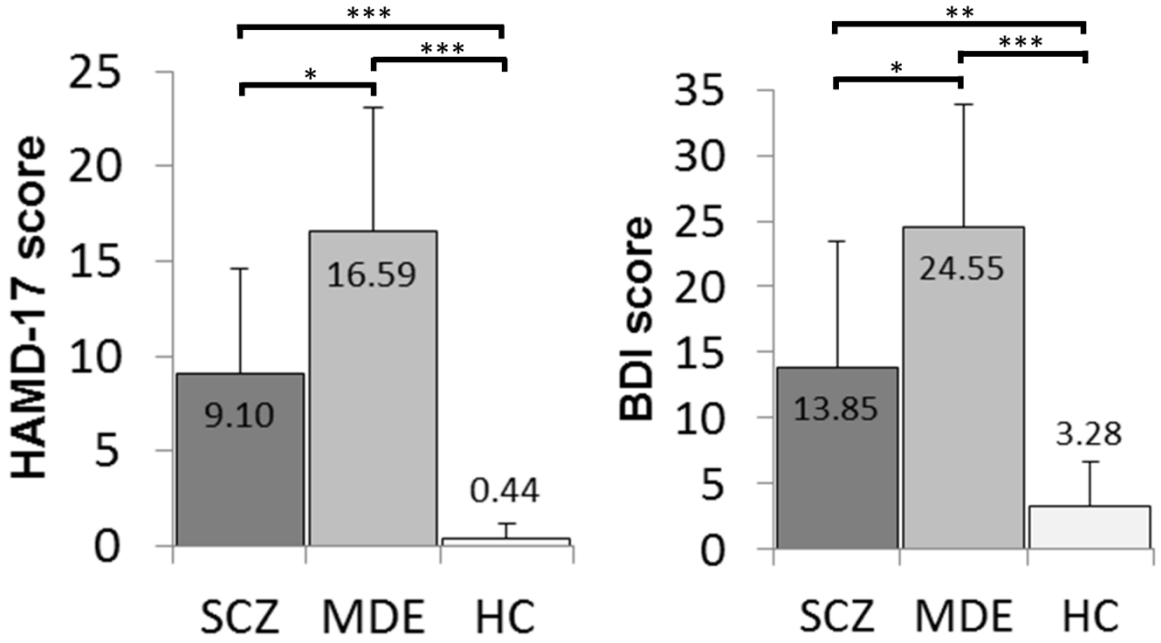


Notes. Scores of MAP-SR inverted to reflect symptom load. * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

Figure 4-1. Group comparisons of CAINS and MAP-SR, and CAINS-MAP and CAINS-EXP; means with standard deviations and significance markers.

Concerning the scope of depressive symptoms we found between-group differences for BDI ($H(2, N = 67) = 41.83$, $p < .001$). Post-hoc analysis showed that all three groups differed significantly from each other: MDE > SCZ > HC, $p < .05$. For HAMD-17, there were significant

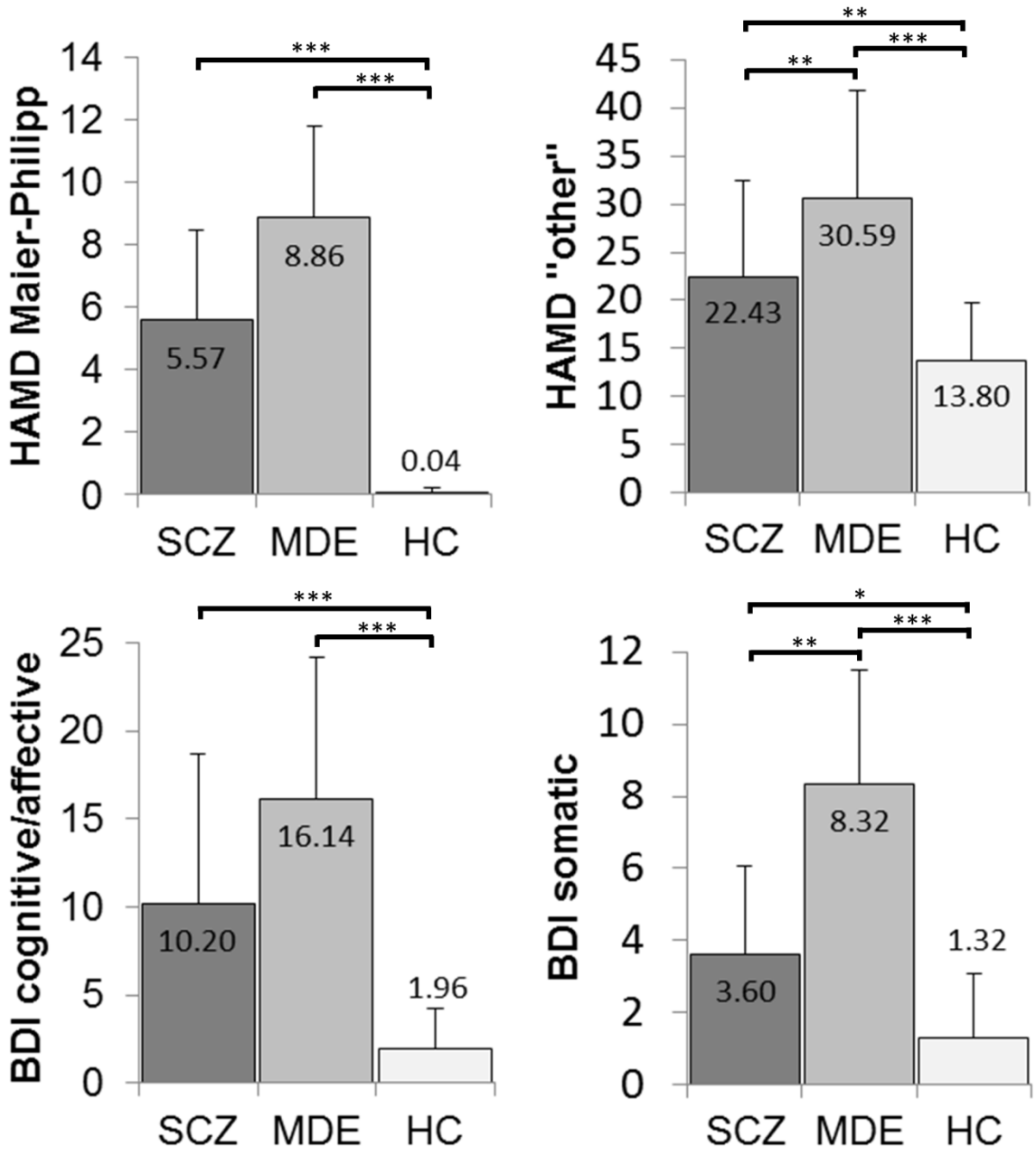
differences as well ($H(2, N = 68) = 54.14$, $p < .001$). Post-hoc tests showed MDE > SCZ > HC, $p < .05$; see figure 4-2.



Note. * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

Figure 4-2. Group comparisons of HAMD-17 and BDI; means with standard deviations and significance markers.

For the "mood associated" subscales of the measures for depressive symptoms, we found both to not significantly differentiate between depressed and schizophrenic subjects, while still showing between-group differences. HAMD-Maier-Philipp: $H(2, N = 68) = 53.32$, $p < .001$, MDE = SCZ > HC; BDI cognitive/affective: $H(2, N = 67) = 37.12$, $p < .001$, MDE = SCZ > HC. The "other" subscale of the HAMD17 as well as the somatic subscale of the BDI differentiated significantly between all groups. HAMD other: $H(2, N = 68) = 43.74$, $p < .001$, SZC > MDE > HC; BDI somatic $H(2, N = 67) = 40.11$, $p < .001$, MDE > SCZ > HC. The group comparisons of the depression measures' subscales can be found in figure 4-3.



Note. * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

Figure 4-3. Group comparisons of HAMD-17 Maier-Philipp and "other" subscales, and BDI cognitive/affective and somatic subscales; means with standard deviations and significance markers.

4. Discussion

We investigated if subjects with schizophrenia, subjects with MDE, and healthy controls differ in the scope of their negative and depressive symptoms as measured by self-ratings (BDI, MAP-SR) and observer assessments (HAMD-17, CAINS). All measures differentiated the psychiatric samples from the controls. The full rating scales of depressive symptoms (HAMD-17, BDI) and the rater assessment of negative symptoms (CAINS) – and specifically the expressive deficits (CAINS-EXP) – managed to discriminate between subjects with schizophrenia and those with MDE reliably; the self-rating of negative symptoms (MAP-SR) did not.

Concerning the CAINS, its "expression" subscale (CAINS-EXP, assessing vocal prosody, gestures, facial expression, and speech) significantly differentiates schizophrenic and depressed subjects whereas the "avolition" subscale does not (although its means also are SCZ > MDE > HC). This differentiating effect of the CAINS-EXP is consistent with previous evidence that shows reduced facial expression of subjects with schizophrenia compared to subjects with depression (which are nevertheless also showing diminished expression); this also holds true for involuntary facial activity (Berenbaum & Oltmanns, 1992; Gaebel & Wölwer, 1992; Trémeau et al., 2005). Gaebel and Wölwer (2004) found diminished expression beyond acute psychotic episodes in schizophrenia patients; in subjects with depression this was primarily found when acutely depressed. One explanation for the MAP-SR's failure to distinguish the psychiatric groups could be poor self-assessment by subjects with schizophrenia. There is evidence for deficits in self-assessment, with mainly positive symptoms and cognitive symptoms negatively affecting the ability to self-assess correctly (Browne et al., 2000; Katschnig, 2000; Silberstein, Pinkham, Penn, & Harvey, 2018). However, Hartmann et al. (2013) assessed patients with psychosis for depression with two observer ratings (CDSS and PANSS) and two self-rating scales (BDI and Symptom-Checklist Revised (SCL-90-R)) and found self-ratings to correspond well with observer ratings. Since the CAINS "expression" subscale seems to play the decisive role, the MAP-SR's failure to differentiate the psychiatric samples could be because it doesn't measure expression.

Moreover, in contrast to the means of the CAINS "motivation and pleasure" sub-scale (SCZ > MDE > HC), MDE-subjects reported greater symptom load on the MAP-SR than subjects with schizophrenia (MDE > SCZ > HC). The MAP-SR doesn't seem to measure symptoms in the "motivation and pleasure" domain that are specific for anhedonia/avolition in schizophrenia. Of its 15 items, six inquire past or expected pleasure, six motivation and effort concerning activities; there is clear overlap with depressive symptoms. The MAPS-SR as well as the CAINS-MAP might not assess enough items that are specific for this symptom domain (e.g. anticipatory vs. consummatory anhedonia, indifferent vs. depressed mood). Future research on instruments assessing the "amotivation" factor of negative symptoms might want to focus on the subtypes of anhedonia if the aim is to differentiate reliably from depression. Overall, the "expression" factor of negative symptoms seems to be specific and thus to date more relevant when differentiating MDE and negative symptoms of schizophrenia. Thus, a precise appraisal of negative symptoms should not only include inner experiences but also a nuanced assessment of expression.

In this study, we used the BDI; the newer BDI-II additionally inquires agitation, worthlessness, loss of energy, and concentration difficulty and dropped body image change, work difficulty, weight loss, and somatic preoccupation. Interestingly, Hartmann et al. (2013) found that schizophrenia patients who self-reported fewer depressive symptoms than the clinicians observed, showed more negative symptoms, i.e. blunted affect and poor affective rapport. We also found slightly greater mean differences between schizophrenia patients and to MDE subjects in the self-assessment of depressive symptoms than in the observer rating. We supposed that while the HAMD-17 manages to differentiate patients with MDE and those with SCZ, there are some items that might reduce discriminatory power: four inquire physical symptoms, and three sleep problems. Patients with schizophrenia as well as clinically depressed patients both experience and report more physical symptoms (e.g. Greco, Eckert, & Kroenke, 2004; Leucht, Burkard, Henderson, Maj, & Sartorius, 2007). Particularly sexual dysfunction is a common side effect of antipsychotics (e.g. Baggaley, 2008). Moreover, 30 to 80% of schizophrenic patients also

suffer from sleep disturbances (Cohrs, 2008). Curiously, we could confirm this neither when analyzing the subscales of the HAMD-17 nor of the BDI. Focus on psychic symptoms and affective and cognitive symptoms of depression, respectively, did not increase discriminatory power. Conversely, the scales' items that feature somatic and sleep symptoms seem to differentiate the psychiatric samples better. Maybe the subscales were still not specific enough for affective/mood symptoms. This warrants further research on the differential impact of the scales' singular items. At this point, however, we propose utilizing the whole scales to help differentiate depressive from negative syndromes.

4.1 Limitations

Our psychiatric samples exhibited only mild to moderate negative and depressive symptoms respectively; a greater severity of symptoms might have shown the differences between the groups more clearly. Moreover, comparisons between SCZ and MDE groups are difficult since e.g. age of onset and gender ratio differ. However, a matching procedure would compromise representativity either of the schizophrenia or MDE sample. Furthermore, medication could be a confounding variable. Of the subjects with schizophrenia, 95% were on antipsychotic medication, 19% took at least one antidepressant. In the MDE group 31% of the subjects were on antipsychotics (usually in lower doses than the SCZ group), 91% on antidepressants. Medication-induced blunting could adversely affect the experience of pleasure in subjects with schizophrenia. These secondary negative symptoms could not be ruled out in the present study. Also, our raters were not blinded concerning the subject's diagnosis – this could lead to over- or under-assessment of depressive and/or negative symptoms in concordance with diagnosis.

4.2 Conclusion

To differentiate negative symptoms and depression, clinicians might look for self-reported depressive symptoms and observable reduction in expression. The self-report of

depressive symptoms is reliable and economical, but more importantly, there is evidence that the self-report might be more sensitive than rater-assessed depressive symptoms in schizophrenia patients (see also Hartmann et al., 2013). Reduced expression and moderate levels of depression point towards a negative syndrome, whereas relatively unimpaired expression and high scores of self-reported depressive symptoms are more likely to indicate a depressive syndrome.

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CHAPTER 5: General Discussion

The objective of this research project was to thoroughly assess two recently developed instruments measuring negative symptoms. To further research on negative symptoms, the construct needs to be measured with reliable instruments that reflect the two established factors diminished expression and amotivation structure- and content-wise. Thus, we comprehensively assessed the observer-rating CAINS with regard to the entire construct negative symptoms, the self-report MAP-SR for the subdomain amotivation, and both instruments for their ability to distinguish subjects with schizophrenia, subjects with depression and healthy controls.

In this Chapter, a short general summary of all findings is given, followed by 1) thoughts on the temporal stability of negative symptoms, 2) a discussion of the factorial structure of negative symptoms in light of our results, 3) reflection on both scales' construct validity with regard to a) our comprehensive validity assessment and b) their ability to differentiate negative and depressive symptoms, and 4) in closing, general conclusions on the instruments as well as clinical recommendations.

1. General Summary of Findings

For the Clinical Assessment Interview for Negative Symptoms, CFA found a two-factorial structure with minor adjustments for the subscale measuring motivation and pleasure, confirming the two domains expressive deficits (subscale expression) and amotivation (subscale motivation and pleasure). The CAINS total score was strongly associated with negative symptoms measured by the PANSS as well as functional outcome. Discriminant validity was established with positive and extrapyramidal symptoms but not with cognitive deficits and depression. There were distinct profiles for the two subscales with regard to convergent and discriminant validity: CAINS-MAP was strongly associated with functional outcome and strong to moderately with PANSS Marder Negative and social cognition as well as depression, cognitive deficits, and positive symptoms. CAINS-EXP was not associated with sources of secondary

negative symptoms and cognitive deficits. There was good internal consistency and interrater agreement for both the CAINS and its subscales. Test-retest reliability was moderate for the CAINS total score and its expression subscale and low for the motivation and pleasure subscale.

For the Motivation and Pleasure Scale – Self Report's structure, one-, two- and three-factor solutions were tested using exploratory factor analysis; they explained 36.18, 44.85, and 50.93% of variance, respectively. Overall, we found one psychometrically robust factor, *pleasure and hedonic activity*, consisting of eight items. The other two factors – *social motivation* and *motivation for work* – are comprised of only two items each and all in all had less satisfactory psychometric properties. There was good internal consistency for the scale and all tested subscales. Our preliminary (n = 19, in-patients in the stabilization phase) test-retest reliability was adequate for the MAP-SR composite score and the subscale pleasure and hedonic activity, good for the subscale motivation for work, and poor for the subscale social motivation. The validity assessment found no significant correlations for the factor motivation for work; for the factor social motivation there were positive associations with social cognition as well as depression. Neither the MAP-SR nor the most promising factor, pleasure and hedonic activities, were associated with PANSS-measured negative symptoms or functional outcome. However, they were significantly and moderately related to the observer-rated CAINS-MAP, and strongly to experiences of pleasure and social cognition. With regard to discriminant validity, there were moderate associations with depression and extrapyramidal symptoms, but none with cognitive deficits and positive symptoms.

When assessing the discriminatory power of the CAINS and MAP-SR as well as of the Hamilton Rating Scale for Depression and Beck Depression Inventory with regard to depressive and negative symptoms, all measures differentiated the patient samples (schizophrenia and major depressive episode) from healthy controls. Both ratings of depressive symptoms and the observer-rated CAINS – specifically its expression subscale – managed to discriminate between subjects with schizophrenia and subjects with MDE. As expected, patients with schizophrenia

showed more negative symptoms than patients with depression and controls; patients with MDE reported more depressive symptoms than patients with schizophrenia and controls. The MAP-SR ratings showed no significant difference in self-rated negative symptoms between patients with schizophrenia and those with MDE.

2. Temporal Stability of Negative Symptoms

As stated above, in this first evaluation of the German CAINS' test-retest reliability we found satisfactory temporal stability for the CAINS (r = 0.71) and its expression subscale (r = 0.74) in a small sample of 19 patients and for a two-week interval. This was in line with the fairly good test-retest reliability scores reported in previous validation studies. However, the lower test-retest reliability of 0.57 for the CAINS' motivation and pleasure subscale and of 0.63 for the MAP-SR was surprising, considering the short interval between the assessments and the frequently reported (moderate) stability of negative symptoms (e.g. Ventura et al., 2015). Four other studies assessed the CAINS' temporal stability, none those of the MAP-SR. For a two-week interval, Kring et al. (2013) report an r of 0.69 for both CAINS-EXP and CAINS-MAP (n = 162); Xie et al. (2018) found an r of 0.63 for CAINS-EXP and 0.68 for CAINS-MAP (n = 23). For a one-month interval, Jung et al. (2016) report a test-retest reliability of 0.87 for CAINS-EXP and 0.89 for CAINS-MAP (n = 98). Blanchard et al. (2017) analyzed a three-month interval with 447 subjects and found an r of 0.75 for CAINS-EXP and of 0.80 for CAINS-MAP. There were no obvious demographic differences between the patients assessed in those studies and our sample that could explain the lower temporal stability of the CAINS-MAP found in our data. However, there was a significantly higher rate of out-patients in the other studies; our sample for the CAINS and the MAP-SR's test-retest reliability assessment predominantly consists of in-patients in the stabilization phase. In this phase, depression, positive symptoms, and extrapyramidal symptoms might be more pronounced. We might thus have measured a greater percentage of secondary negative symptoms that might be less stable than genuine negative

symptoms. The fact that we found the expression domain to be more independent from possible sources of secondary negative symptoms than the amotivation domain strengthens this hypothesis.

When comparing the CAINS with the BNSS, Strauss and Gold (2016) found remarkably higher test-retest reliability for the BNSS (0.88 for expression, 0.92 for motivation and pleasure) and point to differences in item content in the amotivation domain. In general, the CAINS-MAP and MAP-SR's focus on inner experience (as opposed to the CAINS-EXP's focus on observable behavior) might lead to a higher variability of answers when retesting the amotivation domain, resulting in less reliable scoring. Furthermore, there is evidence that expressive deficits are more persistent while amotivation might be more sensitive to change (Galderisi, Mucci, et al., 2013; Kelley et al., 2008), but we doubt this holds true for our two-week interval.

Overall, the temporal stability of the different aspects of negative symptoms still seems to be insufficiently studied. A major difficulty may be the heterogeneity of the symptom complex; this is still not fully reflected in the measurement instruments. The two domains and five subdomains of negative symptoms might well be affected differently by sources and types of negative symptoms as well as phase of illness. Negative symptoms of the deficit syndrome, persistent negative symptoms, primary, and secondary negative symptoms quite possibly differ in their susceptibility for change. Based on our results and with regard to test-retest reliability, it seems that the amotivation domain might benefit most from further studies. This could be a comparison of the temporal stability of its components anhedonia, avolition and social withdrawal while controlling for secondary negative symptoms. As well, the test-retest reliability of negative symptoms for the same interval but in different phases of illness (e.g. prodromal, acute, and residual) could be looked into.

3. Deconstructing Negative Symptoms

3.1. Confirmatory Factor Analysis of the CAINS

When conceiving this research project, a two-factorial structure of the CAINS had just been identified with exploratory factor analysis in the original validation study (Kring et al. (2013); *n* =162) as well as for the German (Engel et al. (2014); *n* = 53) and the Spanish version (Valiente-Gomez et al. (2015); *n* = 100). As of yet, there are three further confirmatory factorial analyses. In a sample of 119 Korean subjects, Jung et al. (2016) report a confirmation of the two-factorial structure with CAINS-MAP and CAINS-EXP, however, their goodness of fit statistics were not in an acceptable range (TLI = 0.806, CFI = 0.863, RMSEA = 0.140). Like us, Xie et al. (2018) had to modify their initial model to account for shared variance of some items but confirmed the overall two-factorial structure for the Chinese CAINS with good fit indices (RMSEA = 0.053, NNFI = 0.99,CFI = 0.99, AIC = 155.02; *n* = 185). In Singapore, Rekhi et al. (2019) found no acceptable fit for the initial two-factorial structure (RMSEA = 0.133, CFI = 0.869, TLI = 0.840, WRMR = 1.750). Exploratory factor analysis of a split-half sample (*n* = 133) found four factors: *motivation and pleasure social*, *motivation and pleasure vocational*, *motivation and pleasure recreational*, and *expression*. CFA confirmed this structure for the second split-half sample (*n* = 141) and with acceptable fit statistics (RMSEA = 0.078, CFI = 0.955, TLI = 0.940, WRMR = 0.793). Looking further, there is a recent comprehensive factor-analysis on the Brief Negative Symptom Scale that found the best fit for a hierarchical five-factor model with two second-order factors expression and motivation and pleasure as well as five first-order factors blunted affect, alogia, anhedonia, avolition, and asociality (Ahmed et al., 2018).

When planning this CAINS validation, we judged that the two-factorial structure of the CAINS (that was overwhelmingly found in previous exploratory analyses) could be responsibly confirmed using our approach. Our sample size of 105 is sufficient: Jackson, Voth, and Frey (2013) propose to take p/f ratios (i.e. number of measured variables loading on each factor),

number of latent variables and loading size into account when planning sample size. Their guidelines suggest that for our two factors, a p/f of four and nine and expected loading sizes between .4 and .9, a sample size of 50 to 100 can be sufficient. Moreover, CFAs with about 100 cases can be routinely found in literature. We further chose to include the goodness-of-fit statistics Root Mean Square Error of Approximation (RMSEA) and Comparative Fit Index (CFI) that are considered to be less sensitive to sample size compared to other indices (Fan, Thompson, & Wang, 1999). Since this is a smaller sample, we could not compare different factorial models. Further studies absolutely should explore the above-mentioned hierarchical five-factor structure for the CAINS. For their comprehensive analysis of the BNSS's structure, Ahmed et al. (2018) prepended exploratory factor analysis (n = 566) before comparing different models with CFA in five cross-cultural samples (China: n = 163, Italy: n = 371, Spain: n = 115, Switzerland: n = 119, and USA: n = 357). This is in line with i.a. Brown and Moore (2012)'s recommendation: "Unlike EFA, CFA requires a strong empirical or conceptual foundation to guide the specification and evaluation of the factor model. Accordingly, EFA is often used early in the process of scale development and construct validation, whereas CFA is used in the later phases when the underlying structure has been established on prior empirical and theoretical grounds" (p. 361). Thus, while we believe our results are sound with regard to the overlying two-factorial structure, we think that for the CAINS, the hierarchical five-factor solution should first be looked at with EFA and then subsequently CFA. This is beyond the scope of this study.

This confirmatory factor analysis remains the first CFA of the CAINS on a western sample. We consider the final model an overall well fitting and parsimonious model. All items were specific for their respective scales, since we found no cross-loadings of CAINS-MAP items to the CAINS-EXP subscale and vice versa. The loadings of the three CAINS-EXP items on the expression subscale are both high and reliable. However, for CAINS-MAP we found slightly less straightforward results that could indicate that the amotivation subdomains' latent structure may still not be fully clear. For the CAINS-MAP items 1 (motivation for familial relationships), 5

(motivation for work and/or school) and 6 (expectation of pleasure at work and/or school) the lower bound of the item loadings' confidence intervals is below 0.3, thus they are not as closely associated with their domain. Those three items were also in the bottom four of factor loadings of the original validation study's exploratory factor analysis (Kring et al., 2013). When considering the item contents, overlap between some CAINS-MAP items was to be expected. We accounted for the following relevant overlap in our final model: 1) items 5 and 6 measuring a) motivation for and b) expectation of pleasure at work and/or school, 2) items 3 and 4 tapping a) past-week and b) expected pleasure concerning social activities, and 3) items 4 and 9 assessing expected pleasure in regard to a) social activities and b) leisure activities. In their CFA, Xie et al. (2018) also report shared variance for those three and five further item pairs. To further clarify the relevance and validity of the individual items of the CAINS-MAP, further research could focus on identifying subclusters and respective item loadings in that domain, again looking to Ahmed et al. (2018)'s hierarchical five-factor model.

At a more fundamental level, the two-factorial structure could be explained by common-method variance: CAINS-MAP focuses on verbal report of experience; CAINS-EXP relies on ratings of within-interview behavior. This fundamental difference in assessment of the two domains is hard to resolve. Experience sampling is paramount for a full picture of amotivation, while self-assessment of expressive deficits has proven difficult so far. Park et al. (2012) found poor psychometric properties for the expression subscale of the first version of a CAINS-based self-report. Dollfus et al. (2016) also had problems in clearly differentiating amotivation and expression in their SANS-derived self-assessment. However, when taking into account the results of the validity assessment that found distinct correlational profiles for the subscales across measurement methods, it seems fair to assume that common-method variance only explains part of the differences between the factors.

3.2 Scale Construction of the MAP-SR

To our knowledge, there still is no other inquiry into the MAP-SR's factorial structure. The sample size of 93 met the methodological requirements for the exploratory factor analysis. As Stevens (2002) suggests 0.57 and 0.51 as critical values for relevant factor loadings in sample sizes of 80 and 100, respectively, we considered loadings ≥ 0.55 adequately reliable. Regardless of sample size, Guadagnoli and Velicer (1988) consider factors with four or more loadings greater than 0.6 reliable. We decided to explore a one-, two-, and three-factor-solution. The MAP-SR initially was constructed to measure one factor, i.e. the amotivation factor of negative symptoms. The 1976 version of Verlicers' Minimum-Average-Partial-Test also suggested one factor for extraction. Its 2000 version proposed three factors; Ahmed et al. (2018)'s hierarchical model of negative symptoms measured with the BNSS also found three first-order factors for the second-order factor amotivation. With a look to the scree plot, a two-factor solution also seemed fit for consideration.

Of the 15 MAP-SR items, six are designed to assess pleasure. For them, we found reliable factor loadings on the factor pleasure and hedonic activities in the one-, two- and three-factor models. Additionally, they mostly show adequate test-retest reliability as well as convergent validity with corresponding CAINS items. The nine items assessing motivation were more problematic: In all factor models, two items had relevant loadings on the factor pleasure and hedonic activities but where not temporally stable and did not correlate with corresponding CAINS items or constructs. Those two items inquire motivation for hobbies, ergo hedonic activities that are closely related to the pleasure construct. For the two- and three-factor-models, the two items tapping motivation for social activities load on a common factor - social motivation – but had no satisfactory stability or convergent validity. In the three-factor model, two items inquiring motivation for work make up the factor motivation work and showed good convergent validity with CAINS items and constructs as well as sufficient temporal stability. Three items (7, 8 and 9) do not load reliably on any of the factors in any of the factor solutions

(but have their highest loadings on factor one). Moreover, item 9 (importance of friendships) does not converge with the corresponding CAINS item, item 7 (importance of family relations) is not stable over time, and item 8 (importance of romantic relationships) has a lot of missing data, probably because it is difficult to answer for single subjects.

The MAP-SR set out to provide a valid self-report of the amotivation domain of negative symptoms. Unfortunately, we think structure-wise the MAP-SR is not yet sufficiently developed. While we found one robust, promising factor in all inquiries, this factor – pleasure and hedonic activities – only consists of eight of the 15 items and mainly seems to encompass anhedonia. For the two further factors, motivation for work could correspond to the subdomain avolition, and social motivation to social withdrawal, but both only consist of two items. We propose to use items 1 to 6 and item 14 and 15 as a "pleasure and hedonic activity" scale covering the anhedonia subdomain of the amotivation domain and recommend reconstruction of the motivation part of the questionnaire. This means including new and more items covering different aspects of motivation. Motivation for social relations (i.e. social withdrawal) and drive for activities (i.e. avolition) could be surveyed more in detail and might benefit from more straightforward questions. The CAINS' and the BNSS' related items and their probe questions could provide guidance. Amount and intensity of contact, who initiated, feelings of closeness and desire for contact could be additionally inquired with regard to sociability. The amount of time spent doing something vs doing nothing, personal initiative and perseverance could be tapped for avolition. The resulting scale would have to prove itself in further validation studies, but might be a more valid self-assessment of the whole amotivation domain.

3.3 Conclusion on the Structure of Negative Symptoms

While our findings robustly confirm an overlaying two-factorial structure for the CAINS, the results for the motivation and pleasure subscale of the CAINS and for the MAP-SR suggest that the complexity of the latent structure of negative symptoms might not be sufficiently

reflected in the two proposed factors amotivation and expression. This is consistent with the findings of Xie et al. (2018) who also had to account for item overlap in the amotivation domain in their final model, those of Rekhi et al. (2019) who could not confirm the two factors and found four subscales in the social, vocational, recreational and expression domain, and, finally, Ahmed et al. (2018)'s findings on the structure of the BNSS. In a recent oral session and presumably presenting some not yet published findings, Ahmed et al. (2019) reiterated their support for a re-conceptualization of the latent structure of negative symptoms with a focus on the five consensus domains. They report that a structure with two second-order factors, expression and amotivation, and five first-order factors, blunted affect, alogia, anhedonia, avolition, and asociality, was found for different observer-rated assessment scales, across cultures, and using different statistical approaches. This should be inquired for the CAINS in further, larger studies. The hierarchical five-factor model could also inform the proposed redesign of the MAP-SR.

4. Inner Experience and Observed Behavior

With regard to their content, both CAINS and MAP-SR aim to put a greater focus on the patient's inner experience. However, in order to assess the negative symptom complex comprehensively, it seems that some symptoms still need to be observer-rated. In the following, the construct validity of the CAINS and MAP-SR is reviewed and discussed with regard to our multi-method approach and across diagnoses.

4.1 Validity Assessment of the CAINS

We found distinct correlational profiles for the two subscales CAINS-MAP and CAINDS-EXP; this again substantiates the claim that they measure different aspects of negative symptoms. The motivation and pleasure scale has more positive associations with related domains than the expression subscale, which in turn is not significantly associated with sources

of secondary negative symptoms. Both subscales correlate well with the PANSS Marder Negative score and moderately (CAINS-EXP) to strongly (CAINS-MAP) with deficits in social competence assessed with role-play. According to Marder and Galderisi (2017) abnormal functioning of the mirror neuron system could lead to deficits of social perception and motor activity which in turn affect social competence and expressive deficits. Additionally, it is highly likely for assessments derived from behavioral observation – i.e. CAINS-EXP items and assessment of role-play – to overlap because of common-method variance. For the amotivation domain, poor social cognition seems associated with social withdrawal (e.g. Marder & Galderisi, 2017). Blanchard, Park, Catalano, and Bennett (2015) also found strong associations of amotivation symptoms and role-plays; they suspect an influence of social amotivation on social competence. As expected from previous research (Gard et al., 2007), anticipatory anhedonia was associated specifically with the CAINS-MAP. Functional outcome consistently is linked more strongly to amotivation than expressive deficits (Marder & Galderisi, 2017); this is also found in our results. However, the correlation of the CAINS-MAP and the very meticulously measured level of activity was smaller than initially expected. This probably is due to the CAINS-MAP's focus on inner experience as opposed to behavior. Since behavior can be confound with functional outcome, this smaller than expected association with the activity level could indicate a strength of the CAINS-MAP.

Looking at discriminant validity, the CAINS' validity sample consisted of 70 outpatients with relevant but overall moderate negative symptoms and excluded severely depressed patients. There was a very low rate of extrapyramidal symptoms. The subjects often were assessed shortly after leaving the hospital; a phase of illness associated with less positive and more depressive symptoms (Peralta et al., 2000). We found a weak link of the motivation and pleasure subscale with positive and depressive symptoms. There is conceptual overlap of mainly the amotivation domain and depression with loss of interest, anhedonia, and reduced energy featuring in both. This association of the amotivation subdomain and depression was not found in most other

validation studies (Engel et al., 2014; Jung et al., 2016; Kring et al., 2013; Rekhi et al., 2019) except by Valiente-Gomez et al. (2015). However, looking to our further results when trying to differentiate patients with schizophrenia and patients with depression, we consider the delineation of amotivation and depression non-trivial. Finally, common-method variance could play a part in the overlap of mainly amotivation and positive as well as depressive symptoms.

The global index of cognitive deficits was moderately correlated with the CAINS-MAP. Amotivation is linked to deficits in abstraction and flexibility, and executive functioning which in turn could impair action planning resulting in apathy (Marder & Galderisi, 2017). Low cognitive effort is associated with more severe negative symptoms and both predict global neurocognitive impairment (Strauss, Morra, Sullivan, & Gold, 2015). In our data, there was no association of expressive and cognitive deficits, even though diminished expression often is linked with impaired overall cognitive performance (Hartmann-Riemer et al., 2015). There is evidence for specific pathways of subdomains of negative symptoms and particular cognitive deficits (A. S. Cohen, Mitchell, & Elvevåg, 2014). This is beyond the scope of this research project, as our neurocognitive index is too unspecific to shed light on these complex associations.

In validating the CAINS, we employed a wide range of measuring instruments; our results point to a predominantly good convergent and discriminant validity. For some associations, there is justified concern with regard to common-method variance. The systematic employment of self-reports, caregiver reports, experience sampling and observer-rating for all domains in further studies could clear up this issue.

4.2 Validity Assessment of the MAP-SR

There sometimes is doubt whether patients with psychosis are able to adequately self-assess their symptoms. There is some evidence that positive symptoms and cognitive symptoms negatively affect the patients' ability to do so (Browne et al., 2000; Katschnig, 2000; Silberstein, Pinkham, Penn, & Harvey, 2018). However, Hamera, Schneider, Potocky, and Casebeer (1996)

found incongruence of self-report and rater assessment for negative symptoms and higher congruence for positive and other non-psychotic symptoms; however, the negative symptoms were only assessed with two items (emotional withdrawal and motor retardation). In contrast, Liraud, Droulout, Parrot, and Verdoux (2004) found satisfactory self-assessment for positive and negative symptoms (except for persecutory delusion and alogia). There are some findings contrasting self-reports and clinician-assessments specifically for the negative symptom domain: Bowie et al. (2007) found that patients underestimating their functional status show better cognitive performance and report more depressive symptoms than overestimators. Accurate raters had better social skills than both other groups. Overestimators were most cognitively and functionally impaired. Over-/underestimation may be moderated by factors like depression, positive symptoms, cognitive functioning, and insight and could play a role when reporting or observing negative symptoms. For patients and psychiatrists assessing negative symptoms, Selten, Wiersma, and van den Bosch (2000) found discrepancy between the assessments to be impacted negatively by depression, positively by anxiety, and found no impact of insight. All in all, there is insufficient evidence to disregard self-assessment in psychosis in general.

There are significant associations of both the MAP-SR and the pleasure and hedonic activities factor with the observer-rated CAINS-MAP, a questionnaire sampling experiences of pleasure, and social cognition, but none with the PANSS Negative Scale and functional outcome. Thus, the MAP-SR indeed measures some aspects of negative symptoms. The criticism of the PANSS Negative Scale stated in chapter 1 (focused on observable behavior, includes items not considered part of the negative symptom domain) could partly explain the lack of correlation of MAP-SR and PANSS Negative Scale. They may well represent opposite ends of the spectrum of negative symptoms: one focused on subjective experience, the other closer to functional outcome. Thus, the MAP-SR might tap aspects of the negative symptom domain which might not be picked up reliably by observer ratings, e.g. inner need for company/engagement/activities vs. mere attendance, experienced pleasure vs. observed expression of emotion. A limitation of

the validity results is some possible common-method bias, since mainly other self-rating instruments correlate highly.

For the discriminant validity assessment, there were difficulties with regard to depression and extrapyramidal symptoms. The MAP-SR's validity sample comprised 55 outpatients with relevant negative symptoms, but with depressive symptoms below *severe*. The very low rate of and thus low variance in extrapyramidal symptoms could explain their correlation with both the MAP-SR and the pleasure and hedonic activity factor. The association of depression with the MAP-SR, the pleasure and hedonic activity factor, and the social motivation factor is quite probably due to the above-mentioned overlap of the amotivation domain and depression. Engel and Lincoln (2016) found significant correlations of the MAP-SR and self-rated depression as well. Of the MAP-SR's 15 items, six inquire past or expected pleasure, six motivation and effort concerning activities; this probably is not specific for negative symptoms. This delineation from depression seems to be another relevant limitation of the MAP-SR, as can further be seen in the next section.

4.3 Differentiating Negative Symptoms and Depression

As already mentioned in the general summary of findings, the observer-rating and the self-rating for depressive symptoms managed to differentiate subjects with depression, subjects with schizophrenia and healthy controls. Further, both the CAINS and the MAP-SR were able to separate the control sample from the psychiatric samples. For the CAINS, the expression subscale significantly differentiates schizophrenia and MDE subjects whereas the amotivation subscale does not. This is consistent with the result of our validation study, that also found overlap of CAINS-MAP but not CAINS-EXP with depression. The differentiating effect of the CAINS-EXP also is in line with evidence for reduced facial expression of patients with schizophrenia as opposed to subjects with depression (Berenbaum & Oltmanns, 1992; Gaebel & Wölwer, 1992; Trémeau et al., 2005).

One explanation for the MAP-SR's failure to distinguish the psychiatric groups could be poor self-assessment by subjects with schizophrenia. However, Hartmann et al. (2013) found good correspondence of self-ratings and observer ratings in patients with psychosis for two observer ratings (Calgary Depression Scale for Schizophrenia (CDSS) and PANSS) and two self-rating scales (BDI and Symptom-Checklist Revised (SCL-90-R)). Since the CAINS expression subscale seems decisive when differentiating the psychiatric samples, the MAP-SR's failure to do so could be because it doesn't measure expression. However, on the MAP-SR, MDE-subjects reported even greater symptom load than subjects with schizophrenia; this was in contrast to the means of the CAINS-MAP (schizophrenia > MDE > controls). Thus, the MAP-SR and – to a lesser extent – the CAINS-MAP don't seem to measure symptoms in the amotivation domain that are specific for schizophrenia. If the aim is to differentiate negative symptoms reliably from depressive symptoms, future research on instruments assessing the amotivation domain might profit from focusing on subtypes of anhedonia, e.g. anticipatory vs. consummatory anhedonia and indifferent vs. depressed mood.

The psychiatric samples exhibited mild to moderate negative and depressive symptoms, respectively; a greater severity of symptoms might have sharpened the differences between those groups. Moreover, for the sample of patients with schizophrenia and the sample with MDE, i.a. age of onset and gender ratios differ. However, matching would have compromised the representativity of either the schizophrenia or the MDE sample. Furthermore, medication could be a confounding variable: Of the subjects with schizophrenia, 95% were on antipsychotic medication, 19% took at least one antidepressant. In the MDE group 31% of the subjects were on antipsychotics (mostly in lower doses than the patients with schizophrenia), 91% on antidepressants. Lastly, our raters were not blinded with regard to the subjects' diagnoses – this could lead to over- or under-assessment in concordance with diagnosis.

4.4 Conclusions on Construct Validity

Overall, the assessment of expressive deficits is straightforward and observation-focused for the CAINS-EXP, resulting in a distinct profile with a particular strength concerning the disassociation from related concepts (i.e. sources of negative symptoms, particularly depression). Whether a reliable self-rating of this domain can be achieved remains unanswered.

CAINS-MAP and MAP-SR focus on inner experience which is harder to pinpoint; this might be the reason for the less clear-cut correlational profiles. However, while the CAINS-MAP seems to measure a great extent of the amotivation domain and hints at specificity with regard to depression, the MAP-SR seems to have difficulties here. Nevertheless, a focus on experience sampling as opposed to predominantly behavior-based assessments seems essential to prevent confounding symptoms and outcome – a problem of the older generation measuring instruments.

Neither the CAINS nor the MAP-SR entirely solve the problem of distinguishing primary and secondary negative symptoms. Assessing *true amotivation*, and to an extent also *true expressive deficits*, will probably remain difficult. Assessment from more than one perspective (i.e. performance assessments, experience sampling, and self-reports complemented by caregiver reports) could help in this regard.

5. General Conclusions and Clinical Recommendations

To tackle the clinical challenge presented by the negative symptom complex, we need to understand it well, develop specific treatments, and precisely assess these interventions. The CAINS is overall well suited to promote these purposes, and we particularly recommend taking into account both CAINS subscales separately. Overall, the two subscales clearly and mostly reliably measure distinct aspects of negative symptoms. These different aspects, however, should be further investigated with particular attention to the five consensus subdomains (blunted affect,

alogia, anhedonia, avolition, social withdrawal) in order to further refine the two-factorial structure found so far. This could also help clarify the CAINS-MAP individual items' specific subdomains, and thus their importance for the subscale.

It can be argued that self-assessments have been a blind spot for quite some time in the assessment of psychotic symptoms. There are well-known rater biases in clinical assessments (e.g. Hoyt, 2000), and particularly in patients with difficulties expressing emotions, self-reports could reflect the inner experience of patients more validly. However, while the MAP-SR is adequate to assess anhedonia (although not specifically for negative symptoms), it is less suitable when assessing motivation and features no expression subscale. We think the increasing focus on the subjective experience of symptoms with regard to i.a. treatment outcome intensifies the need for valid and reliable self-rating instruments and there should be increased efforts to improve existing or develop new self-reports.

Since there is non-trivial conceptual overlap between the negative symptoms and depression, and since depression is the most important indicator for completed suicide in patients with schizophrenia, it seems of particular importance to reliably differentiate negative and depressive symptoms. To do so, clinicians should look for self-reported depressive symptoms and observable expressive deficits. Reduced expression and moderate levels of depression point to a negative syndrome, whereas relatively unimpaired expression and high scores of self-reported depressive symptoms are more likely to indicate a depressive syndrome.

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SUPPLEMENTS

German Version of the Clinical Assessment Interview for Negative Symptoms (CAINS)

Manual

MANUAL ZUM DEUTSCHSPRACHIGEN CLINICAL ASSESSMENT INTERVIEW FOR NEGATIVE SYMPTOMS (CAINS)

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Inhaltsverzeichnis

Einleitung

Negative Symptome sind durch Fehlen oder Verminderung von subjektivem Erleben bzw. Verhalten gekennzeichnet, welches in einer gesunden Person der gleichen Kultur vorhanden ist. Dazu gehören erlebnisbezogene Defizite (verminderter Wunsch nach engen Beziehungen, verminderte Motivation, verminderte Gefühle von Freude) sowie ausdrucks-/expressionsbezogene Defizite (verminderter Ausdruck von Gefühlen und Sprache). Negative Symptome unterscheiden sich von anderen Symptomen der Schizophrenie oder verwandten Störungen einschließlich psychotischer, desorganisierter und affektiver Symptome sowie von kognitiven Defiziten.

Das *Clinical Assessment Interview for Negative Symptoms (CAINS)* wurde in einem mehrschrittigen Prozess entwickelt um die aktuelle Schwere der Negativsymptomatik bei Patienten mit Schizophrenie und Schizoaffektiven Störungen zu messen (Forbes et al., 2010; Blanchard et al., 2011; Horan et al., 2011; Kring et al., 2013). Die CAINS-Beurteilung basiert auf den Erfahrungen des Patienten in den letzten sieben Tagen. Der Fragebogen wurde für Therapiezwecke entwickelt, eignet sich aber auch für Forschung zur Negativsymptomatik.

Anders als frühere Fragebögen zur Negativsymptomatik, die einen Gesamtfaktor des Schweregrades der Negativsymptomatik beschreiben, besteht das CAINS aus zwei Skalen (MAP/EXP), die getrennt eingeschätzt werden. Die einzelnen Items innerhalb der beiden Skalen sind in der folgenden Tabelle zusammengefasst:

1. Motivation und Freude (MAP) Skala

Item	Name	Rating-Basis
1.	MOTIVATION FÜR ENGE BEZIEHUNGEN (FAMILIE, (EHE) PARTNER/IN)	Berichtete Motivation für und Wunsch nach engen Beziehungen sowie Engagement in relevanten Interaktionen.
2.	MOTIVATION FÜR ENGE FREUNDSCHAFTEN & (LIEBES)BEZIEHUNGEN	Berichtete Motivation für und Wunsch nach engen Beziehungen sowie Engagement in relevanten Interaktionen.
3.	HÄUFIGKEIT VON ERFREULICHEN SOZIALEN AKTIVITÄTEN – LETZTE WOCHE	Berichtete Anzahl von Tagen an denen erfreuliche soziale Aktivitäten erlebt wurden.
4.	ERWARTETE HÄUFIGKEIT VON ERFREULICHEN SOZIALEN AKTIVITÄTEN – NÄCHSTE WOCHE	Berichtete Anzahl von erfreulichen sozialen Aktivitäten, die in der nächsten Woche erwartet werden.
5.	MOTIVATION FÜR ARBEITS- UND SCHULAKTIVITÄTEN	Berichtete Motivation für und Wunsch nach Arbeits- und Schulaktivitäten, sowie Engagement in relevanten Interaktionen.
6.	ERWARTETE HÄUFIGKEIT VON ERFREULICHEN ARBEITS- UND SCHULAKTIVITÄTEN – NÄCHSTE WOCHE	Berichtete Anzahl von erfreulichen Arbeits- und Schulaktivitäten, die in der nächsten Woche erwartet werden.
7.	MOTIVATION FÜR FREIZEITAKTIVITÄTEN	Motivation für Freizeitaktivitäten.
8.	HÄUFIGKEIT VON ERFREULICHEN FREIZEITAKTIVITÄTEN - LETZTE WOCHE	Berichtete Vielfalt und (tägliche) Häufigkeit von erfreulichen Freizeitaktivitäten.

9.	ERWARTETE HÄUFIGKEIT VON ERFREULICHEN FREIZEITAKTIVITÄTEN - NÄCHSTE WOCHE	Berichtete Anzahl von erfreulichen Freizeitaktivitäten, die in der nächsten Woche erwartet werden.

2. Ausdruck/Expression (EXP) Skala

Item	Name	Rating-Basis
1.	MIMIK	Beobachtungen während des gesamten Interviews
2.	SPRECHEN (INTONATION)	Beobachtungen während des gesamten Interviews
3.	GESTIK	Beobachtungen während des gesamten Interviews
4.	SPRACHE (QUANTITÄT)	Beobachtungen während des gesamten Interviews

Alle Ratings basieren auf einem halbstrukturierten Interview. Die Items werden anhand einer fünfstufigen Skala von 0 (nicht vorhanden) bis 4 (schwer) bewertet. Es ist zu beachten, dass sich Werte, die auf leichte Defizite hinweisen noch im Bereich des Normalen befinden können. Alle Einschätzungen sollten ausschließlich mit Hilfe der Ankerpunkte gemacht werden. Vergleiche mit klinischen oder nicht-klinischen Stichproben sind nicht angezeigt.

Aufbau des CAINS Manuals

Das Manual bietet zunächst allgemeine Hinweise zur Verwendung des CAINS und spezifische Hinweise zur Messung der Skalen Motivation und Freude. Für jedes Item folgen eine Definition, eine Rating-Grundlage, Ankerpunkte, spezifische Hinweise und illustrative Vignetten.

Allgemeine Hinweise zur Verwendung des CAINS

1. Der Fragenkatalog stellt die Grundlage des CAINS dar. Der Interviewer sollte so wenig wie möglich von der vorgegebenen Struktur bzw. den Beispielfragen abweichen. Es sind so viele Fragen zu stellen, wie für eine klare Informiertheit notwendig.

2. Es ist sinnvoll mit offenen Fragen zu beginnen und zur weiteren Klärung spezifischere Fragen einzusetzen. Vermeiden Sie Fragen, die man nur mit “Ja” und “Nein” beantworten kann. “Ja” - und “Nein”- Antworten sollten mit zusätzlichen Fragen weiter exploriert werden.

3. Vermeiden Sie Suggestivfragen. Wenn Sie beispielsweise nach der Häufigkeit von erfreulichen Freizeitaktivitäten der letzten Woche fragen, sollten Sie keine bestimmten Aktivitäten nennen, sondern zunächst offen fragen. Des Weiteren sollten Sie, wenn eine Person beispielsweise keine erfreulichen sozialen Aktivitäten schildert, sich auch nicht auf frühere Antworten der Person beziehen, wie z.B. “Sie haben vorhin angegeben, dass Sie letzten Donnerstag mit Ihrer Mutter Einkaufen waren. Ist das etwas, was Sie als erfreulich empfunden haben?“. Auch sollte ein exzessiver Gebrauch der Fragen vermieden werden. Es

geht nicht darum so viele Informationen wie möglich zu bekommen, sondern die spontanen Antworten der Personen abzubilden.

4. Viele der weiterführenden Interview-Fragen des CAINS geben Hinweise auf andere Symptome. Zur Erfassung dieser Symptome (z.B. Positive Symptome, Depression, Agitiertheit, Angst) können andere klinische Instrumente ergänzend eingesetzt werden.

5. Wenn Aktivitäten oder Interaktionen berichtet oder erwartet werden, die sehr unwahrscheinlich sind (z.B. ein Gespräch mit dem Bundeskanzler zu führen) oder diese auf psychotischen Überzeugungen/Ideen beruhen (z.B. eine Beziehung mit einem TV-Schauspieler einzugehen), sollten diese nicht zur Einschätzung der Negativsymptomatik dienen, sondern als positive Symptome gedeutet werden. Es sollen nur realistische, keine wahnhaften Informationen berücksichtigt werden.

6. Antworten, die inhaltlich zu anderen Items gehören (z.B. berichtet eine Person bei der Frage nach erfreulichen Freizeitaktivitäten von sozialen Aktivitäten), sollten auch dort, mit Hilfe entsprechender Fragen erfasst werden. Werden des Weiteren bei einer Frage nach engen Beziehungen Hinweise auf das Erleben von Freude gegeben, sollten diese bei der Frage nach Freude wieder aufgegriffen werden, beispielsweise “Sie haben mir vorhin erzählt, dass Sie das Essen mit der Familie genossen haben. Ich würde Sie gerne etwas näher zu solchen erfreulichen Erfahrungen mit Anderen befragen, die Sie in der letzten Woche erlebt haben.”

7. Ist ein Interviewer zwischen zwei Skalenstufen hin- und hergerissen, sollte er die höhere (stärker pathologische) Stufe wählen.

8. Interviewer sollten keine hypothetischen Fragen stellen. Wenn eine Person beispielsweise von stressigen Interaktionen mit der Familie berichtet, sollte nicht gefragt werden “Mal angenommen, Sie hätten sich nicht mit ihrer Familie gestritten, hätten Sie dann den Kontakt zur Familie als erfreulich erlebt? Wenn kein Kontakt zur Familie stattgefunden hat, vergessen Sie auch nicht zu fragen, ob die Person daran interessiert gewesen wäre bzw. sich diesen gewünscht hätte.

Hinweise zu den Items, die Motivation messen (Items 1, 2, 5, & 7)

Das CAINS-Item, welches Motivation misst, unterscheidet zwischen internalen Faktoren, die das Erleben messen und dem expliziten Verhalten. Die Unterscheidung zeigt sich in den Ankerpunkten Wunsch/Interesse bzw. Verhaltensmotivation. Es stellt sich die Frage wie diese Faktoren gewertet werden, wenn sie nicht übereinstimmen. Dazu folgende Hinweise:

1. Verhaltensdefizite rechtfertigen keine hohen pathologischen Ausprägungen, da sie durch andere Faktoren (wie Opportunität oder psychotische Symptome) zustande kommen können. Es ist demnach wichtig nach den Ursachen von Verhaltensdefiziten zu fragen, um zu prüfen, ob sie auf andere (externale) Faktoren zurückzuführen sind (z.B. Lebensbedingungen, finanzielle Faktoren, medizinische (nicht-psychiatrische) Probleme).

2. Wenn eine Person viel Interesse (bzw. Wünsche) für relevante Beziehungen, Interaktionen, Aktivitäten etc. äußert, jedoch keinerlei entsprechendes Verhalten zeigt, soll bei den Items, die Motivation messen, der Wert 2 vergeben werden.

3. Wenn es scheint, dass die Berichte von internalem Erleben (Wunsch, Antrieb) sich vom Verhalten unterscheiden, ist es wichtig die Gründe zu prüfen, die diesem Mangel an Konsistenz zu Grunde liegen könnten. Der Mangel an Übereinstimmung könnte darauf hinweisen, dass der verbale Bericht problematisch ist oder ausschließlich sozial erwünschte Antworten widerspiegelt. Alternativ könnte der Mangel an Verhalten aufgrund anderer Faktoren auftreten und der Selbstbericht kann als glaubwürdig gehalten werden. Das Hinterfragen der Gründe für den Verhaltensmangel und auch das Aufzeigen der Diskrepanz zu den Selbstberichten von Motivation und Interesse könnten zusätzliche Information liefern um die Einschätzung zu klären. Wenn die benannten Gründe überzeugend sind, dann ist die endgültige Einschätzung in der Richtung des internalen Erlebens zu gewichten.

Beispiel: Wenn die Person großes Interesse an Familienbeziehungen berichtet aber in der letzten Woche zu keinen Familienmitgliedern Kontakt hatte, sollte der Interviewer explorieren warum die Person nicht versucht hat Kontakt aufzunehmen, obwohl derartige Beziehungen offenbar wichtig sind. Überlegungen die im CAINS angeführt wurden beinhalten Berichte von Familie außerhalb der Stadt bzw. die weit weg lebt um den Mangel an aktuellem Aufwand für Beziehungen zu erklären. In diesen Fällen erwähnten die Leute ihr klares Interesse an und Wunsch nach engen Familienbeziehungen, empfanden aber dass ihre derzeitige Situation es nicht hergab, dass sie mit Familienmitgliedern Kontakt hatten. In diesen Fällen wurde der Wert 2 vergeben anstatt eines Wertes von 4, der nur den Mangel an Verhalten einschließen würde.

Hinweise zu den Items, die Freude messen (Items 3, 4, 6, 8, & 9)

1. Das CAINS erhebt zwei verschiedene Arten von Freude: Letzte Woche und Nächste Woche. Es sollte beachtet werden, dass die Art der Erfragung dieser zwei Aspekte von Freude im CAINS Interview variiert.

   Für Items, die vergangene Freude messen (3 und 8), versucht der Interviewer eine möglichst akkurate Einschätzung der erfreulichen Erfahrungen der Person zu erhalten, die in der letzten Woche auftraten. Daher ist es klinisch angebracht spezifische erfreuliche Ereignisse oder Interaktionen anzuführen, die in einem anderen Abschnitt des Interviews erwähnt wurden, die aber nicht als Antwort auf die Fragen für Items 3 und 8 berichtet werden um eine akkurate Zählung der erlebten Freude in der letzten Woche zu erhalten (siehe Punkt 2). Das Ignorieren solcher Berichte von Freude könnte eine inakkurate Einschätzung mit sich bringen.

   Im Gegensatz hierzu sind die Items die zukünftige Freude messen (4, 6 und 8) dafür gedacht die Fähigkeit einer Person einzuschätzen, zukünftige Vorhersagen oder Erwartungen über erfreuliche Ereignisse oder Aktivitäten zu treffen. Daher ist es wichtig Suggestivfragen in diesen Items zu vermeiden, da das klinische Ziel ist, die Fähigkeit zu erheben, diese erwarteten Ereignisse und Aktivitäten zu generieren und nicht aber diese einer Person zur Verfügung zu stellen und dann nach erwarteter Freude zu fragen. Somit erfasst das Interview diese Items mit Absicht allgemeiner als vergangene Freude, so dass die befragte Person ihre

Antwort ohne den Vorteil vom Interviewer vorgeschlagene bestimmten Ereignisse oder Aktivitäten liefern soll.

2. Wenn eine Person in einem früheren oder späteren Abschnitt des CAINS klar berichtet bei etwas Freude empfunden zu haben, diese Erfahrungen aber nicht auf die eigentliche Frage nach erfreulichen sozialen oder Freizeitaktivitäten in den Items, die Freude in der **vergangene Woche** erheben anführt, sollte der Interviewer sich auf dieses beziehen. Die Informationen sollten vom Interviewer angeführt werden wenn - und nur dann - die Person eine klare verbale Angabe gemacht hat, dass die relevante(n) Erfahrung(en) erfreulich waren – es ist nicht nötig, dass die Person das Wort „erfreulich“ in den anderen Abschnitten des Interviews verwendet hat, aber ein enges Synonym (z.B. genossen, gemocht) ist erforderlich. Wenn eine Person zum Beispiel während des Items Motivation für enge Beziehungen (Familie, (Ehe) Partner/In) (Nr. 1) sagt, dass sie Spaß hatte mit ihrem Bruder zum Essen auszugehen, sollte der Interviewer auf diese Erfahrung hinweisen wenn es um das Item Häufigkeit von erfreulichen sozialen Aktivitäten – Letzte Woche (Nr. 3) geht, sofern die Person das Ereignis nicht auf die allgemeine Frage anführt; wenn die Person während des Items Motivation für enge Beziehungen (Familie, (Ehe) Partner/In) keine Angabe macht, dass die Interaktion erfreulich war, sollte der Interviewer nicht auf diese Erfahrung verweisen, wenn es um das Item Häufigkeit von erfreulichen sozialen Aktivitäten – Letzte Woche geht.

3. Ereignisse der letzten oder nächsten Woche können das Erleben von Freude sowie auch unangenehme Emotionen einschließen. Daher sollte der Interviewer nicht annehmen, dass Freude nicht vorkommt, wenn die Person negative Emotionen berichtet sondern auch nach dem Erleben von Freude fragen.

4. Erfreuliche Erfahrungen von jeder Intensität/Ausprägung werden berücksichtigt (d.h., es gibt keine Grenze zum Einbeziehen von ausschließlich stark erfreulichen Erfahrungen). Jede Erfahrung die als angenehm oder erfreulich beschrieben wird, wird gezählt.

5. Die Ankerpunkte für Freude in der letzten Woche unterscheiden sich für den sozialen und den Freizeitbereich. Es ist besonders wichtig die Rating-Grundlagen zu beachten – das Item des sozialen Bereichs wird auf der Anzahl an Tagen, an denen Freude empfunden wurde, beurteilt, während das Item des Freizeitbereichs auf der Anzahl an Tagen und der Vielfalt der Erlebnisse eingeschätzt wird.

6. Interviewer sollten die weiterführenden Fragen für die Items zur Häufigkeit von Freude anwenden, um die Art von Vergnügen zu erfassen und nicht einfach eine „ja“-Antwort akzeptieren (z.B. „Erzählen Sie mir, was sie daran genossen haben“ oder „Was empfanden Sie als erfreulich?“). Die Interviewer sollten nur Gegebenheiten bewerten, zu denen es Einzelheiten zur erlebten Freude gibt.

7. Beurteilungen der Freude in der vergangenen und zukünftigen Woche sollten einzig auf dem berichteten emotionalen Erleben der Person basieren, unabhängig davon ob es irgendeinen beobachtbaren begleitenden Ausdruck der positiven Emotionen gibt (z.B. eine Person mit einem hohen Grad an Affektverflachung im Gesicht, in der Stimme oder Gestik kann trotzdem Werte von „0“ in den freudebezogenen Items erhalten).

Motivation and Pleasure (MAP) Skala

I. SOZIAL: Motivation & Freude

Items 1-2: Soziale Motivation (Familien- / (Ehe)Paarbeziehungen; Freundschaften/partnerschaftliche Beziehungen)

Allgemeine Definition

Beeinträchtigung in der Motivation für soziale Beziehungen ist im Sinne eines verminderten Interesses an, Wunsch nach, Motivation für und tatsächlichem Engagement für soziale Beziehungen definiert. Beurteilungen werden in den Bereichen Familien- / (Ehe)Paarbeziehungen und Freundschaften/partnerschaftliche Beziehungen gemacht. Die Werte der Items basieren auf 1) Berichten von internalen Erlebnissen, inklusive des Ausmaßes zu dem die Person enge soziale Verbindungen schätzt und wünscht und der Motivation der Person sich an diesen Interaktionen und Beziehungen zu beteiligen und diese aufrecht zu erhalten, 2) beobachtbarem Verhalten, das heißt das Ausmaß zu dem die Person sich tatsächlich an Interaktionen mit anderen beteiligt, und 3) dem Wunsch nach Veränderung, wenn diese Beziehungen nicht vorhanden sind.

Allgemeine Rating-Grundlage

Beurteilungen werden auf der Basis der von der Person selbst berichteten Motivation, dem Interesse an und Wunsch nach sozialen Interaktionen, sowie tatsächlichem sozialen Verhalten vorgenommen. Internale Erlebnisse beziehen sich auf selbstberichtete Vorstellungen, den Grad an Interesse, Motivation jemanden aufzusuchen, sich zu beteiligen und an Beziehungen festzuhalten, und die Priorität, die für Beziehungen mit anderen berichtet wird. Personen, denen jegliches Interesse oder Motivation für enge Beziehungen fehlt könnten internale Empfindungen berichten, wie zum Beispiel:

a) Vorstellung das enge, intime Beziehungen nicht wichtig oder wertvoll sind
b) Eingeschränkte Motivation enge Beziehungen aufrecht zu erhalten oder zu entwickeln
c) Mangelndes Interesse an gegenseitiger Fürsorge und Teilen mit anderen Personen
d) Vorliebe für nicht-soziale Aktivitäten
e) Mangel an Einsamkeit, obwohl isoliert
f) Mangelndes Interesse an Kooperieren und gemeinsames Arbeiten mit anderen
g) Wenn eine enge Beziehung fehlt, berichtet die Person keinen Wunsch eine solche aufzubauen.

Soziales Verhalten kann weitere Hinweise auf diese Interessen mit sich bringen. Dennoch ist es wichtig zu beachten, ob ein Mangel an Verhalten eher einen Mangel an Möglichkeit als einen Mangel an Interesse widerspiegelt. Zum Beispiel könnte eine Person eingeschränkte soziale Aktivitäten haben, aber würde ein entsprechend niedrigeres Rating auf dieser Skala bekommen, *wenn* die Person ein eindeutiges Interesse an und Wunsch nach engen persönlichen Beziehungen berichtet. Ein Mangel an Motivation könnte sich in sozialen Verhaltensweisen niederschlagen, so wie:

a) In einer sozialen Situation nur oberflächlicher oder kurzer Austausch, distanziert bleiben oder in den Hintergrund zurückweichen

b) Keine andere Person haben, die einem „nahesteht“ oder „vertraut“ ist, einschließlich dem Mangel an einer Person mit der persönliche Anliegen besprochen werden können
c) Ausbleiben von Teilnahme an Ereignissen oder Aktivitäten mit anderen Personen gemeinsam
d) Wenn eine enge Beziehung fehlt, zeigt die Person keine Versuche Beziehungen aufzubauen
e) Eingeschränkte Initiierung und Aufrechterhaltung sozialer Beziehungen; seltenes Aufsuchen von Interaktionen mit anderen Leuten

Wenn es eine Diskrepanz zwischen berichtetem Interesse (z.B. vorhandene Motivation, Interesse und Wunsch) und berichtetem Verhalten (z.B. Isolation) gibt, sollte der Interviewer weiterführende Fragen über das internale Erleben stellen, um sicher zu gehen, dass die Person nicht einfach sozial angemessene Reaktionen zeigt. Wenn das Nachfragen überzeugende und glaubhafte Antworten mit sich bringt, kann Interesse eine größere Gewichtung als Verhalten bekommen. ***Wenn eine Person ein großes Ausmaß an Interesse berichtet, aber kein Verhalten zeigt, das mit diesem übereinstimmt, wird ein Wert von 2 gegeben.***

In jedem sozialen Kontext sollte der Interviewer zunächst versuchen, zu ermitteln ob es in der Woche vor dem Interview irgendeinen sozialen Kontakt gab. Diesem wird das Erfragen der Art des Kontaktes, inklusive der Häufigkeit, Dauer und der Einbindung oder dem Wunsch/Interesse der/des Befragten während dieser Kontakte angeschlossen. Diese Informationen ermöglichen es dem Interviewer zu bestimmen, ob soziale Aktivitäten in jedem Kontext auftauchen und in welchem Ausmaß die befragte Person wirklich involviert ist. Solche Beschreibungen sind wichtig um zu bestimmen ob die Beteiligung ausschließlich oberflächlich oder peripher ist (sogar, wenn Kontakte häufig sind) und um zu bestimmen ob die befragte Person diese Interaktionen initiiert und aufrechterhalten hat. Alternativ hierzu könnte eine Person weniger soziale Kontakte haben, aber diese werden von aktiver Beteiligung, häufiger Initiierung des Kontaktes begleitet, was das Interesse und den Wunsch nach engen Beziehungen und sozialer Interaktion der Person widerspiegelt. Am Ende sollte der Interviewer, wenn es verminderten sozialen Kontakt in irgendeinem Kontext gibt, die vorgegebenen weiterführenden Fragen nutzen um zu bestimmen, ob die Person den Wunsch nach Änderung, so dass er oder sie mehr enge soziale Beziehungen haben kann.

Partnerschaftliche Beziehungen können entweder in Item 1 oder Item 2, aber NICHT in beiden eingeschätzt werden. Eine Ehe/Beziehung in der das Paar zusammenlebt sollte in Item 1 eingeschätzt werden. Eine Beziehung in der das Paar nicht zusammenlebt sollte in Item 2 eingeschätzt werden.

Problematische Beziehungen: In manchen Situationen mag eine befragte Person keine Interaktion mit Familie oder Partner berichten, da es sich um eine problematische Beziehung handelt. Dies könnte zum Beispiel auftreten, wenn es in der Familie eine Vergangenheit von Missbrauch oder Drogen-/Alkoholproblemen gab. Die befragte Person könnte die Beziehungen aufgrund dieser Probleme vermeiden. Beim Raten sollte der Interviewer sicherstellen, dass er/sie nachfragt, warum der Befragte traurig ist und diese Beziehungen vermeidet und nachfragt ob er/sie diese Beziehungen trotz allem vermisst, an ihnen interessiert ist und diese wichtig findet.

ITEM 1: MOTIVATION FÜR ENGE BEZIEHUNGEN (FAMILIE, (EHE) PARTNER/IN)

1.1 Ankerpunkte

0 = Keine Beeinträchtigung: SEHR INTERESSIERT an engen familiären Beziehungen, schätzt diese als einen der wichtigsten Bereiche des Lebens ein. Starkes Bedürfnis nach und Motivation in Kontakt mit der Familie zu sein. Initiiert und hält Interaktionen mit der Familie regelmäßig aufrecht und gestaltet diese aktiv mit. Gute und schlechte Zeiten werden offen besprochen. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: GRUNDSÄTZLICH INTERESSIERT an und schätzt enge/n familiäre/n Beziehungen, obwohl die Antworten auf einige geringfügige oder fragliche Einschränkungen deuten. Grundsätzliches Bedürfnis nach und Motivation den Kontakt mit der Familie aufrecht zu halten. Hat enge Beziehungen zu (einem) Familienmitglied/ern, in denen gute und schlechte Zeiten besprochen werden können. Leichte Defizite im Hinblick auf die Initiierung und das Aufrechterhalten von regelmäßigen familiären Interaktionen – grundsätzlich aktive Mitgestaltung sobald Interaktionen stattfinden.

2 = Moderates Defizit: ETWAS INTERESSIERT an familiären Beziehungen, die als einigermaßen wichtig erachtet werden. Vermisst hin und wieder enge familiäre Verbindungen aber ist lediglich etwas motiviert Interaktionen mit der Familie aufzusuchen. Deutlich wahrnehmbares Defizit beim Initiieren und anhaltendem Engagement in Interaktionen; begrenztes Besprechen von guten und schlechten Zeiten. Interaktionen mit Familienmitgliedern können auftreten, sind aber größtenteils oberflächlich und durch „routinemäßige Skripte“ charakterisiert; Interaktionen finden auf Initiative der Familie statt, mit meist passiver Einbeziehung des/r Patienten/in.

3 = Mäßig schweres Defizit: WENIG INTERESSIERT an engen familiären Beziehungen (“macht, was Ihr wollt”), familiäre Verbindungen werden nicht als wichtig beschrieben. Motivation und Bemühungen hinsichtlich enger familiärer Beziehungen werden kaum berichtet. Hat selten Gespräche über gute und schlechte Zeiten mit Mitgliedern der Familie. Kontakt und Engagement mit der Familie sind oberflächlich und passiv, Initiierung und Bemühungen gehen fast alle von Anderen aus.

4 = Schweres Defizit: KEIN INTERESSE an familiären Beziehungen, welche als überhaupt nicht wichtig erachtet werden. Das Alleinsein wird bevorzugt und keinerlei Motivation in Kontakt mit der Familie zu sein, vorhanden. Wenn der/die Patientin die Familie sieht, verhält er/sie sich widerwillig, passiv und ohne Interesse.

1.2 Spezifische Hinweise

1. Beim Evaluieren von Familien/(Ehe)Partner Interaktionen als ein Indikator von Nähe und Intimität ist es wichtig, die Art dieser Interaktionen zu berücksichtigen. Für einige Leute sind Familieninteraktionen einseitig; zum Beispiel kann ein Verwandter ein Gefühl von Nähe und ein starkes Bedürfnis für eine Beziehung mit der befragten Person haben und diese daher aktiv in Familienaktivitäten einbinden und involvieren, unabhängig vom Wunsch der befragten Person nach diesen Interaktionen. In solchen Kontexten ist es wichtig das Ausmaß an Interesse und Wunsch nach Nähe und Intimität der Person zu bestimmen, da sie einfach passiv auf die Anstrengungen der Familienmitglieder reagieren könnte. Es ist wichtig zu klären wie die befragte Person involviert ist (z.B. Teilnahme an Unterhaltungen) und ob die Person wirklich Interesse, Motivation und Interesse an diesen sozialen Kontakten mit den Familienmitgliedern hat.

2. Einigen Personen ist es durch geographische Trennung oder andere Barrieren (z.B. Obdachlosigkeit, die davon abhält Verwandte anzurufen) nicht möglich den Kontakt mit der Familie aufrechtzuerhalten. In diesem Fall sollte der Interviewer den Wunsch der Person nach und das Interesse an diesen Kontakten erheben. Die weiterführenden Fragen sollten darauf ausgerichtet sein das Ausmaß dieses Wunsches zu klären um sicherzugehen, dass es nicht nur eine sozial erwünschte Antwort widerspiegelt.

3. In einigen Fällen könnte eine Person berichten, dass er oder sie Verwandte aufgrund von Familienproblemen (z.B. Drogenmissbrauch oder Gewaltausübung durch den Verwandten) vermeidet. Diese Loslösung von der Familie sollte nicht als pathologisch, sondern vielmehr als angemessene Reaktion gesehen werden. Wie oben angeführt sollte der Rater in solchen Fällen auf das Interesse, die Motivation und den Wunsch nach Familieninteraktionen der Person fokussieren, wenn diese in einer gesunden Art ausgeübt werden könnten (z.B. der Verwandte erhält Behandlung und erholt sich von der Sucht).

4. Eine Person könnte nur ein Familienmitglied ansprechen und trotzdem wäre es möglich einen Wert von 0 zu geben. Dies wäre angebracht, wenn die Beziehung eine enge und intime Verbundenheit widerspiegelt, zu deren Aufrechterhaltung die Person hochmotiviert ist. Die Person sollte außerdem die notwendige regelmäßige Initiierung und Aufrechterhaltung dieser Beziehung aufzeigen.

1.3 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die befragte Person beschreibt die Beziehung zu seinen Eltern als sehr nah und wichtig für ihn. Er führt fast täglich Telefonate mit den Eltern, welche er initiiert und sich darin über Familienereignisse auf den neusten Stand bringt sowie Rat des Vaters über aktuelle Schwierigkeiten mit dem Hausbau sucht. Der Befragte hat regelmäßig an Familienereignisse teilgenommen, inklusive Familienessen und anderen Aktivitäten wie einen Filmabend. Er beschreibt seine enge und fürsorgliche Beziehung zur Ehepartnerin. Er bemerkt wie unterstützend seine Frau ist und wie „liebevoll" er ihr gegenüber war. Er berichtet, dass er tägliche Spaziergänge mit seiner Frau unternommen hat, während derer sie die täglichen Ereignisse anschauen und miteinander besprechen. Der Befragte berichtet, dass er aktiv in jede dieser sozialen Aktivitäten involviert ist und häufig möchte, dass diese länger andauern.

1. *Leichtes Defizit:* Der Befragte sagt, dass die Beziehung zur Familie „gut" ist und „irgendwie wichtig". Er berichtet, dass die Familie (insbesondere der ältere Bruder) hilfreich mit finanzieller Unterstützung ist. Er sagt, dass die Beziehung zum Bruder „gut" und „ziemlich eng" ist. Er ist motiviert mit dem Bruder in Kontakt zu bleiben und meistens initiiert er die Gespräche mit diesem. In der letzten Woche hat er den Bruder alle paar Tage gesehen und berichtet dass die Unterhaltungen freundlich sind, aber dass er sich nicht immer damit wohlfühlt persönliche Probleme mit ihm zu besprechen, dies jedoch machen würde wenn er „Hilfe braucht". Der Befragte merkt an, dass er seinen Bruder anrufen würde, wenn er nichts von ihm hört.

2. *Moderates Defizit:* Die Befragte beschreibt die Beziehung zur Familie als „in Ordnung" und „gut, diese zu haben", aber elaboriert dies nicht weiter. Sie führt unregelmäßige Telefonate mit den Geschwistern (ungefähr einmal in der letzten Woche) und es sind gewöhnlich die Geschwister die

diese initiieren. Die Befragte sagt, dass die Motivation in Kontakt zu bleiben „so lala“ ist. Sie sagt, dass sie sich für gewöhnlich nicht die Mühe macht die Familie anzurufen, aber berichtet dass sie es vermisst wenn ihre Geschwister nicht anrufen. Die Befragte spricht mit der Familie und findet heraus was diese tun, berichtet aber, dass sie es bevorzugt Sachen für sich zu behalten und nichts Persönliches in diesen Gesprächen teilt.

3. *Mäßig schweres Defizit:* Die Befragte sieht ihre Familie nur zu „besonderen Essen“ ein- oder zweimal im Jahr (z.B. Weihnachten). Diese Besuche werden vollständig von den Verwandten initiiert und die Befragte berichtet, dass es sie nicht stören würde, wenn sie nicht zu Besuch kämen. Alle diese Besuche werden von der Familie organisiert und die Befragte merkt an, dass sie nicht viel zu ihrer Familie sagt, da sie „nichts zu sagen hat“. Sie bevorzugt es allein zu bleiben und würde diese Essen nicht vermissen.

4. *Schweres Defizit:* Der Befragte hat keinen Kontakt mehr zu seinen Verwandten, obwohl diese in der gleichen Stadt wohnen. Er berichtet, dass er seine Familie nicht vermisst und sich nie darum bemüht hat diese zu kontaktieren. Er merkt an, dass er ein „Einzelgänger“ ist und sagt, dass ihm der Kontakt zu seinen Verwandten nicht fehlt.

ITEM 2: MOTIVATION FÜR ENGE FREUNDSCHAFTEN & PARTNERSCHAFTLICHE BEZIEHUNGEN

2.1 Ankerpunkte

0 = Keine Beeinträchtigung: SEHR INTERESSIERT an und schätzt freundschaftliche/partnerschaftliche Beziehungen als einen der wichtigsten Bereiche des Lebens ein. Starkes Bedürfnis nach und Motivation sich auf Freundschaften ein zulassen. Initiiert und hält Interaktionen mit Freunden/Partner/Date regelmäßig aufrecht und gestaltet diese aktiv mit. Gute und schlechte Zeiten werden offen besprochen. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: GRUNDSÄTZLICH INTERESSIERT an und schätzt Freunde/Partner/Dates, obwohl die Antworten auf einige geringfügige oder fragliche Einschränkungen deuten. Grundsätzliches Bedürfnis nach und Motivation sich auf Freundschaften ein zulassen. Hat Freundschaften/partnerschaftliche Beziehungen, in denen gute und schlechte Zeiten besprochen werden können, obwohl dies weniger konsistent sein kann. Leichte Defizite im Hinblick auf die Initiierung und das Aufrechterhalten von regelmäßigen Interaktionen mit Freunden/Partnern/Dates. Wenn keine Freunde/partnerschaftliche Beziehungen vorhanden, dann werden diese vermisst; motiviert Freundschaften/ partnerschaftliche Beziehungen zu haben; Anstrengungen Freunde/Partner/Dates zu suchen.

2 = Moderates Defizit: ETWAS INTERESSIERT an Freundschaften/ partnerschaftliche Beziehungen, die als einigermaßen wichtig erachtet werden. Vermisst hin und wieder enge Verbindungen zu Freunden/Partnern/Dates aber ist lediglich etwas motiviert, Freundschaften/ partnerschaftliche Beziehungen zu haben. Deutlich wahrnehmbares Defizit beim Initiieren und anhaltendem Engagement in Interaktionen; begrenztes Besprechen von guten und schlechten Zeiten. Interaktionen mit Freunden/Partnern/Dates können auftreten, sind aber größtenteils oberflächlich und durch „routinemäßige Skripte“ charakterisiert; Interaktionen finden auf Initiative der Anderen statt, mit meist passiver Einbeziehung des/r Patienten/in. Wenn kein Freund/Partner/Date, dann nur etwas Motivation Freunde/Partner/Dates zu haben; fast nie, wenn überhaupt, wird etwas unternommen Freundschaften/partnerschaftliche Beziehungen zu suchen.

3 = Mäßig schweres Defizit: WENIG INTERESSIERT an Freundschaften/partnerschaftlichen Beziehungen (“macht, was Ihr wollt”), und Freunde/Partner/Dates werden nicht als wichtig beschrieben. Motivation hinsichtlich Freundschaften wird kaum berichtet und genauso gerne wäre der/die Patient/in alleine. Kontakt und Engagement zu anderen sind oberflächlich und passiv, Initiierung und Bemühungen gehen fast alle von Anderen aus.

4 = Schweres Defizit: KEIN INTERESSE an Freundschaften/partnerschaftlichen Beziehungen, welche als überhaupt nicht wichtig erachtet werden. Das Alleinsein wird bevorzugt und keinerlei Motivation, Freunde/Partner/Dates zu haben, vorhanden.

2.2 Spezifische Hinweise

1. Ein Freund kann jemand sein, mit dem die Person Zeit verbringt, jemand den die Person als Freund betrachtet oder jemand auf den sich die Person verlassen und zählen kann.

2. Es ist wichtig sicherzustellen, dass sich das Interesse an partnerschaftlichen Beziehungen auf Interesse an einer engen persönlichen Beziehung und nicht auf ausschließliches Interesse an einem Partner für Sex und physiologische Befriedigung bezieht.

3. Wenn eine Person nur einen Freund erwähnt, aber diesen sehr schätzt und in engem Kontakt steht , sowie gute und schlechte Zeiten mit diesem bespricht, dann kann die befragte Person einen Wert von 0 bekommen.

4. Behandler und Angestellte werden nicht als Freunde gezählt (auch wenn die befragte Person diese dazu zählt).

5. Kollegen sowie andere Teilnehmer in Behandlungs- oder Forschungsprogrammen (d.h. andere Patienten) können als Freunde gezählt werden, aber angemessenes Nachfragen muss die Art der Beziehung herausstellen und dass die Interaktionen nicht ausschließlich passiv sind.

2.3 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Der Befragte berichtet, dass er glaubt das Freundschaften / partnerschaftliche Beziehungen „schön zu haben“ sind und dass er „sehr enge Kumpel“, „gute Freunde“ hat, denen er vertraut. Er beschreibt häufige informelle Kontakte (sich während der Termine treffen) sowie organisierte wöchentliche Kartenspiele während derer er Witze macht und über die Familien spricht. Der Befragte initiiert diese regelmäßig und wünscht sich dass er seine Freunde/Partnerin häufiger sehen könnte. Der Befragte merkt an, dass er „sie wirklich vermissen“ würde, wenn er keine aktuellen Freunde hätte. Der Befragte berichtet, dass er an zwei Abenden der letzten Woche Dates mit seiner Freundin hatte. Er berichtet, dass diese Beziehung ihm wichtig sei, und dass er fast jeden Abend Telefonate mit ihr initiiert und dass er Unternehmungen für ihre Dates arrangiert.

1. *Leichtes Defizit:* Der Befragte berichtet, dass er einen Freund hat der in seiner Wohngruppe lebt und beschreibt diesen als „eine gute Unterstützung“ wenn er traurig ist. Sie sehen einander regelmäßig und besprechen einige Themen, der Befragte merkt jedoch außerdem an, dass diese Unterhaltungen sich gewöhnlich auf eher oberflächliche Inhalte konzentrieren, inklusive auf ihr geteiltes Interesse an Sport. Er ist motiviert seinen Freund zu sehen, sucht ihn aber nicht immer auf.

2. *Moderates Defizit:* Die Befragte hat niemanden, den sie als Freund betrachtet, aber würde gerne jemanden haben, da „es gut ist Freunde zu haben“. Beschreibt, dass sie es vermisst einen Freund zu haben, aber sagt auch dass es „keine große Sache“ ist. Sie berichtet, dass sie versucht hat Freunde zu finden, kann sich aber nicht wirklich an spezifische Beispiele erinnern, was genau sie getan hat. Sie sagt, dass sie aktuell keine partnerschaftliche Beziehung hat, aber gerne jemanden kennenlernen würde. Sie merkt jedoch an, dass sie in der letzten Woche nichts getan hat um jemanden für eine partnerschaftliche Beziehung kennenzulernen.

3. *Mäßig schweres Defizit:* Die Befragte beschreibt „Freunde“ in der Nachbarschaft, aber diese sind eigentlich zufällige Begegnungen die beinhalten „hallo zu sagen“ oder kurz über das Wetter zu sprechen. Die Befragte hat keine Kontakte außerhalb dieser zufälligen Begegnungen und drückt kein Interesse daran aus, engere Bindungen zu den Nachbarn zu erzielen („Ich mag es, wie die Dinge sind“). Wenn sie gefragt wird, ob sie tiefergehende Freundschaften schließen möchte, zuckt sie mit den Schultern und merkt an, dass dies „okay“ wäre, aber dass sie ebenso „gut alleine zurechtkommt“. Sie bemerkt, dass sie gerne einen Partner für Dates hätte, aber sagt ebenso dass sie glaubt, dass dies den „Aufwand“ nicht wert sei. Die Befragte hat sich nicht bemüht eine Freundschaft oder partnerschaftliche Beziehung aufzubauen.

4. *Schweres Defizit:* Der Befragte hat keine Freunde/partnerschaftliche Beziehung und bemerkt, dass er nicht glaubt, dass Freunde wichtig sind und bevorzugt es allein zu bleiben. Er berichtet es nicht zu vermissen einen Freund zu haben („Ich denke da noch nicht einmal dran“) und hat kein Interesse daran Freundschaften zu knüpfen oder sich auf eine partnerschaftliche Beziehung einzulassen.

ITEM 3: HÄUFIGKEIT VON ERFREULICHEN SOZIALEN AKTIVITÄTEN – LETZTE WOCHE

3.1 Definition

Dieses Item misst die Häufigkeit von erfreulichen oder angenehmen sozialen Erlebnissen während der letzten Woche – d.h. Konsumatorische Freude.

3.2 Rating-Grundlage

Die Ratings für Freude in der letzten Woche werden auf Grundlage des Berichtes der Person über ihre erfreulichen Erlebnisse von sozialen Interaktionen während der letzten Woche getroffen. Die Beziehungen (Familie, (Ehe-/Lebens-)Partner, Freunde, die für die Items 1 und 2 aufgelistet wurden, werden hier ebenso berücksichtigt, so wie jede erfreuliche Erfahrung aus anderen sozialen Interaktionen. **Häufigkeitsratings von sozialer Freude während der letzten Woche werden auf die Anzahl an Tagen gestützt, von denen die Person berichtet, dass sie an diesen erfreuliche Erlebnisse gehabt hat.**

3.3 Ankerpunkte

- **0 = Keine Beeinträchtigung:** Erfreuliche Interaktion täglich erlebt.
- **1 = Leichtes Defizit:** Erfreuliche Interaktion 5-6 Tage erlebt.
- **2 = Moderates Defizit:** Erfreuliche Interaktion 3-4 Tage erlebt.
- **3 = Mäßig schweres Defizit:** Erfreuliche Interaktion 1-2 Tage erlebt.
- **4 = Schweres Defizit:** Keine erfreuliche Interaktion berichtet.

3.4 Spezifische Hinweise

1. Der Rater sollte die Häufigkeit von sozialen Interaktionen nicht mit der Häufigkeit von erlebter Freude verwechseln. Einige Leute berichten vielleicht häufige soziale Interaktionen und den Wunsch nach diesen, aber es könnte sein dass viele der konkreten erlebten Ereignisse in der letzten Woche in Wirklichkeit stressig oder unangenehm und nicht erfreulich waren.

2. Der Zeitrahmen schließt soziale Interaktionen ein, die während der letzten Woche stattfanden. Obwohl die Ratings darauf abzielen die Häufigkeit der Freude in dem eigentlichen Moment zu erfassen, also die erlebte Freude während man mit anderen zusammen war, erfordern die Interviewfragen notwendigerweise das Zurückdenken der Person an die letzte Woche. Daher wird das Erinnern von erfreulichen Aktivitäten und Interaktionen erforderlich, um die Interviewfragen zu beantworten.

3. Die Interviewer sollen die weiterführenden Fragen für die „Häufigkeit von Freude"-Items verwenden, um die Art der Freude zu erfassen und nicht einfach eine „Ja"-Antwort akzeptieren (z.B. „Sagen Sie mir, was Sie daran erfreulich fanden" oder „Was genau fanden Sie erfreulich?"). Im Allgemeinen ist das Ziel, dass die befragte Person über die Freude im Detail spricht um die Glaubwürdigkeit der „Ja" Antwort zu untermauern und zu erfassen, dass die Erfahrung wirklich erfreulich war. **Die Rater sollten nur solche Fälle bewerten, in denen es etwas Elaboration der erlebten Freude gibt.** Diese Fragen werden es dem Rater außerdem ermöglichen zu bestimmen, ob die Freude von der sozialen Interaktionen gewonnen wurde und nicht von anderen Aspekten des Ereignisses (während einer Mahlzeit mit Verwandten das Essen genießen und nicht die Interaktion mit den Verwandten). Das Wort *Freude* muss nicht benutzt werden; genießen, Vergnügen, Spaß, mögen oder andere Synonyme können verwendet werden

4. Wenn eine Person eine Anzahl von verschiedenen sozialen Aktivitäten berichtet die erfreulich waren, könnte es unklar sein, ob diese Aktivitäten am selben Tag oder an denselben Tagen überlappt haben oder ob sie sich über verschiedene Tage erstreckt haben. Diese Festlegung ist wichtig für die Häufigkeitsratings, da sie sich auf die Anzahl an Tagen an denen erfreuliche Interaktionen stattfanden, nicht auf die Gesamtanzahl von angenehmen sozialen Begegnungen beziehen. Nachdem die spezifischen Informationen genannt wurden sollte der Rater fragen an wie vielen Tagen diese Ereignisse auftraten. Wenn es eine Vielzahl an sozialen Ereignissen gab, könnte der Rater es leichter finden zu klären ob es Tage gab, an denen die Person *keine* erfreulichen Aktivitäten hatte.

5. Die Ratings werden auf JEDE Person bezogen, die die befragte Person auf die Frage erwähnt (unabhängig von der „Qualität" der Interaktion) – d.h. relevante soziale Interaktionen sind nicht nur beschränkt auf Familie, (Ehe)Partner, Freunde oder Dates die während der Items 1 oder 2 des CAINS genannt werden. Behandler können in das Rating einbezogen werden.

3.5 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die Befragte berichtet von fast täglichen Telefonaten mit ihren Eltern die durchgehend erfreulich sind. Sie sieht ihren Partner mehrfach in der Woche und genießt jede dieser Begebenheiten. Sie berichtet erfreuliche soziale Aktivitäten mit ihrer Kirchengruppe vier Tage in der letzten Woche. Im Allgemeinen, über die Aktivitäten hinweg, berichtet sie eine erfreuliche soziale Begegnung an jedem Tag in der letzten Woche.

1. *Leichtes Defizit:* Der Befragte berichtet, dass er während der letzten Woche regelmäßig erfreuliche soziale Aktivitäten mit seiner Freundin hatte, mit Ausnahme des Wochenendes, an dem sie außerhalb der Stadt war. Während dieser Zeit war er alleine und hatte keine anderen sozialen Aktivitäten. Er empfand während 5 der letzten 7 Tagen Freude aufgrund von sozialen Aktivitäten.

2. *Moderates Defizit:* Der Befragte berichtet von zwei erfreulichen Abendessen mit seiner Mutter (während derer er ihre Gegenwart und das Gespräch mit ihr genossen hat) und dass er seinen Nachbarn an einem weiteren Abend besucht hat. Außer an diesen drei Abenden hatte er keine anderen erfreulichen sozialen Aktivitäten.

3. *Mäßig schweres Defizit:* Die Befragte hatte eine soziale Interaktion als ihr Bruder vorbeikam um sie mit zum Einkaufen zu nehmen. Sie hat diesen Besuch genossen. Sie berichtet keine anderen erfreulichen sozialen Aktivitäten.

4. *Schweres Defizit:* Obwohl die Befragte zahlreiche soziale Aktivitäten berichtet, werden alle als stressig und schlimm beschrieben. Die Befragte berichtet von keiner erfreulichen sozialen Aktivität während der letzten Woche.

ITEM 4: HÄUFIGKEIT VON ERWARTETEN ERFREULICHEN SOZIALEN AKTIVITÄTEN – NÄCHSTE WOCHE

4.1 Definition

Dieses Item misst die Häufigkeit von erfreulichen oder angenehmen sozialen Aktivitäten, die für die nächste Woche erwartet werden – d.h. Antizipatorische Freude. Die Beziehungen (Familie, (Ehe-/Lebens-)Partner, Freunde, die für die Items 1 und 2 aufgelistet wurden, werden hier ebenso berücksichtigt, so wie jede erfreuliche Erfahrung aus anderen sozialen Interaktionen.

4.2 Rating-Grundlage

Die Ratings für erwartete Freude werden auf die Berichte der Person über erwartete Häufigkeit von Freude durch soziale Erlebnisse in der kommenden Woche gestützt. Dies bezieht sich spezifisch auf die vorhergesagte, zukünftige Freude (nicht auf die Freude die aktuell erfahren wird, wenn man die zukünftigen Ereignisse antizipiert). Da diese Ratings auf die Erhebung der Fähigkeit Freude vorherzusagen/zu erwarten zielen, erfordern die Fragen zwangsläufig dass die befragte Person sich die Zukunft vorstellt. Die Interviewfragen sind bewusst offen gehalten um die Fähigkeit zu erheben, antizipiert erfreuliche Aktivitäten zu generieren. **Häufigkeitsratings werden auf die berichtete Anzahl von erwarteten Ereignissen gestützt, unabhängig von den Tagen oder der Art von Erfahrungen.**

4.3 Ankerpunkte

0 = Keine Beeinträchtigung: VIELE (7 oder mehr) erfreuliche Erfahrungen werden erwartet.

1 = Leichtes Defizit: Freude durch EINIGE (5-6) erfreuliche Erfahrungen wird erwartet.

2 = Moderates Defizit: Freude durch EIN PAAR (3-4) erfreuliche Erfahrungen wird erwartet.

3 = Mäßig schweres Defizit: WENIGE (1-2) erfreuliche Erfahrungen werden erwartet.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen werden erwartet.

4.4 Spezifische Hinweise

1. Es gibt keine Vorgabe, dass eine Person erwarten soll Aktivitäten an allen Tagen der Woche zu genießen; der Fokus ist eher darauf, dass erwartet wird eine Vielzahl von erfreulichen Aktivitäten zu erleben, egal ob jeden Tag oder nur an ein paar Tagen. In anderen Worten, es wird die Anzahl von erwarteten erfreulichen Aktivitäten gezählt, ohne zu berücksichtigen an wie vielen Tagen die befragte Person erwartet diese zu erleben.

2. Die Anzahl an Aktivitäten wird gezählt, unabhängig von der Vielfalt der Aktivitätsarten. Wenn also eine Person sich zum Beispiel darauf freut zweimal in der Woche mit einem Familienmitglied zu sprechen, sind dies zwei Aktivitäten.

3. Dieser Abschnitt sollte auch durchgeführt werden, wenn es keine relevanten Erlebnisse von Freude während der letzten Woche gab. Das bedeutet, dass eine Person nur weil sie keine Freude in der letzten Woche berichtet, nichtsdestotrotz Freude in der nächsten Woche erwarten kann.

4. Die Einstufungen werden auf JEDE Person bezogen, die der Befragte auf die Frage benennt – d.h. relevante soziale Interaktionen sind nicht nur auf Familie, (Ehe)Partner, Freunde oder Dates die in den Items 1 und 2 des CAINS benannt werden bezogen. Behandler können in das Rating mit einbezogen werden.

4.5 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die Befragte freut sich auf tägliche erfreuliche Aktivitäten mit ihrem Partner, inklusive täglicher Spaziergänge. Sie berichtet erwartete Freude über zwei anstehende Telefonate mit ihren Eltern und ihrem Bruder.

1. *Leichtes Defizit:* Der Befragte erwartet Besuche seiner Nachbarn an drei Abenden in der nächsten Woche zu genießen. Er hat zwei Dates mit seiner Freundin geplant, von denen er glaubt dass sie erfreulich sein werden.

2. *Moderates Defizit:* Der Befragte erwartet, dass er sein wöchentliches Telefonat mit seiner Mutter genießen wird. Er erwartet, dass er ein Abendessen mit seinem Bruder genießen wird. Außerdem erwartet er, dass er es schön finden wird, seinen Freund nächste Woche einmal auf einen Kaffee zu besuchen.

3. *Mäßig schweres Defizit:* Die Befragte erwartet nur ein Abendessen mit ihren Eltern zu genießen. Sie berichtet von keinen anderen sozialen Aktivitäten, von denen sie glaubt, dass diese erfreulich sein werden.

4. *Schweres Defizit:* Der Befragte erwartet keine erfreulichen sozialen Aktivitäten.

II. ARBEIT & SCHULE: Motivation & Freude

ITEM 5: MOTIVATION FÜR ARBEITS- UND SCHULAKTIVITÄTEN

5.1 Definition

Beeinträchtigung in der Motivation für Arbeit und Schule wird im Sinne eines verminderten Interesses an, Wunsch nach und tatsächlicher Bemühung bei produktiver berufsbezogener oder Schulaktivität definiert. Das Item-Rating wird gestützt auf 1) internales Erleben der Motivation und 2) tatsächliche Initiierung und Aufrechterhaltung von aktiver Beteiligung bei der Arbeit, in der Schule oder in Ehrenämtern.

5.2 Aktivitäten, die in diesem Rating berücksichtigt werden

Die folgenden Arten von Aktivitäten können im Rating berücksichtigt werden:

- bezahlte Arbeit (Vollzeit oder Teilzeit, sowie Aktivitäten zur Jobsuche)
- Ehrenamtliche Arbeit (außerhalb des Behandlungsprogramms oder Aktivitäten zur Jobsuche)
- Bildungsaktivitäten (außerhalb des Behandlungsprogramms oder Aktivitäten zur Bildungssuche)
- Teilnahme an speziellen Arbeitsrehabilitations-Programmen (oder Suche nach Arbeitsrehabilitation)

5.3 Rating-Grundlage

Die Interviewfragen beziehen sich darauf, ein Gespräch über das internale Erleben (d.h. Level an Motivation, sich an produktiver Arbeit oder Schulaktivitäten zu beteiligen) auszulösen, sowie die Häufigkeit der Initiierung dieser Aktivitäten und Aufrechterhaltung der aktiven Teilnahme an diesen Aktivitäten zu erfahren. Beurteilungen von Ehrenamt/Bildungsmotivation sollen die internale Motivation der Person berücksichtigen, sich mit zielgerichteten Aktivitäten zu beschäftigen. Dementsprechend können Personen eingeschränkte Verhaltensmanifestationen von produktiven beruflichen oder Schulaktivitäten aufweisen, aber trotzdem ein relativ niedriges Rating auf diesem Item erhalten wenn sie Interesse und Motivation erleben.

5.4 Ankerpunkte

0 = Keine Beeinträchtigung: Patient/in ist SEHR MOTIVIERT Arbeit oder Schule aufzusuchen oder Chancen/neue Gelegenheiten bezüglich Arbeit oder Schule zu nutzen; Initiiert und hält Arbeit, Schule oder Arbeitssuche auf einer regelmäßigen Basis aufrecht. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: Patient/in ist GRUNDSÄTZLICH MOTIVIERT Arbeit oder Schule aufzusuchen oder Chancen/neue Gelegenheiten bezüglich Arbeit oder Schule zu nutzen; leichtes Defizit in der Initiierung und Aufrechterhaltung; berichtet eventuell Vorkommnisse der Initiierung aber mit moderater Aufrechterhaltung.

2 = Moderates Defizit: Patient/in ist ETWAS MOTIVIERT Arbeit oder Schule aufzusuchen oder Chancen/neue Gelegenheiten bezüglich Arbeit oder Schule zu nutzen; deutlich wahrnehmbares Defizit in der Initiierung; hat eventuell Aktivitäten angefangen, aber brauchte gelegentlich Erinnerungen und/oder hat keinerlei neue Aktivitäten angefangen, und/oder nicht lange aufrechterhalten.

3 = Mäßig schweres Defizit: Patient/in ist nur WENIG MOTIVIERT Arbeit oder Schule, bzw. neue Gelegenheiten für Arbeit oder Schule aufzusuchen; erhebliches Defizit in der Initiierung; hat eventuell kontinuierliche Erinnerungen gebraucht und/oder wenige Aktivitäten initiiert; hat nicht lange angedauert.

4 = Schweres Defizit: Patient/in ist ÜBERHAUPT NICHT MOTIVIERT Arbeit/Schule aufzusuchen; fast kompletter Mangel an Initiierung und Aufrechterhaltung von Arbeit, Schule oder Jobsuche.

5.5 Spezifische Hinweise

1. Für diejenigen, die großes Interesse und viel Motivation berichten, aber kein eigentliches arbeits-/schul-/ehrenamtlich-tätiges bzw. arbeitssuchendes Verhalten aufzeigen: Ein Rating von „2" ist die am wenigsten beeinträchtigte Wertung, die eine solche Person erhalten kann (d.h. 0 oder 1 kann nicht vergeben werden).
2. Die Art der Tätigkeit, die als „Arbeit" oder berufliche Aktivität zählt, bedarf etwas das eine gewisse Ähnlichkeit eines festen Plans, Verantwortung und Zuverlässigkeit die Arbeit zu tun beinhaltet. Daher würde das Pfandwegbringen oder Blutspenden nicht dazu zählen, da dies eher ungenau bestimmt ist, keines Plans bedarf und nicht in der Peripherie von dem was man als Anstellung betrachtet auftaucht. Zu beachten ist allerdings, dass dies vor allem westliche Kulturen betrifft und Arten von Arbeit oder berufsbezogenen Aktivitäten in verschiedene Kulturen und Ländern variieren kann.
3. Personen die berichten an vielen Aktivitäten teilzunehmen da sie müssen (zum Beispiel für ein Arbeitsrehabilitations-Programm), diese Aktivitäten aber nicht initiieren, können ein stärker beeinträchtigtes Rating für „Motivation für Arbeits- und Schulaktivitäten" erhalten als Leute die weniger aktiv sind, eine kleine Anzahl an Aktivitäten aber selbst initiieren.
4. „Das Aufsuchen" neuer Erfahrungen innerhalb eines Jobs ist nicht der einzige Nachweis eines motivierten Verhaltens (z.B. werden viele Leute in einem etablierten Job keine neuen Möglichkeiten aufsuchen) – das Aufsuchen ist nur eine potenzielle Quelle für Beurteilungen. Die Aufrechterhaltung der aktiven Teilnahme an Arbeitsaktivitäten wird ebenso berücksichtigt.
5. Wenn eine Person Teilzeit arbeitet, kann sie dennoch eine „0" erhalten.
6. Wenn alle Arbeitsanforderungen erfüllt werden (ohne Defizite oder Schwierigkeiten) aber das Individuum nichtsdestotrotz wenig Motivation berichtet, dann würde ein Wert von 1 oder 2 angemessen sein.
7. Was das Zählen von therapeutischen Aktivitäten als „Schule" betrifft, ist nur das Teilnehmen an Arbeitsrehabilitations-Programmen relevant. Keine andere Art von therapeutischer Aktivität, Gruppe oder Kurs ist relevant.
8. Wenn eine Person Erinnerungen braucht um berufsbezogene Aktivitäten durchzuführen, könnte dies aus motivationalen oder kognitiven Gründen sein. Stellen Sie sicher, dass Sie hier weitere Fragen stellen um dies festzustellen.

5.6 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die Befragte drückt eine starke Motivation für Arbeits-/Schulleistung aus. Sie hat eine Voll- oder Teilzeit, wettbewerbsfähige und bezahlte Stelle oder ist in der Schule eingeschrieben und sieht dies als sehr wichtig an. Wenn sie arbeitslos ist, dann verbringt sie viel Zeit mit der Jobsuche und darauf bezogene Aktivitäten. Sie vervollständigt alle arbeits-/schulbezogenen Aufgaben mit einem hohen Grad an Enthusiasmus und Verpflichtung.

1. *Leichtes Defizit:* Der Befragte drückt konsistentes Interesse und Motivation aus sich in Arbeits- oder Schulaufgaben zu betätigen und zeigt auch tatsächliche Betätigung in Arbeits- und Schulaktivitäten. Er vervollständigt die meisten arbeits-/schulbezogenen Aufgaben, lässt aber

gelegentlich auch Dinge schleifen. Wenn arbeitsunfähig, dann engagiert er sich in ehrenamtlicher Arbeit, Gelegenheitsjobs oder Arbeitsrehabilitations-Aktivitäten mit einigermaßen konsistenten Fertigstellungen der Jobanforderungen.

2. *Moderates Defizit:* Die Befragte glaubt, dass es wichtig ist mit Arbeit/Schule zurechtzukommen, ist aber nicht sonderlich interessiert an diesen Aktivitäten. Kann in gleichwertigen Voll- oder Teilzeitstellen / Schulaktivitäten involviert sein, ist aber nicht sonderlich besorgt darüber, die Dinge schleifen zu lassen. Macht wenig Schritte um interessantere Aktivitäten aufzusuchen.

3. *Mäßig schweres Defizit:* Der Befragte zeigt minimales Interesse an Arbeits- / Schulaktivitäten und niedrige Motivation sich daran zu beteiligen. Falls er arbeitet/zur Schule geht, weist er typischerweise nur ein „routinemäßiges Abspulen" der Tätigkeiten auf und benötigt Aufforderung von anderen. Er hat wenig Sorge darüber Verantwortlichkeiten zu erfüllen – verfehlt möglicherweise häufig das Erfüllen dieser. Könnte häufige Erinnerungen oder Ermutigungen brauchen um an diesen Aktivitäten teilzuhaben. Wenn arbeitslos/aus der Schule raus, macht er nur oberflächliche Bemühungen um Arbeit oder Schulaktivitäten aufzusuchen.

4. *Schweres Defizit:* Kein Interesse an Arbeits-, Schul- oder Arbeitsrehabilitations-Aktivitäten teilzunehmen. Macht im Prinzip keine Bemühungen diese Aktivitäten zu initiieren. Wenn durch andere gezwungen an diesen Aktivitäten teilzunehmen, bleibt sie selten - wenn überhaupt - dabei teilzunehmen und die Arbeiten zu vervollständigen.

ITEM 6: HÄUFIGKEIT VON ERWARTETEN ERFREULICHEN ARBEITS- UND SCHULAKTIVITÄTEN – *NÄCHSTE* WOCHE

6.1 Definition

Dieses Item misst die Häufigkeit von erfreulichen oder angenehmen Erfahrungen die während berufsbezogener Aktivitäten in der nächsten Woche erwartet werden – d.h. Antizipatorische Freude.

Zu beachten ist, dass das Bewerten der Freude im Arbeits- und Schulbereich auf *erwartete* zukünftige Freude beschränkt ist. Das ist anders als bei den Ratings der anderen MAP Bereiche (d.h. Sozial und Freizeit) die beides, sowohl vergangene als auch erwartete Ratings von Freude mit einbeziehen. Die Ratings vergangener Freude durch Arbeit und Schule sind aufgrund von Befunden nicht im CAINS eingeschlossen, die zeigten dass die Einschätzungen von berufsbezogener Freude der letzten Woche häufig fehlten, da viele Teilnehmer nicht in einer relevanten Rolle (Arbeit, Schule, Ehrenamt) sind und daher keine erfahrene vergangene Freude berichten konnten (siehe Literatur). Vielmehr waren die Beurteilungen der letzten Woche stark korreliert mit der *erwarteten* Freude, was impliziert dass das „Erwartete Freude"-Item arbeits- und schulbezogene Freude messen kann. Daher erfasst die CAINS nur erwartete Freude für Arbeits- und Schulaktivitäten.

6.2 Rating-Grundlage

Die Ratings für erwartete Freude werden auf den Bericht der befragten Person über erwartete Häufigkeit von Freude durch Arbeits- oder Schulerfahrungen in der kommenden Woche gestützt. Genauer bedeutet dies, dass die Beurteilungen auf die Beschreibungen der Person basieren, wie oft sie erwartet in der nächsten Woche berufsbezogene Freude zu empfinden. Dies bezieht sich

spezifisch auf vorhergesagte/erwartete Freude und nicht auf Freude die gegenwärtig empfunden wird, wenn man die zukünftige Erfahrung antizipiert. Da diese Ratings auf die Erhebung der Fähigkeit Freude vorherzusagen/zu erwarten zielen, erfordern die Fragen zwangsläufig, dass die befragte Person sich die Zukunft vorstellt. Wie für andere Aspekte des Interviews beginnen die offenen Interviewfragen mit einigen „Hinweisen" für Arbeitserfahrungen. **Häufigkeitsratings werden auf die Anzahl von erwarteten Ereignissen gestützt, unabhängig von den Tagen oder der Art von Erfahrungen.**

6.3 Ankerpunkte

0 = Keine Beeinträchtigung: VIELE (7 oder mehr) erfreuliche Erfahrungen werden erwartet.

1 = Leichtes Defizit: EINIGE (5-6) erfreuliche Erfahrungen werden erwartet.

2 = Moderates Defizit: EIN PAAR (3-4) erfreuliche Erfahrungen werden erwartet.

3 = Mäßig schweres Defizit: WENIGE (1-2) erfreuliche Erfahrungen werden erwartet.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen werden erwartet.

6.4 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Der Befragte erwartet sich an den morgendlichen Projekt-Meetings (5x), an vier Einzel-Meetings mit Kollegen und am Besuchen von zwei Fortbildungen für ein neues Computer-Programm, sowie am täglichen Arbeiten mit Kunden zu erfreuen.

1. *Leichtes Defizit:* Der Befragte erwartet zwei Treffen mit jemandem, den er supervidiert und zweimal das Suchen einer neuen Stelle, zu der er seinen Lebenslauf senden kann, zu genießen.

2. *Moderates Defizit:* Die Befragte erwartet, sich daran zu erfreuen zweimal nächste Woche zur Bibliothek zu gehen um Jobmöglichkeiten zu recherchieren; außerdem hat sie ein Vorstellungsgespräch arrangiert, auf das sie sich freut.

3. *Mäßig schweres Defizit:* Die Befragte erwartet sich an der Teilnahme von Ausbildungs-Kursen an zwei Tagen der nächsten Woche zu erfreuen.

4. *Schweres Defizit:* Keine erfreulichen Erfahrungen werden in der nächsten Woche erwartet.

III. FREIZEIT: Motivation & Freude

ITEM 7: MOTIVATION FÜR FREIZEITAKTIVITÄTEN

7.1 Definition

Eine Beeinträchtigung in der Motivation für Hobbies und Freizeit wird im Sinne einer verminderten Motivation für, Interesse an, Wunsch nach und tatsächlicher Beteiligung an Hobbies oder

Freizeitaktivitäten definiert. Das Item-Rating wird gestützt auf 1) internales Erleben von Motivation und 2) tatsächliche Initiierung und Aufrechterhaltung von aktiver Teilnahme an Hobbies oder Freizeitaktivitäten.

7.2 Aktivitäten, die in diesem Rating berücksichtigt werden

Jede selbst-definierte Art von Hobby oder Freizeitaktivität wird in diesem Rating berücksichtigt. Das heißt, dass dieses Rating sich auf jene Aktivitäten bezieht, die eine Person in ihrer oder seiner freien Zeit macht, und kann Dinge einschließen wie Lesen, TV gucken, Sport machen, Sport angucken/anhören, Videospiele spielen, Musik machen, Musik hören, Computer, Bewegung, zur Kirche gehen, mit Haustieren spielen, Spielen, Handwerken, usw.

7.3 Rating-Grundlage

Die Interviewfragen sollen eine Besprechung der internalen Erfahrung (d.h. Level an Motivation sich an Freizeitaktivitäten zu beteiligen), der Häufigkeit der Initiierung solcher Aktivitäten und Aufrechterhaltung der aktiven Beteiligung an diesen Aktivitäten auslösen. Ratings der Freizeitmotivation sind darauf ausgelegt die internale Motivation der Person für die Ausführung zielgerichteter Aktivitäten zu betonen. Dementsprechend können Leute eine eingeschränkte Verhaltensmanifestierung von Freizeitaktivitäten aufweisen, aber dennoch ein relativ niedriges Rating auf diesem Item erhalten, wenn sie Interesse an und Motivation für die Beteiligung an zielgerichteten Aktivitäten erleben.

7.4 Ankerpunkte

0 = Keine Beeinträchtigung: Patient/in ist SEHR MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; Initiiert und hält Hobbies und Freizeitaktivitäten auf einer regelmäßigen Basis aufrecht. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: Patient/in ist GRUNDSÄTZLICH MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; leichtes Defizit in der Initiierung und Aufrechterhaltung; berichtet eventuell Vorkommnisse der Initiierung von Hobbies und Freizeitaktivitäten, aber mit moderater Aufrechterhaltung.

2 = Moderates Defizit: Patient/in ist ETWAS MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; Deutlich wahrnehmbares Defizit in der Initiierung; hat eventuell einige Aktivitäten angefangen und/oder nicht lange aufrechterhalten. Andere waren eher die Initiatoren von Hobbies und Freizeitaktivitäten.

3 = Mäßig schweres Defizit: Patient/in ist nur WENIG MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; erhebliches Defizit in der Initiierung und Aufrechterhaltung; hat eventuell wenige Aktivitäten angefangen aber nicht lange beibehalten. Andere waren viel mehr die Initiatoren von Hobbies und haben zu Aktivitäten aufgefordert.

4 = Schweres Defizit: Patient/in ist ÜBERHAUPT NICHT MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; fast kompletter Mangel an Initiierung und Aufrechterhaltung von Hobbies und Freizeitaktivitäten.

7.5 spezifische Hinweise

1. Regelmäßige Initiierung und Aufrechterhaltung von Beschaffung/Konsum von Alkohol und Drogen wird nicht als sinnvolles Hobby oder Freizeitaktivität berücksichtigt.
2. Passives TV schauen oder Radiohören (z.B. „was auch immer gerade läuft“) wird nicht als motiviertes Verhalten berücksichtigt.
3. Wenn eine Person berichtet nur ein Hobby oder Aktivität zu haben aber sehr motiviert ist, dieses zu tun und Initiierung und Aufrechterhaltung zeigt, ist ein Rating von 0 berechtigt.
4. Relevante Freizeitaktivitäten die während der Items bezogen auf soziale Aktivitäten besprochen werden, können hier ebenfalls gezählt werden.

7.6 Illustrative Vignetten

0. *Keine Beeinträchtigung*: Der Befragte drückt eine starke Motivation für und Interesse an Hobbies aus. Er spielt jeden Tag Videospiele, guckt jeden Tag um 17 Uhr die Nachrichten und hört jeden Tag Musik. Er initiiert und hält diese Aktivitäten aufrecht, ohne dass er Erinnerungen oder andere Aufforderungen benötigt.

1. *Leichtes Defizit:* Die Befragte drückt eine im Allgemeinen starke Motivation für tägliches Spazierengehen, Talk-Berichte im Radio und das Puzzeln aus. Nur ein paar Mal in der letzten Woche wurde die Aktivität angefangen, aber aufgrund eines Mangels an weiterem Interesse zur Seite getan.

2. *Moderates Defizit:* Der Befragte berichtet während der letzten Woche ein erhebliches Interesse am Kartenspielen mit anderen Leuten gehabt zu haben, dies aber nicht getan hat. Er berichtet, motiviert zu sein, Radio zu hören, aber es nur einmal während der Woche angeschaltet zu haben. Gewöhnlich ist er motiviert zweimal die Woche zur Kirche zu gehen, ist aber nur einmal, nach der Aufforderung seiner Mutter, gegangen.

3. *Mäßig schweres Defizit:* Die Befragte drückt minimales Interesse an Hobbies aus und sagt, dass sie nicht viel Motivation hatte diese Aktivitäten während der letzten Woche auszuführen. Sie fühlte sich nicht danach, Gitarre zu spielen oder ihre Lieblings-Soap im Fernsehen zu schauen. Sie machte den Fernseher ein paar Mal an, guckte aber nicht das ganze Programm. Es war ihr egal, Radio zu hören oder Schaufensterbummeln zu gehen, was sie gewöhnlich an Samstagen macht. Sie schaute sich neue Homepages mit ihrer Schwester an, aber nur, weil diese sie darum gebeten hatte.

4. *Schweres Defizit:* Der Befragte berichtet von keiner Motivation dafür irgendetwas in seiner freien Zeit zu tun, außer rumzuliegen oder zu schlafen. Er ist gewöhnlich motiviert sich mit seinem Nachbarn auf der Veranda zu unterhalten und zu schauen, was gerade im TV läuft, fühlte sich aber in der letzten Woche nicht motiviert diese Dinge zu tun. Er grüßte seinen Nachbarn als er das Haus zu einem Arzttermin verließ, ging aber darüber hinaus nicht nach draußen um sich auf die Veranda zu setzen. Er guckte sich keinen Sport an, obwohl seine Familie ihn darum bat.

ITEM 8: HÄUFIGKEIT VON ERFREULICHEN FREIZEITAKTIVITÄTEN – *LETZTE* WOCHE

8.1 Definition

Dieses Item misst die Häufigkeit von erfreulichen oder angenehmen Erlebnissen während Hobbies oder Freizeitaktivitäten in der letzten Woche – d.h. Konsumatorische Freude

8.2 Rating-Grundlage

Beurteilungen der Häufigkeit von erfreulichen Freizeitaktivitäten in der letzten Woche werden auf die Berichte der Person über ihre Erfahrungen von Freude durch Hobbies oder Freizeit-/ Erholungsaktivitäten während der letzten Woche gestützt. Im Gegensatz zu den erfreulichen sozialen oder berufsbezogenen Aktivitäten, **bedarf dieses Item einer *Vielfalt* an Aktivitäten, sowie das tägliche Erleben von erfreulichen Aktivitäten um einen Wert von 0 zu bekommen.** Das bedeutet, dass die Person mehr als eine erfreuliche Erfahrung jeden Tag berichten muss um einen Wert von 0 zu erzielen. Jeden Tag fernzusehen, wenn aktiv an daran teilgenommen, würde nicht ausreichen um einen Wert von 0 zu rechtfertigen. Daher werden die Häufigkeitsratings darauf gestützt wie viele eindeutige und verschiedene erfreuliche Erlebnisse die Person beschreibt, sowie auf die Anzahl an Tagen an denen diese als erfreulich erlebt wurden. Wie bei allen Freude-Ratings, ist es wichtig nach der Freude oder dem Spaß zu fragen, das bedeutet sicher zu gehen hinterfragt zu haben, was an der bestimmten Aktivität erfreulich war.

8.3 Ankerpunkte

0 = Keine Beeinträchtigung: Zumindest EINIGE (3) verschiedene Arten von erfreulichen, *täglichen* Erfahrungen.

1 = Leichtes Defizit: Zumindest EINIGE (3) verschiedene Arten von erfreulichen Erfahrungen, an mehr Tagen gemacht als nicht gemacht.

2 = Moderates Defizit: 1 oder 2 verschiedene Arten von erfreulichen Erfahrungen, an mehr Tagen gemacht als nicht gemacht.

3 = Mäßig schweres Defizit: 1 Art von erfreulichen Erfahrungen, an nur ein paar Tagen erlebt.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen.

8.4 Spezifische Hinweise

Der Beurteiler muss die Vielfalt der Aktivitäten, sowie die Tage an denen die Aktivitäten erfreulich waren zählen. Um einen Wert von 1 zu erhalten, muss die Person EINIGE verschiedene Aktivitäten (d.h. 3 oder mehr verschiedene Hobbies oder Freizeitaktivitäten) nennen, die an mehr Tagen erfreulich waren als nicht (d.h. 3 bis 4 Tage). Um einen Wert von 0 zu erzielen muss eine Person EINIGE verschiedene Aktivitäten berichten, die jeden Tag erfreulich waren.

8.5 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die Befragte berichtet Spaß am Fernsehen und Musikhören an jedem Tag der letzten Woche. Sie hat es genossen an drei Tagen spazieren zu gehen. Sie erfreute sich jeden Tag daran mit ihrer Katze zu spielen sowie ein Kreuzworträtsel zu lösen.

1. *Leichtes Defizit:* Der Befragte berichtet Spaß am Videospielspielen an jedem Tag. Er hat es genossen an vier Tagen Filme und Sportereignisse an drei Tagen zu gucken. Er hatte an fünf Tagen Spaß am Fahrradfahren und an einem Tag am Basketballspielen.

2. *Moderates Defizit:* Der Befragte berichtet Spaß am täglichen Nachrichtengucken und am Essengehen in einem Restaurant mit seiner Freundin am Freitag. Er berichtet keine anderen erfreulichen Erlebnisse.

3. *Mäßig schweres Defizit:* Der Befragte berichtet es genossen zu haben am Samstag seine Mutter zu sehen und außerdem an zwei Tagen Radio zu hören.

4. *Schweres Defizit:* Es werden keine erfreulichen Erlebnisse in der letzten Woche berichtet.

ITEM 9: HÄUFIGKEIT VON ERWARTETEN ERFREULICHEN FREIZEITAKTIVITÄTEN – *NÄCHSTE* WOCHE

9.1 Definition

Dieses Item misst die Häufigkeit von erfreulichen oder angenehmen Erfahrungen die während Hobbies oder Freizeitaktivitäten in der nächsten Woche erwartet werden – d.h. Antizipatorische Freude.

9.2 Rating-Grundlage

Ratings für zukünftige Freude in der nächsten Woche werden auf die Berichte der Person über erwartete Häufigkeit von Freude durch Hobbies oder Freizeitaktivitäten in der kommenden Woche gestützt. Dies bezieht sich spezifisch auf vorhergesagte/erwartete Freude und nicht auf die Freude die gerade empfunden wird wenn man die zukünftigen Ereignisse antizipiert. Da diese Ratings auf die Erhebung der Fähigkeit Freude vorherzusagen/zu erwarten zielen, erfordern die Fragen zwangsläufig, dass die befragte Person sich die Zukunft vorstellt. Wie für andere Aspekte des Interviews beginnen die offenen Interviewfragen mit einigen „Hinweisen" zu Hobbies und Freizeitaktivitäten.

9.3 Ankerpunkte

0 = Keine Beeinträchtigung: VIELE (7 oder mehr) erfreuliche Erfahrungen werden erwartet.

1 = Leichtes Defizit: EINIGE (5-6) erfreuliche Erfahrungen werden erwartet.

2 = Moderates Defizit: EIN PAAR (3-4) erfreuliche Erfahrungen werden erwartet.

3 = Mäßig schweres Defizit: WENIGE (1-2) erfreuliche Erfahrungen werden erwartet.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen werden erwartet.

9.4 Spezifische Hinweise

1. Dieser Abschnitt sollte auch angewendet werden, wenn es keine relevanten Erlebnisse von Freude während der letzten Woche gab.

2. Die Anzahl von Aktivitäten wird gezählt, unabhängig von der Vielfalt der Art von Aktivität.

9.5 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die Befragte berichtet zu erwarten, dass sie jeden Tag das Fernsehen, jeden Tag das Videospielen, drei Mal das Ausgehen zum Mittagessen, das Spazierengehen, das Filmgucken am Freitag, sowie das Gehen zum Fitnessstudio genießen wird.

1. *Leichtes Defizit:* Der Befragte berichtet, dass er erwartet, zweimal Video, einmal im Internet spielen, einmal Skaten und einmal im Internet recherchieren, ob es neue Spiele gibt, genießen wird.

2. *Moderates Defizit:* Die Befragte berichtet zu erwarten, dass sie in der nächsten Woche jeweils einmal Fernsehen, Radiohören und Malen genießen wird.

3. *Mäßig schweres Defizit:* Die Befragte berichtet zu erwarten, dass sie in der nächsten Woche jeweils einmal Fernsehen und Malen genießen wird.

4. *Schweres Defizit:* Der Befragte berichtet keine erwarteten erfreulichen Freizeitaktivitäten für die nächste Woche.

Ausdruck/Expression (EXP) Skala

IV. Ausdruck/Expression

Items 10-13: Mimik, Vokaler Ausdruck, Gestik, und Sprache (Quantität)

Allgemeine Definition

Beeinträchtigung im Ausdruck wird im Sinne eines verminderten beobachtbaren Ausdrucks **von Emotion** und Reaktivität definiert. Das Item-Rating wird auf beobachtete spontane Emotionsausdrücke während des gesamten Interviews gestützt. Die Dimensionen des Emotionsausdruckes die beobachtet und unabhängig voneinander beurteilt werden sollen beinhalten: Mimik, vokaler Ausdruck und Gestik. Quantität der Sprache, d.h. die Menge an Sprache die während des gesamten Interviews produziert wird, wird ebenfalls eingestuft.

Allgemeine Rating-Grundlage

Die Ratings werden auf die während des gesamten Gesprächs beobachtete Fähigkeit der Person Emotionen auszudrücken gestützt. Sowohl die Häufigkeit als auch die Intensität der Ausdrücke werden hierbei berücksichtigt. Das Beobachten von Mimik, vokalem Ausdruck, Gestik und

Sprachquantität, während die befragte Person auf alle Abschnitte des Interviews antwortet, ist notwendig für das Rating am Ende des Interviews.

ITEM 10: MIMIK

10.1 Rating-Grundlage

Wenn Sie die Mimik beurteilen, berücksichtigen Sie Gesichtsbewegungen in allen Teilen des Gesichts, inklusive Augen (z.B. hochgezogene Augenbrauen), Mund (lächeln oder grimassieren), und mittlerem Gesicht (z.B. gerümpfte Nase wenn angeekelt).

10.2 Ankerpunkte

0 = Keine Beeinträchtigung: IM NORMALEN BEREICH; häufige Gesichtsausdrücke während des gesamten Interviews.

1 = Mildes Defizit: LEICHTE ABNAHME in der Häufigkeit der Gesichtsausdrücke, begrenzte Mimik in einzelnen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME in der Häufigkeit der Gesichtsausdrücke, verminderte Mimik in mehreren Interviewphasen.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von Gesichtsausdrücken, kaum Änderungen in der Mimik während fast des gesamten Interviews.

4 = Schweres Defizit: Gesichtsausdrücke während des gesamten Interviews PRAKTISCH NICHT VORHANDEN.

10.3 Spezifische Hinweise

Beobachten Sie Veränderungen und Bewegungen im gesamten Gesicht, während die Person über emotionale Erfahrungen berichtet. Beachten Sie, dass der Inhalt dessen was die Person sagt unter Umständen nicht kongruent mit dem Gesichtsausdruck ist.

10.4 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die komplette Bandbreite an Mimik wird gezeigt während Erlebnisse im Interview berichtet werden. Es gibt häufige Veränderungen im Gesichtsausdruck, welche den Inhalt der Unterhaltung widerspiegeln, breites Lächeln mit Mund und Augen, wenn ein lustiger Film beschrieben wird, eine erfreuliche Familienbegegnung und einen Ausflug nächste Woche auf den sie sich freut berichtet werden. Sie runzelt die Stirn, wenn sie ihre Bemühungen beschreibt einen Job zu findet und ihre Lippen sind angespannt.

1. *Leichtes Defizit:* Der Befragte ist während des Interviews im Allgemeinen recht ausdrucksstark und Mimik ist gewöhnlich vorhanden. Jedoch vermindert sich die Intensität der Ausdrücke während

einiger Teile des Interviews, als über erfreuliche soziale Aktivitäten mit Freunden in der letzten Woche gesprochen wurde. Das Lächeln ist weniger betont und das Stirnrunzeln weniger bemerkbar.

2. *Moderates Defizit:* Die Befragte zeigt eine allgemein verminderte Häufigkeit und Intensität von Mimik während verschiedener Teile des Interviews. Dies wird offensichtlich als über erfreuliche soziale Aktivitäten in der letzten Woche auf einer Party, die Freizeitaktivität des Anguckens einer Komödie und einen erwarteten Ausflug nächste Woche gesprochen wird. Das Lächeln ist während mehrerer Teile des Interviews schwach und die Mimik ist eindeutig vermindert.

3. *Mäßig schweres Defizit:* Der Befragte zeigt verminderte Mimik während er Beteiligung an familiären, sozialen und Freizeitaktivitäten beschreibt. Kaum beobachtbare Bewegungen des Mundes scheinen unregelmäßig.

4. *Schweres Defizit:* Während des gesamten Interviews verändert der Befragte seinen Gesichtsausdruck nicht.

ITEM 11: SPRECHEN (INTONATION)

11.1 Rating-Grundlage

Dieses Item bezieht sich auf prosodische Eigenschaften der Stimme. Das Item spiegelt Veränderungen in der Tonlage während des Sprechverlaufs wider. Sprechtempo, Menge oder Inhalt des Sprechens werden nicht erhoben.

11.2 Ankerpunkte

0 = Keine Beeinträchtigung: IM NORMALEN BEREICH; Normale Variation der vokalen Intonation während des Interviews. Die Sprache ist ausdrucksvoll und lebendig.

1 = Mildes Defizit: LEICHTE ABNAHME der Intonation, begrenzte Variation der Intonation in einigen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME der vokalen Intonation, verminderte Intonation in mehreren Interviewphasen. Wenig Intonations-Variabilität, prosodische Veränderungen treten vereinzelt auf.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von vokaler Intonation mit nur wenigen Veränderungen in der Intonation während fast des gesamten Interviews. Die Sprache ist meist flach, Variabilität fehlt, lediglich vereinzelte prosodischer Veränderungen.

4 = Schweres Defizit: Veränderungen der vokalen Intonation PRAKTISCH NICHT VORHANDEN, charakteristisch flache oder monotone Sprechweise während des gesamten Interviews.

11.3 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Prosodische Sprechweise mit ausreichender Variation der Intonation während Informationen im Interview gegeben werden. Die Sprache ist animiert und lebendig wenn

enge Beziehungen zur Familie und zu Freunden, Spaß in Freizeitaktivitäten - sowohl in der vergangenen Woche als auch erwartet in der nächsten Woche - beschrieben werden.

1. *Leichtes Defizit:* Die Sprechweise der Befragten ist im Allgemeinen recht ausdrucksvoll während des Interviews. Die Variabilität der Intonation ist allerdings während der Teile des Interviews vermindert in denen erfreuliche soziale Aktivitäten mit der Familie und Freunden während der letzten Woche gesprochen wird. Die Stimme zeigt weniger prosodische Veränderungen und ist monotoner.

2. *Moderates Defizit:* Der Befragte zeigt während mehrerer Teile des Interviews eine im Allgemeinen verminderte Variabilität im vokalen Ausdrucks. Die Stimme ist monoton als er über erfreuliche soziale Aktivitäten in der letzten Woche, so wie vom Besuch eines Freundes, dem Anschauen einer Komödie im Fernsehen und einem erwarteten aufregenden Ausflug nächste Woche spricht.

3. *Mäßig schweres Defizit:* Die Befragte hat einen eingeschränkten vokalen Ausdruck als sie Beteiligung an familiären, sozialen und Freizeitaktivitäten beschreibt. Es gibt eine kaum wahrnehmbare Veränderung in der Stimmintensität und die Prosodie ist meist monoton.

4. *Schweres Defizit:* Der Befragte zeigt kaum, wenn überhaupt, Veränderungen im vokalen Ausdruck während Beteiligung an familiären, sozialen und Freizeitaktivitäten beschrieben werden. Keine wahrnehmbare Veränderung in der Stimmintensität, die Prosodie ist monoton.

ITEM 12: GESTIK

12.1 Rating-Grundlage

Gestik wird verwendet um das verbal Kommunizierte zu untermauern - durch Gesten die mit Händen, dem Kopf (nicken), den Schultern (zucken), und dem Oberkörper (sich vor- und zurücklehnen) gemacht werden.

12.2 Ankerpunkte

0 = Keine Beeinträchtigung: IM NORMALEN BEREICH; häufige Gesten während des Interviews.

1 = Mildes Defizit: LEICHTE ABNAHME in der Häufigkeit der Gesten, begrenzte Gestik in einigen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME in der Häufigkeit der Gesten, fehlende Gestik in mehreren Interviewphasen.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von Gesten, wenig Gestik während fast des gesamten Interviews.

4 = Schweres Defizit: PRAKTISCH NICHT VORHANDENE Gestik.

12.3 Spezifische Hinweise

Das Item stützt sich auf die Häufigkeit von Gestik, unabhängig von der Vielfalt der verschiedenen Arten von Gesten.

12.4 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Während des Interviews entspannt sich der Befragte in seinem Stuhl, macht häufige Bewegungen mit seinen Händen und nickt bei Zustimmung, wirft sogar seinen Kopf zurück, als er eine erfreuliche Aktivität beschreibt und bewegt sich nach vorne um einen Punkt zu betonen.

1. *Leichtes Defizit:* Als sie eine erfreuliche Aktivität mit ihrer Familie, motivierte und erwartete erfreuliche Arbeitsaktivitäten, sowie Hobbies beschreibt, bewegt die Befragte ihre Hände und schüttelt ihren Kopf, jedoch ist die Häufigkeit ein wenig vermindert und ihr Körper zeigt mehr eingeschränkte expressive Bewegungen.

2. *Moderates Defizit:* Während der meisten besprochenen sozialen, Schul- und Freizeitaktivitäten hält der Befragte seinen Kopf geneigt, bewegt seine Hände nur ein paar Mal geringfügig und seine Körperhaltung verändert sich während der Unterhaltung wenig.

3. *Mäßig schweres Defizit:* Während des Interviews hält die Befragte ihre Hände und den Körper still und es gibt ein geringfügiges Schulterzucken, als gefragt wird wie sie sich fühlt. Dies passiert nur ein paar Mal während des ganzen Interviews.

4. *Schweres Defizit:* Es gibt fast keine Veränderungen in den Händen, der Kopfhaltung, den Armen oder anderen Körpergesten während der Erzählung jeglicher Aktivitäten.

ITEM 13: SPRACHE (QUANTITÄT)

13.1 Rating-Grundlage

Dieses Item bezieht sich auf die Quantität der gesprochenen Wörter. Andere Sprachabnormalitäten wie Desorganisiertheit, Neologismen oder psychotische Inhalte werden hier nicht beurteilt. Zum Beispiel kann eine desorganisierte Person eine große Quantität an Sprache produzieren und einen niedrigen (normalen) Wert in diesem Item erzielen.

13.2 Ankerpunkte

0 = Keine Beeinträchtigung: NORMALE MENGE gesprochener Worte während des Interviews. Antworten sind ausreichend elaboriert und informativ.

1 = Mildes Defizit: LEICHTE ABNAHME in der Menge der gesprochenen Worte, kurze Antworten in einigen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME in der Menge der gesprochenen Worte, kurze Antworten in mehreren Interviewphasen.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von Sprache, sehr kurze Antworten (nur wenige Wörter) während fast des gesamten Interviews.

4 = Schweres Defizit: Alle oder fast alle Antworten bestehen während des ganzen Interviews aus lediglich einem Wort oder zwei Wörtern.

13.3 Illustrative Vignetten

0. *Keine Beeinträchtigung:* Die Befragte antwortet detailliert. Sie berichtet spontan und ausreichend elaboriert von einer sozialen Begegnung oder einer Aktivität der letzten Woche.

1. *Leichtes Defizit:* Der Befragte geht im Allgemeinen auf die erforderte Information ein, elaboriert aber nicht spontan wenn die Freizeitaktivitäten Kino oder Buchlesen während der letzten Woche beschrieben werden. Die Antworten auf weiterführende Fragen sind während ein paar Teile des Interviews kurz.

2. *Moderates Defizit:* Die Befragte liefert während einiger Teile des Interviews knappe Antworten und elaboriert nicht auf Nachfrage.

3. *Mäßig schweres Defizit:* Antworten auf die meisten Fragen sind sehr kurz und Fragen lösen keine weiteren Details aus. Die Antworten bestehen aus einzelnen Wörtern (z.B. „ja“, „nein“) oder sehr kurzen Statements (z.B. „Es war ok“, „Es war gut“).

4. *Schweres Defizit:* Der Befragte verwendet in allen Teilen des Interviews die eindeutig kleinste Anzahl an Wörtern die für jede Antwort möglich ist (so wie „ja“, „nein“, „vielleicht“, „ich denke“, „weiß nicht“).

CLINICAL ASSESSMENT INTERVIEW FOR NEGATIVE SYMPTOMS (CAINS): AUSWERTUNGSBOGEN

ID: _____ Datum: _____ Untersucher/in _____

I. MOTIVATION UND FREUDE (MAP): SOZIALES

1. Motivation für enge Beziehungen (Familie, (Ehe)Partner/in)

2. Motivation für enge Freundschaften und (Liebes)Beziehungen

3. Häufigkeit von erfreulichen sozialen Aktivitäten – letzte Woche

4. Erwartete Häufigkeit von erfreulichen sozialen Aktivitäten – nächste Woche

II. MOTIVATION UND FREUDE (MAP): ARBEIT & SCHULE

5. Motivation für Arbeit- und Schulaktivitäten

6. Erwartete Häufigkeit von erfreulichen Arbeit- und Schulaktivitäten – nächste Woche

III. MOTIVATION UND FREUDE (MAP): FREIZEIT

7. Motivation für Freizeitaktivitäten

8. Häufigkeit von erfreulichen Freizeitaktivitäten – letzte Woche

9. Erwartete Häufigkeit von erfreulichen Freizeitaktivitäten – nächste Woche

IV. AUSDRUCKEXPRESSION (EXP) ITEMS

10. Mimik

11. Sprechen (Intonation)

12. Gestik

13. Sprache (Quantität)

MAP Gesamtpunktzahl: _____

EXP Gesamtpunktzahl: _____

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Clinical Assessment Interview for Negative Symptoms (CAINS)

CLINICAL ASSESSMENT INTERVIEW FOR NEGATIVE SYMPTOMS (CAINS)

Jack J. Blanchard, Raquel E. Gur, William P. Horan, & Ann M. Kring (alphabetically listed)

Deutsche Version (Maike Engel, & Tania M. Lincoln; © 06/08/13, All Rights Reserved)

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ID: _____ DATUM: _____ UNTERSUCHER/IN: _____

Einleitung: In diesem Interview werde ich Sie zu Dingen befragen, die Sie in der letzten Woche unternommen haben. Im ersten Teil geht es um Ihre Familie, Ihren Partner/Ihre Partnerin und Ihre Freunde, darum, wie motiviert Sie waren, Zeit mit diesen Menschen zu verbringen und wie sie sich in deren Nähe gefühlt haben.

I. SOZIAL (MOTIVATION & FREUDE)

ITEM 1: MOTIVATION FÜR ENGE BEZIEHUNGEN (FAMILIE, EHE/LEBENSPARTNER/IN)
[Bemerke: Partnerschaftliche Beziehungen können entweder mit Hilfe von Item 1 oder Item 2 bewertet werden, aber NICHT mit beiden. Dabei sollte eine Beziehungsform, bei der das Paar zusammenwohnt in Item 1, eine Beziehungsform, bei welcher das Paar nicht zusammenwohnt in Item 2 eingeschätzt werden.]

Die folgenden Fragen drehen sich um Ihre Familie. Damit gemeint sind Verwandte wie beispielsweise die Eltern, Brüder oder Schwestern und andere Verwandte, sowie Ihr/e Ehepartner/in (wenn verheiratet) oder Ihr/e Lebenspartner/in. Waren Sie in der letzten Woche mit einem Familienmitglied in Kontakt oder haben mit diesem gesprochen (persönlich, am Telefon oder per Email)? Gab es Kontakt zu Ihrem/r (Ehe) Partner/in?

WENN KONTAKT:
- *Mit wem waren Sie in Kontakt? Noch jemand anderes?*
- *Was haben Sie mit Ihrer Familie unternommen?*
- *WENN RELEVANT: Was haben Sie mit Ihrem/Ihrer (Ehe) Partner/in unternommen?*
- *Wie viel Zeit haben Sie zusammen verbracht?*

Verhalten
- *Was haben Sie in der vergangenen Woche gemacht um Ihre/n [Familie, (Ehe) Partner/in] zu sehen bzw. zu kontaktieren?*
- *Im Kontakt mit Ihrer/Ihrem [Familie, (Ehe) Partner/in], wer hat entschieden, was gemacht wird?*
- *Wer hat die Unterhaltung begonnen? Haben Sie begonnen? Ihr/e [Familie, (Ehe) Partner/in]? Waren Sie in das Gespräch eingebunden?*
- *Hatten Sie irgendwann den Wunsch, die Interaktionen mit Ihrer/Ihrem [Familie, (Ehe) Partner/in] rasch zu beenden? Haben Sie sich gewünscht, dass sie länger dauern?*

Motivation & Interesse nach Nähe

- *Waren Sie in der vergangenen Woche motiviert, mit Ihrer/Ihrem [Familie, (Ehe) Partner/in] in Kontakt oder in deren/dessen Nähe zu sein? Warum?*
- *Worüber haben Sie gesprochen/sich unterhalten? Können Sie sowohl über gute als auch über schlechte Zeiten mit Ihrer/Ihrem [Familie, (Ehe) Partner/in] sprechen?*
- *Wie nah fühlen Sie sich Ihrer/Ihrem [Familie, (Ehe) Partner/in]? Was verstehen Sie unter "nah"?*
- *Gab es in der vergangenen Woche Zeiten, in denen Sie nicht mit Ihrer/Ihrem [Familie, (Ehe) Partner/in] in Kontakt oder in deren/dessen Nähe sein wollten?*
- *Wie wichtig ist es Ihnen, ein Teil der Familie zu sein?*
- *Was ist Ihnen daran wichtig? Haben Sie dies in der vergangenen Woche gespürt?*

WENN KEIN FAMILIEN-KONTAKT:
[Bemerke: Dieser Abschnitt wird angewendet, wenn der/die Patient/in nicht Teil einer engen Familie ist oder wenn Verwandte zwar kontaktiert hätten werden können, der/die Patient/in sich jedoch dagegen entschieden hat. Befindet sich der/die Patient/in nicht in einer Ehe bzw. Lebensgemeinschaft, wird das Interesse für eine partnerschaftliche Beziehung in Item 2 eingeschätzt].

- *Hat Ihre Familie Sie in der vergangenen Woche zu kontaktieren oder zu besuchen versucht?*
- *Hat Sie irgendetwas davon abgehalten, in Kontakt mit Ihrer Familie zu sein?*
- *Wünschen Sie sich Ihrer Familie näher zu sein? ODER Wünschen Sie, Teil einer engen Familie zu sein?*
- *Haben Sie es in der vergangenen Woche vermisst, mit Ihrer Familie in Kontakt zu sein?*
- *Ist es Ihnen wichtig, eine Beziehung zur Familie zu haben? Was ist Ihnen daran wichtig?*
- *Haben Sie es bevorzugt, die Zeit alleine und nicht mit Ihrer Familie zu verbringen?*

ITEM 1: MOTIVATION FÜR ENGE BEZIEHUNGEN (FAMILIE, EHE/LEBENSPARTNER/IN)

0 = Keine Beeinträchtigung: SEHR INTERESSIERT an engen familiären Beziehungen, schätzt diese als einen der wichtigsten Bereiche des Lebens ein. Starkes Bedürfnis nach und Motivation in Kontakt mit der Familie zu sein. Initiiert und hält Interaktionen mit der Familie regelmäßig aufrecht und gestaltet diese aktiv mit. Gute und schlechte Zeiten werden offen besprochen. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: GRUNDSÄTZLICH INTERESSIERT an und schätzt enge/n familiäre/n Beziehungen, obwohl die Antworten auf einige geringfügige oder fragliche Einschränkungen deuten. Grundsätzliches Bedürfnis nach und Motivation den Kontakt mit der Familie aufrecht zu halten. Hat enge Beziehungen zu (einem) Familienmitglied/ern, in denen gute und schlechte Zeiten besprochen werden können. Leichte Defizite im Hinblick auf die Initiierung und das Aufrechterhalten von regelmäßigen familiären Interaktionen – grundsätzlich aktive Mitgestaltung sobald Interaktionen stattfinden.

2 = Moderates Defizit: ETWAS INTERESSIERT an familiären Beziehungen, die als einigermaßen wichtig erachtet werden. Vermisst hin und wieder enge familiäre Verbindungen aber ist lediglich etwas motiviert Interaktionen mit der Familie aufzusuchen. Deutlich wahrnehmbares Defizit beim Initiieren und anhaltendem Engagement in Interaktionen; begrenztes Besprechen von guten und schlechten Zeiten. Interaktionen mit Familienmitgliedern können auftreten, sind aber größtenteils oberflächlich und durch „routinemäßige Skripte" charakterisiert; Interaktionen finden auf Initiative der Familie statt, mit meist passiver Einbeziehung des/r Patienten/in.

3 = Mäßig schweres Defizit: WENIG INTERESSIERT an engen familiären Beziehungen ("macht, was Ihr wollt"), familiäre Verbindungen werden nicht als wichtig beschrieben. Motivation und Bemühungen hinsichtlich enger familiärer Beziehungen werden kaum berichtet. Hat selten Gespräche über gute und schlechte Zeiten mit Mitgliedern der Familie. Kontakt und Engagement mit der Familie sind oberflächlich und passiv, Initiierung und Bemühungen gehen fast alle von Anderen aus.

4 = Schweres Defizit: KEIN INTERESSE an familiären Beziehungen, welche als überhaupt nicht wichtig erachtet werden. Das Alleinsein wird bevorzugt und keinerlei Motivation in Kontakt mit der Familie zu sein, vorhanden. Wenn der/die Patientin die Familie sieht, verhält er/sie sich widerwillig, passiv und ohne Interesse.

ITEM 2: MOTIVATION FÜR ENGE FREUNDSCHAFTEN & PARTNERSCHAFTLICHE BEZIEHUNGEN
Lassen Sie uns nun über Freunde (und partnerschaftliche Beziehungen/Dates) reden. Mit Freunden meine ich Leute, die Sie kennen und mit denen Sie Zeit verbringen, jeden den Sie als Freund ansehen, oder Leute auf die Sie sich verlassen und auf die Sie zählen können. Waren Sie in der letzten Woche mit Freunden in Kontakt (persönlich, am Telefon oder per Email)? WENN RELEVANT: Gab es in der letzten Woche Kontakt zu Ihrem/Ihrer Partner/in oder Date?

WENN KONTAKT:
- *Was haben Sie in der letzten Woche mit Ihren/Ihrem/Ihrer [Freunden, Partner/Partnerin, Date] gemacht?*
- *Erzählen Sie mir darüber, was Sie während dieses/r [Besuchs, Unternehmung, Gesprächs] unternommen [oder über was Sie geredet] haben?*
- *Wie viel Zeit haben Sie zusammen mit Ihren/Ihrem/Ihrer [Freunden, Partner/Partnerin, Date] verbracht?*

Verhalten
- *Welche Schritte haben Sie unternommen um Ihren/Ihrem/Ihrer [Freunden, Partner/Partnerin, Date] in der vergangenen Woche zu sehen oder zu kontaktieren?*
- *Im Kontakt mit Ihren/Ihrem/Ihrer [Freunden, Partner/Partnerin, Date], wer hat entschieden, was gemacht wird?*
- *Als Sie mit Ihren/Ihrem/Ihrer [Freunden, Partner/Partnerin, Date] gesprochen haben, wer hat die Unterhaltung begonnen? Sie?*
- *Hatten Sie irgendwann den Wunsch, die Interaktion mit Ihren/Ihrem/Ihrer [Freunden, Partner/Partnerin, Date] rasch zu beenden? Haben Sie sich gewünscht, dass es länger dauert?*

Motivation & Interesse nach Nähe
- *Waren Sie in der vergangenen Woche motiviert, in der Nähe Ihrer/Ihres/Ihrer [Freunde, Partners/Partnerin, Dates] zu sein? Warum?*
- *Können Sie sowohl über gute als auch über schlechte Zeiten sprechen?*
- *Gab es in der vergangenen Woche Zeiten, in denen Sie sich nicht danach gefühlt haben bei Ihrem/r [Freund/Freundin, Partner/Partnerin, Date] zu sein?*
- *Wie wichtig ist es Ihnen, Freundschaften [Partner/in, Dates] zu haben? Was ist Ihnen daran wichtig?*
- *Wie nah fühlen Sie sich Ihren Freunden [Partner/in, Date]? Was verstehen Sie unter "nah"?*

WENN KEINE FREUNDE/PARTNER/DATES:
- *Sind Sie daran interessiert, Freunde oder Dates zu haben?*
- *Ist es für Sie wichtig, eine Freundschaft zu haben [oder in einer partnerschaftlichen Beziehung zu sein]? Wenn JA, was ist Ihnen daran [spezifiziere Freundschaften/partnerschaftliche Beziehung] wichtig?*
- *Haben Ihnen diese Arten von Beziehung in der vergangenen Woche gefehlt?*
- *Hätten Sie gerne Freunde [oder Partner/Dates] mit denen Sie über gute und schlechte Zeiten sprechen können?*
- *(Bei Anzeichen von Interesse) Haben Sie irgendwelche Schritte unternommen, jemanden zu treffen der ein Freund [oder ein Partner/Date] sein könnte?*
- *Hat Sie irgendetwas davon abgehalten in Kontakt mit Ihren Freunden zu sein?*
- *Würden Sie es bevorzugen Freundschaften [oder partnerschaftliche Beziehungen] zu haben, oder würden Sie es bevorzugen alleine zu sein?*

ITEM 2: MOTIVATION FÜR ENGE FREUNDSCHAFTEN & PARTNERSCHAFTLICHE BEZIEHUNGEN

0 = Keine Beeinträchtigung: SEHR INTERESSIERT an und schätzt freundschaftliche/partnerschaftliche Beziehungen als einen der wichtigsten Bereiche des Lebens ein. Starkes Bedürfnis nach und Motivation sich auf Freundschaften ein zulassen. Initiiert und hält Interaktionen mit Freunden/Partner/Date regelmäßig aufrecht und gestaltet diese aktiv mit. Gute und schlechte Zeiten werden offen besprochen. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: GRUNDSÄTZLICH INTERESSIERT an und schätzt Freunde/Partner/Dates, obwohl die Antworten auf einige geringfügige oder fragliche Einschränkungen deuten. Grundsätzliches Bedürfnis nach und Motivation sich auf Freundschaften ein zulassen. Hat Freundschaften/partnerschaftliche Beziehungen, in denen gute und schlechte Zeiten besprochen werden können, obwohl dies weniger konsistent sein kann. Leichte Defizite im Hinblick auf die Initiierung und das Aufrechterhalten von regelmäßigen Interaktionen mit Freunden/Partnern/Dates. Wenn keine Freunde/partnerschaftliche Beziehungen vorhanden, dann werden diese vermisst; motiviert Freundschaften/ partnerschaftliche Beziehungen zu haben; Anstrengungen Freunde/Partner/Dates zu suchen.

2 = Moderates Defizit: ETWAS INTERESSIERT an Freundschaften/ partnerschaftliche Beziehungen, die als einigermaßen wichtig erachtet werden. Vermisst hin und wieder enge Verbindungen zu Freunden/Partnern/Dates aber ist lediglich etwas motiviert, Freundschaften/ partnerschaftliche Beziehungen zu haben. Deutlich wahrnehmbares Defizit beim Initiieren und anhaltendem Engagement in Interaktionen; begrenztes Besprechen von guten und schlechten Zeiten. Interaktionen mit Freunden/Partnern/Dates können auftreten, sind aber größtenteils oberflächlich und durch „routinemäßige Skripte" charakterisiert; Interaktionen finden auf Initiative der Anderen statt, mit meist passiver Einbeziehung des/r Patienten/in. Wenn kein Freund/Partner/Date, dann nur etwas Motivation Freunde/Partner/Dates zu haben; fast nie, wenn überhaupt, wird etwas unternommen Freundschaften/partnerschaftliche Beziehungen zu suchen.

3 = Mäßig schweres Defizit: WENIG INTERESSIERT an Freundschaften/partnerschaftlichen Beziehungen ("macht, was Ihr wollt"), und Freunde/Partner/Dates werden nicht als wichtig beschrieben. Motivation hinsichtlich Freundschaften wird kaum berichtet und genauso gerne wäre der/die Patient/in alleine. Kontakt und Engagement zu anderen sind oberflächlich und passiv, Initiierung und Bemühungen gehen fast alle von Anderen aus.

4 = Schweres Defizit: KEIN INTERESSE an Freundschaften/partnerschaftlichen Beziehungen, welche als überhaupt nicht wichtig erachtet werden. Das Alleinsein wird bevorzugt und keinerlei Motivation, Freunde/Partner/Dates zu haben, vorhanden.

ITEM 3: HÄUFIGKEIT VON ERFREULICHEN SOZIALEN AKTIVITÄTEN –*LETZTE* WOCHE

[Bemerke: Einstufungen basieren auf der **ANZAHL VON TAGEN IN DER WOCHE**, in denen erfreulichen Aktivitäten mit anderen Leuten erlebt wurden. Wenn es Berichte von vielen verschiedenen Aktivitäten gibt, sollte geklärt werden ob diese am gleichen oder an verschiedenen Tagen geschehen sind]

Nun möchte ich mit Ihnen darüber sprechen, wie Sie sich gefühlt haben während Sie in der letzten Woche Zeit mit anderen verbracht haben oder mit anderen in Kontakt standen. Sie können gemeinsame Zeit mit Personen mit einbeziehen, über die wir bereits gesprochen haben oder andere Personen. Hatten Sie irgendeine erfreuliche Interaktion mit anderen Personen, so wie:

- *Familie (PAUSE)*
- *Partner/in oder Date (PAUSE)*
- *Freunde (PAUSE)*
- *Irgendeine andere erfreuliche soziale Interaktion oder Zeit, die mit Personen verbracht wurde? (PAUSE)*
- *WENN NÖTIG: nach Personen fragen, die in anderen Abschnitten erwähnt wurden und mit denen* ***erfreuliche Interaktionen*** *beschrieben worden waren*

Mo	Di	Mi	Do	Fr	Sa	So

WENN JA:
- *Was war daran erfreulich?*
- *Wie viele Tage haben Sie diese Interaktionen genossen/ haben Sie Freude daran gehabt [Zeit mit xx Person/en)]? (für jede)*
- [Wenn viele (d.h. 5 oder 6) Tage erwähnt werden, oder es nicht klar ist an welchen Tagen der Woche Interaktionen genossen wurden] *Gab es irgendwelche Tage, an denen Sie keine erfreulichen Interaktionen mit anderen Personen hatten?*

Item 3 – Häufigkeit von erfreulichen sozialen Aktivitäten – Letzte Woche

0 = Keine Beeinträchtigung: Erfreuliche Interaktion täglich erlebt.

1 = Leichtes Defizit: Erfreuliche Interaktion 5-6 Tage erlebt.

2 = Moderates Defizit: Erfreuliche Interaktion 3-4 Tage erlebt.

3 = Mäßig schweres Defizit: Erfreuliche Interaktion 1-2 Tage erlebt.

4 = Schweres Defizit: Keine erfreuliche Interaktion berichtet.

ITEM 4: HÄUFIGKEIT VON ERWARTETEN ERFREULICHEN SOZIALEN AKTIVITÄTEN – *NÄCHSTE* WOCHE

[Bemerke: Einschätzungen basieren auf der **GESAMTZAHL VON ERWARTETEN ANGEHNEHMEN AKTIVITÄTEN**, unabhängig von den Tagen an denen sie erwartet werden]

Nun möchte ich, dass Sie an die NÄCHSTE Woche denken (an die nächsten 7 Tage), darüber mit wem Sie Zeit verbringen werden. Sie können Personen mit einbeziehen, über die Sie bereits gesprochen haben oder auch jede andere Person. Was glauben Sie, werden Sie in der NÄCHSTEN Woche genießen mit anderen Personen zu tun?

FÜR JEDE DER GEGEBENEN ANTWORTEN:
- *Was daran denken Sie werden Sie genießen?*
- *Wie oft glauben Sie, werden Sie das in der nächsten Woche genießen?*

FOLLOW UP/NACHHAKEN:
- *Gibt es weitere Erlebnisse mit Leuten, von denen Sie glauben dass Sie diese während der nächsten Woche genießen werden?*

ITEM 4 – Häufigkeit von erwarteten erfreulichen sozialen Aktivitäten – nächste Woche

0 = Keine Beeinträchtigung: VIELE (7 oder mehr) erfreuliche Erfahrungen werden erwartet.

1 = Leichtes Defizit: Freude durch EINIGE (5-6) erfreuliche Erfahrungen wird erwartet.

2 = Moderates Defizit: Freude durch EIN PAAR (3-4) erfreuliche Erfahrungen wird erwartet.

3 = Mäßig schweres Defizit: WENIGE (1-2) erfreuliche Erfahrungen werden erwartet.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen werden erwartet.

II. ARBEIT & SCHULE (MOTIVATION & FREUDE)

ITEM 5: MOTIVATION FÜR ARBEITS- UND SCHULAKTIVITÄTEN

Nun werde ich Ihnen ein paar Fragen zu Arbeit und Schule stellen, darüber wie motiviert Sie für Arbeits- und Schulaktivitäten waren und wie Sie sich dabei während der letzten Woche gefühlt haben. Haben Sie während der letzten Woche gearbeitet oder sind Sie zur Schule gegangen? Ehrenamtliche Arbeit? Sind Sie in einem beruflichen Rehabilitationsprgramm?

WENN IN EINER RELEVANTEN ROLLE:

- *Erzählen Sie mir darüber, was Sie in [Hier Rolle einfügen] tun.*
- *Wie viel Zeit hat dies während der letzten Woche beansprucht?*

Verhalten

- *War es Ihnen möglich Aufgaben bei [Hier Rolle einfügen] zu Ende zu bringen?*
- *Hat jemand während der letzten Woche irgendwelche Bedenken bezüglich Ihrer Leistung bei [Hier Rolle einfügen] geäußert?*
- *Haben Sie in letzter Woche an einem/mehrerenTag/en gefehlt? Warum?*
- *Musste Sie jemand an [Hier Rolle einfügen] erinnern? Warum das?*
- *Gab es Dinge, die Sie tun sollten oder wollten aber Sie kamen einfach nicht dazu? Warum?*

Motivation

- *Wie fühlen Sie sich mit [Hier Rolle einfügen]?*
- *Waren Sie motiviert [Hier Rolle einfügen] zu tun?*
- *Was motiviert Sie [Hier Rolle einfügen] zu tun?*
- *Gab es Zeiten während der letzten Woche, in denen Ihnen überhaupt nicht danach war zu [Hier Rolle einfügen]?*
- *Wie wichtig ist [Hier Rolle einfügen] für Sie? Was daran ist für Sie wichtig?*

WENN IN KEINER AKTUELLEN ROLLE:

- *Gibt es einen Grund dafür, dass Sie aktuell nicht (arbeiten/zur Schule gehen/ein Ehrenamt haben)?*
- *Hat Sie irgendetwas davon abgehalten nach (Arbeit/Schule/Ehrenamt) zu suchen?*
- *Wie finden Sie es zu arbeiten oder zur Schule gehen oder ein Ehrenamt zu haben?*
- *Hatten Sie viel Interesse an Arbeit/Schule/Ehrenamt? {Erzählen Sie mir mehr.}*
- *Ist arbeiten wichtig für Sie? Was an Arbeiten/zur Schule gehen/ein Ehrenamt haben ist wichtig?*
- *Fehlt Ihnen Arbeit/Schule/Ehrenamt?*
- *Haben Sie irgendwelche Schritte unternommen Arbeit/Schule/Ehrenamt anzufangen? Welche Schritte haben Sie unternommen? Wie oft haben Sie in Arbeit/Schule/Ehrenamt reingeschaut?*

ITEM 5 – Motivation für Arbeits- und Schulaktivitäten

0 = Keine Beeinträchtigung: Patient/in ist SEHR MOTIVIERT Arbeit oder Schule aufzusuchen oder Chancen/neue Gelegenheiten bezüglich Arbeit oder Schule zu nutzen; Initiiert und hält Arbeit, Schule oder Arbeitssuche auf einer regelmäßigen Basis aufrecht. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: Patient/in ist GRUNDSÄTZLICH MOTIVIERT Arbeit oder Schule aufzusuchen oder Chancen/neue Gelegenheiten bezüglich Arbeit oder Schule zu nutzen; leichtes Defizit in der Initiierung und Aufrechterhaltung; berichtet eventuell Vorkommnisse der Initiierung aber mit moderater Aufrechterhaltung.

2 = Moderates Defizit: Patient/in ist ETWAS MOTIVIERT Arbeit oder Schule aufzusuchen oder Chancen/neue Gelegenheiten bezüglich Arbeit oder Schule zu nutzen; deutlich wahrnehmbares Defizit in der Initiierung; hat eventuell Aktivitäten angefangen, aber brauchte gelegentlich Erinnerungen und/oder hat keinerlei neue Aktivitäten angefangen, und/oder nicht lange aufrechterhalten.

3 = Mäßig schweres Defizit: Patient/in ist nur WENIG MOTIVIERT Arbeit oder Schule, bzw. neue Gelegenheiten für Arbeit oder Schule aufzusuchen; erhebliches Defizit in der Initiierung; hat eventuell kontinuierliche Erinnerungen gebraucht und/oder wenige Aktivitäten initiiert; hat nicht lange angedauert.

4 = Schweres Defizit: Patient/in ist ÜBERHAUPT NICHT MOTIVIERT Arbeit/Schule aufzusuchen; fast kompletter Mangel an Initiierung und Aufrechterhaltung von Arbeit, Schule oder Jobsuche.

ITEM 6: HÄUFIGKEIT VON ERWARTETEN ERFREULICHEN ARBEITS- UND SCHULAKTIVITÄTEN – *NÄCHSTE* WOCHE

[Bemerke: Einstufungen/Ratings basieren auf der **GESAMTZAHL VON ERWARTETEN ERFREULICHEN AKTIVITÄTEN**, unabhängig von den Tagen an denen sie erwartet werden]

Nun möchte ich, dass Sie an die NÄCHSTE Woche denken (an die nächsten 7 Tage); denken Sie an Arbeit/Ehrenamt/Schule.

WENN EINE RELEVANTE ROLLE VORHANDEN:
- *Was denken Sie werden Sie während der NÄCHSTEN Woche genießen, was Sie auf der Arbeit/im Ehrenamt/in der Schule tun?*

WENN KEINE RELEVANTE ROLLE VORHANDEN:
- *Glauben Sie, dass Sie irgendetwas in Verbindung mit der Suche von bezahlter oder ehrenamtlicher Arbeit oder Schule genießen werden?*

FÜR JEDE DER GEGEBENEN ANTWORTEN:
- *Was daran denken Sie werden Sie genießen?*
- *Wie oft glauben Sie, werden Sie das in der nächsten Woche genießen?*

FOLLOW UP:
- *Gibt es andere Arbeits-/Schulaktivitäten, von denen Sie glauben, dass Sie diese während der nächsten Woche genießen werden?*

ITEM 6 – Häufigkeit von erwarteten erfreulichen Arbeits- und Schulaktivitäten – *nächste* Woche

0 = Keine Beeinträchtigung: VIELE (7 oder mehr) erfreuliche Erfahrungen werden erwartet.

1 = Leichtes Defizit: EINIGE (5-6) erfreuliche Erfahrungen werden erwartet.

2 = Moderates Defizit: EIN PAAR (3-4) erfreuliche Erfahrungen werden erwartet.

3 = Mäßig schweres Defizit: WENIGE (1-2) erfreuliche Erfahrungen werden erwartet.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen werden erwartet.

III. FREIZEIT (MOTIVATION & FREUDE)

ITEM 7: MOTIVATION FÜR FREIZEITAKTIVITÄTEN

Im nächsten Abschnitt werde ich Ihnen einige Fragen darüber stellen, was Sie in Ihrer freien Zeit machen – jegliche Hobbies oder Freizeitaktivitäten. Ich werde nach Ihrer Motivation und Ihren Gefühlen über die Dinge, welche Sie in der letzten Woche in Ihrer freien Zeit gemacht haben fragen.

- *Was haben Sie während der letzten Woche in Ihrer freien Zeit gemacht?*
- *Haben Sie irgendwelche Hobbies oder Freizeitaktivitäten während der letzten Woche ausgeübt, so wie Sport oder Spiele, zur Kirche gehen, Fernsehen schauen, Musik, Lesen, Internet, Spazierengehen oder ähnlich Aktivitäten?*

WENN JA:

Verhalten

- *Erzählen Sie mir mehr über (Aktivität). Wie viel Zeit hat dies in der letzten Woche beansprucht? Wollten Sie (Aktivität) mehr/länger machen? Hat es länger angehalten als Sie hofften? Warum hat es nur (xx) gedauert?*
- *Kam Ihnen in der letzten Woche irgendetwas in die Quere diese Aktivitäten auszuüben? Was war das?*
- *Wer fing diese Aktivitäten an? Hat Sie jemand erinnert diese auszuüben/daran teilzuhaben?*

Motivation

- *Wie war Ihre Motivation oder Ihr Antrieb diese Aktivitäten in der letzten Woche auszuüben?*
- *Haben Sie jemals gedacht, dass Sie einfach nicht sehr an diesen Aktivitäten interessiert sind?*
- *Sind diese Art von Aktivitäten wichtig für Sie? Warum? Sind Sie interessiert an diesen Aktivitäten gewesen?*
- *Haben Sie jemals gedacht, dass Sie es vorziehen würden nichts zu tun anstatt an derlei Aktivitäten teilzuhaben?*

WENN NEIN:

- *Gibt es einen Grund warum Sie in der letzten Woche nicht an irgendwelchen Hobbies oder Freizeitaktivitäten teilgenommen haben?*
- *Haben Sie in der letzten Woche den Wunsch gehabt oder waren Sie motiviert etwas mit Ihrer freien Zeit zu anzufangen?*
- *Kam Ihnen irgendetwas in die Quere diese Aktivitäten in der letzten Woche auszuüben? Was war das?*

ITEM 7 – Motivation für Freizeitaktivitäten

0 = Keine Beeinträchtigung: Patient/in ist SEHR MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; Initiiert und hält Hobbies und Freizeitaktivitäten auf einer regelmäßigen Basis aufrecht. Gesund im Bereich des Normalen.

1 = Leichtes Defizit: Patient/in ist GRUNDSÄTZLICH MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; leichtes Defizit in der Initiierung und Aufrechterhaltung; berichtet eventuell Vorkommnisse der Initiierung von Hobbies und Freizeitaktivitäten, aber mit moderater Aufrechterhaltung.

2 = Moderates Defizit: Patient/in ist ETWAS MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; Deutlich wahrnehmbares Defizit in der Initiierung; hat eventuell einige Aktivitäten angefangen und/oder nicht lange aufrechterhalten. Andere waren eher die Initiatoren von Hobbies und Freizeitaktivitäten.

3 = Mäßig schweres Defizit: Patient/in ist nur WENIG MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; erhebliches Defizit in der Initiierung und Aufrechterhaltung; hat eventuell wenige Aktivitäten angefangen aber nicht lange beibehalten. Andere waren viel mehr die Initiatoren von Hobbies und haben zu Aktivitäten aufgefordert.

4 = Schweres Defizit: Patient/in ist ÜBERHAUPT NICHT MOTIVIERT Hobbies und Freizeitaktivitäten aufzusuchen; fast kompletter Mangel an Initiierung und Aufrechterhaltung von Hobbies und Freizeitaktivitäten.

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ITEM 8: HÄUFIGKEIT VON ERFREULICHEN FREIZEITAKTIVITÄTEN - *LETZTE* WOCHE
[Bemerke: Einstufungen basieren sowohl auf der **VIELFALT** von erfreulichen Aktivitäten als auch auf **TÄGLICHER HÄUFIGKEIT** mit welcher diese erlebt werden. Wenn es Berichte über verschiede Aktivitäten gibt, klären ob diese am gleichen oder an verschiedenen Tagen passiert sind]

Hatten Sie irgendeine erfreuliche Erfahrung durch Dinge, die Sie in Ihrer freien Zeit in der letzten Woche getan haben? Sie können jede der Aktivitäten mit einbeziehen, über die wir bislang gesprochen haben oder auch andere Freizeitaktivitäten der letzten Woche, inklusive Fernsehen, Sport, in die Kirche gehen, Musik, Lesen, Internet, Spazierengehen oder andere ähnliche Aktivitäten.

- *Was an [Hier Aktivität einfügen] war erfreulich?*
- *An wie vielen Tagen konnten Sie dies genießen / haben Sie Freude daran gehabt?*
- *WENN NÖTIG: Fragen nach Aktivitäten, die in anderen Abschnitten erwähnt wurden und als **erfreuliche Aktivitäten beschrieben** wurden.*

FOLLOW UP/NACHHAKEN:
- *Irgendwelche anderen erfreulichen Erfahrungen durch Dinge, die Sie in Ihrer freien Zeit tun oder Hobbies?*

Aktivität	Mo	Di	Mi	Do	Fr	Sa	So

ITEM 8 – Häufigkeit von erfreulichen Freizeitaktivitäten – *letzte* Woche

0 = Keine Beeinträchtigung: Zumindest EINIGE (3) verschiedene Arten von erfreulichen, *täglichen* Erfahrungen.

1 = Leichtes Defizit: Zumindest EINIGE (3) verschiedene Arten von erfreulichen Erfahrungen, an mehr Tagen gemacht als nicht gemacht.

2 = Moderates Defizit: 1 oder 2 verschiedene Arten von erfreulichen Erfahrungen, an mehr Tagen gemacht als nicht gemacht.

3 = Mäßig schweres Defizit: 1 Art von erfreulichen Erfahrungen, an nur ein paar Tagen erlebt.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen.

ITEM 9: HÄUFIGKEIT VON ERWARTETEN ERFREULICHEN FREIZEITAKTIVITÄTEN - *NÄCHSTE* WOCHE
[Bemerke: Einschätzungen basieren auf der **GESAMTZAHL VON ERWARTETEN ERFREULICHEN AKTIVITÄTEN**, unabhängig von den Tagen an denen sie erwartet werden]

Nun möchte ich, dass Sie an die NÄCHSTE Woche denken (an die nächsten 7 Tage); denken Sie an Ihre freie Zeit/Hobbies. Sie können jede der Aktivitäten mit einbeziehen, über die wir bereits gesprochen haben oder irgendwelche anderen. Was glauben Sie werden Sie NÄCHSTE WOCHE Erfreuliches in ihrer Freizeit tun?

FÜR JEDE DER GEGEBENEN ANTWORTEN:
- *Was daran denken Sie werden Sie genießen?*
- *Wie oft glauben Sie, werden Sie [Aktivität] in der nächsten Woche genießen?*

FOLLOW UP/NACHHAKEN:
- *Gibt es andere Dinge, die Sie in Ihrer Freizeit tun wie Hobbies, von denen Sie glauben dass Sie diese während der nächsten Woche genießen werden?*

ITEM 9 – Häufigkeit von erwarteten erfreulichen Freizeitaktivitäten – *nächste* Woche

0 = Keine Beeinträchtigung: VIELE (7 oder mehr) erfreuliche Erfahrungen werden erwartet.

1 = Leichtes Defizit: EINIGE (5-6) erfreuliche Erfahrungen werden erwartet.

2 = Moderates Defizit: Wenige (3-4) erfreuliche Erfahrungen werden erwartet.

3 = Mäßig schweres Defizit: Kaum (1-2) erfreuliche Erfahrungen werden erwartet.

4 = Schweres Defizit: KEINE erfreulichen Erfahrungen werden erwartet

IV. AUSDRUCK

ITEM 10: MIMIK

Beim Einschätzen der Mimik sollten Bewegungen über das gesamte Gesicht hinweg berücksichtigt werden, einschließlich der Augen (z.B. hochgezogene Augenbrauen bei Überraschung), Mund (z.B. Lachen oder Grimassieren) und Nase (z.B. Rümpfen der Nase bei Ekel).

ITEM 10 - MIMIK

0 = Keine Beeinträchtigung: IM NORMALEN BEREICH; häufige Gesichtsausdrücke während des gesamten Interviews.

1 = Mildes Defizit: LEICHTE ABNAHME in der Häufigkeit der Gesichtsausdrücke, begrenzte Mimik in einzelnen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME in der Häufigkeit der Gesichtsausdrücke, verminderte Mimik in mehreren Interviewphasen.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von Gesichtsausdrücken, kaum Änderungen in der Mimik während fast des gesamten Interviews.

4 = Schweres Defizit: Gesichtsausdrücke während des gesamten Interviews PRAKTISCH NICHT VORHANDEN.

ITEM 11: VOKALER AUSDRUCK

Das Item bezieht sich auf prosodische Eigenschaften der Stimme und bildet Veränderungen der Tonhöhe während des Sprechakts ab (Intonation). Sprechtempo, Quantität und Inhalt werden nicht berücksichtigt.

Item 11 – Vokaler Ausdruck

0 = Keine Beeinträchtigung: IM NORMALEN BEREICH; Normale Variation der vokalen Intonation während des Interviews. Die Sprache ist ausdrucksvoll und lebendig.

1 = Mildes Defizit: LEICHTE ABNAHME der Intonation, begrenzte Variation der Intonation in einigen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME der vokalen Intonation, verminderte Intonation in mehreren Interviewphasen. Wenig Intonations-Variabilität, prosodische Veränderungen treten vereinzelt auf.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von vokaler Intonation mit nur wenigen Veränderungen in der Intonation während fast des gesamten Interviews. Die Sprache ist meist flach, Variabilität fehlt, lediglich vereinzelte prosodischer Veränderungen.

4 = Schweres Defizit: Veränderungen der vokalen Intonation PRAKTISCH NICHT VORHANDEN, charakteristisch flache oder monotone Sprechweise während des gesamten Interviews.

ITEM 12: GESTIK

Unter Gestik werden kommunikative Bewegungen insbesondere der Hände, des Kopfes (Nicken), der Schultern (Zucken) und des Rumpfes (Vor- und Zurücklehnen) verstanden.

ITEM 12 – Gestik

0 = Keine Beeinträchtigung: IM NORMALEN BEREICH; häufige Gesten während des Interviews.

1 = Mildes Defizit: LEICHTE ABNAHME in der Häufigkeit der Gesten, begrenzte Gestik in einigen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME in der Häufigkeit der Gesten, fehlende Gestik in mehreren Interviewphasen.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von Gesten, wenig Gestik während fast des gesamten Interviews.

4 = Schweres Defizit: PRAKTISCH NICHT VORHANDENE Gestik.

ITEM 13: SPRACHE (QUANTITÄT)

Das Item bezieht sich auf die Menge gesprochener Worte. Sprachliche Defizite wie Desorganisation, Neologismen oder inhaltliche Denkstörungen werden damit nicht erfasst. Ein desorganisierter Mensch kann beispielswiese eine große Anzahl Worte produzieren und einen unauffälligen (normalen) Wert auf diesem Item erzielen.

ITEM 13 – Sprache (Quantität)

0 = Keine Beeinträchtigung: NORMALE MENGE gesprochener Worte während des Interviews. Antworten sind ausreichend elaboriert und informativ.

1 = Mildes Defizit: LEICHTE ABNAHME in der Menge der gesprochenen Worte, kurze Antworten in einigen Interviewphasen.

2 = Moderates Defizit: DEUTLICH WAHRNEHMBARE ABNAHME in der Menge der gesprochenen Worte, kurze Antworten in mehreren Interviewphasen.

3 = Mäßig schweres Defizit: ERHEBLICHES FEHLEN von Sprache, sehr kurze Antworten (nur wenige Wörter) während fast des gesamten Interviews.

4 = Schweres Defizit: Alle oder fast alle Antworten bestehen während des ganzen Interviews aus lediglich einem Wort oder zwei Wörtern.

CLINICAL ASSESSMENT INTERVIEW FOR NEGATIVE SYMPTOMS (CAINS): AUSWERTUNGSBOGEN

ID: _____ DATUM: _____ UNTERSUCHER/IN: _____

I. MOTIVATION UND FREUDE (MAP): SOZIALES

1. Motivation für enge Beziehungen (Familie, (Ehe)Partner/in)
2. Motivation für enge Freundschaften und (Liebes)Beziehungen
3. Häufigkeit von erfreulichen sozialen Aktivitäten – letzte Woche
4. Erwartete Häufigkeit von erfreulichen sozialen Aktivitäten – nächste Woche

II. MOTIVATION UND FREUDE (MAP): ARBEIT & SCHULE

5. Motivation für Arbeit- und Schulaktivitäten
6. Erwartete Häufigkeit von erfreulichen Arbeit- und Schulaktivitäten – nächste Woche

III. MOTIVATION UND FREUDE (MAP): FREIZEIT

7. Motivation für Freizeitaktivitäten
8. Häufigkeit von erfreulichen Freizeitaktivitäten – letzte Woche
9. Erwartete Häufigkeit von erfreulichen Freizeitaktivitäten – nächste Woche

IV. AUSDRUCK UND EXPRESSION (EXP) ITEMS

10. Mimik
11. Sprechen (Intonation)
12. Gestik
13. Sprache (Quantität)

MAP Summenscore: _____

EXP Summenscore: _____

German Version of the Motivation and Pleasure Scale – Self-Report (MAP-SR)

Motivation and Pleasure – Self-Report (MAP-SR)

Llerena, K., Park, S.G., McCarthy, J.M., Couture, S.M., Bennett, M.E., & Blanchard, J.J. (2013). The Motivation and Pleasure Scale-Self-Report (MAP-SR): Reliability and validity of a self-report measure of negative symptoms. Comprehensive Psychiatry, 54(5), 568-574.

Deutsche Version: Janina Richter, Stefan Klingberg (2015).
Kontakt: Janina.Richter@med.uni-tuebingen.de

ID: _____ **DATUM:** _____ **UNTERSUCHER*IN:** _____

	Freude im sozialen Bereich
1.	Was war in der vergangenen Woche die *stärkste* Freude, die Sie durch das Zusammensein mit anderen empfunden haben? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 keine Freude — sehr starke Freude
2.	*Wie oft* haben Sie in der vergangenen Woche Freude durch das Zusammensein mit anderen empfunden? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht — sehr häufig
3.	Wenn Sie an die *nächsten Wochen* denken, wieviel Freude erwarten Sie durch das Zusammensein mit anderen zu empfinden? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 keine Freude — sehr starke Freude

	Freude im Freizeit- oder Arbeitsbereich
4.	Was war in der vergangenen Woche die *stärkste* Freude, die Sie durch Hobbies, Freizeit oder Arbeit empfunden haben? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 keine Freude — sehr starke Freude
5.	*Wie oft* haben Sie in der vergangenen Woche Freude durch Hobbies, Freizeit oder Arbeit empfunden? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht — sehr häufig
6.	Wenn Sie an die *nächsten Wochen* denken, wieviel Freude erwarten Sie durch Ihre Hobbies, Freizeit oder Arbeit zu empfinden? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 keine Freude — sehr starke Freude

1

	Gefühle und Motivation bezüglich enger Beziehung
7.	Was enge Beziehungen zu Ihren *Familienmitgliedern* betrifft, wie wichtig waren Ihnen diese Beziehungen während der vergangenen Woche? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht wichtig für mich sehr wichtig für mich
8.	Was enge Beziehungen zu einem *Partner* betrifft, wie wichtig waren Ihnen diese Art von Beziehung während der vergangenen Woche? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht wichtig für mich sehr wichtig für mich
9.	Was enge Beziehungen zu Ihren *Freunden* betrifft, wie wichtig waren Ihnen diese Beziehungen während der vergangenen Woche? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht wichtig für mich sehr wichtig für mich

	Motivation und Bemühen Dinge zu unternehmen
10.	Wie *motiviert* waren Sie in der vergangenen Woche, unter Leuten zu sein und mit Ihnen etwas zu unternehmen? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht motiviert sehr motiviert
11.	Wie sehr haben Sie sich in der vergangenen Woche *bemüht*, tatsächlich Dinge mit anderen zu unternehmen? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 kein Bemühen sehr starkes Bemühen
12.	Wie *motiviert* waren Sie in der vergangenen Woche, zur Arbeit oder Schule/Universität zu gehen oder Arbeit oder einen Ausbildungs- bzw. Studienplatz zu finden? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht motiviert sehr motiviert
13.	Wie sehr haben Sie sich in der vergangenen Woche *bemüht*, Dinge auf der Arbeit oder in der Schule/Universität zu tun? (Falls Sie nicht arbeiten oder zur Schule gehen/studieren, wie sehr haben Sie sich bemüht, Arbeit oder einen Ausbildungs- bzw. Studienplatz zu finden.) □ 0 - □ 1 - □ 2 - □ 3 - □ 4 kein Bemühen sehr starkes Bemühen

14.	Wie *motiviert* waren Sie in der vergangenen Woche, Hobbies oder andere Freizeitaktivitäten auszuüben? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 überhaupt nicht motiviert sehr motiviert
15.	Wie sehr haben Sie sich in der vergangenen Woche *bemüht*, tatsächlich Hobbies oder Freizeitaktivitäten auszuüben? □ 0 - □ 1 - □ 2 - □ 3 - □ 4 kein Bemühen sehr starkes Bemühen

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CURRICULUM VITAE

Janina Richter

Date of birth 13th September 1985

Place of birth Oberndorf am Neckar, Germany

EDUCATION

2013 – Present	PhD student research group "research on psychotherapy", Department of Psychiatry and Psychotherapy, University of Tuebingen, Germany
2010 – 2015	Training for/graduation as psychological psychotherapist (CBT), Academy for Behavioral Therapy Tuebingen (TAVT), Germany
2007 – 2010	Diploma in psychology, University of Tuebingen, Germany
2005 – 2007	Undergraduate degree in psychology, University of Constance, Germany
1992 – 2005	School education and Abitur, Villingendorf and Rottweil, Germany

EMPLOYMENT

2011 – Present	Clinical psychologist, Department of Psychiatry and Psychotherapy, University of Tuebingen, Germany
2016 – Present	Rater ESPRIT study (Enhancing Schizophrenia Prevention and Recovery through Innovative Treatments)
2013 – 2015	Therapist MOSAIC study (Motivation and Social Interactive Competence in Patients with Negative Symptoms)
2012 – 2013	Therapist STEM study (Coping Skills for and Empowerment of People with Mental Illnesses)

JOURNAL PUBLICATIONS

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ABSTRACTS

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