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Riitta Kuokkanen

Cognition, Metacognition and the Patient Perspective

New Ways to Evaluate and Rehabilitate Schizophrenia Patients in Forensic Psychiatric Care

JYVÄSKYLÄN YLIOPISTO

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ABSTRACT

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This research focused on factors associated with schizophrenia as well as on the feasibility and effectiveness of group metacognitive training (MCT) in schizophrenia patients with a history of violence in a high-security forensic hospital setting. One of the aims was to scrutinize reasoning ability in regards to jumping to conclusions (JTC) cognitive bias and the expression of cognitive insight (insight into one's own thinking), a metacognitive ability. A second aim was to examine the associations of these factors with each other and with insight into illness and delusions. Moreover, the patients' health-related quality of life (HRQOL) was explored. A further objective was to study the potential effects of MCT on delusions, overall severity of illness, reasoning and HRQOL. The patients' subjective assessments of MCT were also included. A cross-sectional study (n = 20) was performed to examine the selected characteristics and their associations. It also served as a baseline assessment for two randomised controlled trials (RCT) where the patients were randomised either to eight-session MCT or treatment-as-usual control group. The measurements were also made immediately following MCT and at three and six months afterwards. The patients' HRQOL was also compared with a general population. The results revealed that 75% of the patients made hasty conclusions (JTC). The more data a patient gathered, the more insight into illness he had and the less distressed he was by his symptoms. The results also indicate that group MCT may reduce symptomatology, especially suspiciousness. The greatest benefit was seen after three months. MCT was also highly accepted and appreciated by the patients. The patients' HRQOL was significantly worse than that of the general population and MCT did not have any impact on it. In the treatment, it may be useful to evaluate all of the factors covered in this research in order to achieve a more comprehensive and individualized approach to the individuals' situation. MCT is a noteworthy rehabilitation method in forensic psychiatry but the process of change takes time and more extensive training is suggested. Additionally, other means than those aimed at managing symptoms should be utilised to improve the patients' HRQOL.

Keywords: schizophrenia, forensic psychiatry, metacognitive training, treatment, patient perspective, quality of life, cognitive insight, clinical insight, jumping to conclusions

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Tässä tutkimuksessa keskityttiin skitsofreniaan liittyviin tekijöihin sekä ryhmämuotoisen metakognitiivisen harjoittelun (MCT) käyttökelpoisuuteen ja vaikuttavuuteen väkivaltaisilla skitsofreniapotilailla oikeuspsykiatrisessa sairaalassa. Tavoitteena oli tutkia ongelmanratkaisukykyä hätäisten johtopäätösten kognitiivisen vinouman osalta ja kognitiivisen (omaan ajatteluun liittyvän) oivalluskyvyn, metakognitiivisen kyvyn, ilmentymistä. Lisäksi tutkittiin näiden tekijöiden yhteyksiä toisiinsa sekä sairaudentuntoon ja harhaluuloihin. Tutkimus tarkasteli myös potilaiden terveyteen liittyvää elämänlaatua, MCT:n mahdollisia vaikutuksia harhaluuloihin, yleiseen sairauden vakavuuteen, ongelmanratkaisuun ja elämänlaatuun sekä potilaiden subjektiivista arviota MCT:stä. Valikoituja ominaisuuksia ja niiden välisiä yhteyksiä tutkittiin poikkileikkaustutkimuksella (n = 20). Tämä toimi myös alkumittauksena kahdelle satunnaistetulle kontrolloidulle kokeelle, joissa potilaat satunnaistettiin joko kahdeksan kerran MCT–interventioon tai tavanomaista hoitoa saavaan kontrolliryhmään. Arvioinnit suoritettiin myös välittömästi intervention jälkeen sekä kolme ja kuusi kuukautta sen päätyttyä. Potilaiden terveyteen liittyvää elämänlaatua verrattiin myös yleisväestöön. Tulokset osoittivat, että 75 % potilaista teki hätäisiä johtopäätöksiä. Mitä enemmän potilas keräsi tietoa päätöksenteon tueksi, sitä parempi sairaudentunto hänellä oli ja sitä vähemmän hän oli ahdistunut oireistaan. Lisäksi havaittiin, että MCT voi vähentää oirehdintaa, erityisesti epäluuloisuutta. Suurin hyöty oli nähtävillä kolmen kuukauden kuluttua. Potilaat hyväksyivät MCT:n hyvin ja arvostivat sitä hoitomuotona. Potilaiden terveyteen liittyvä elämänlaatu oli merkitsevästi huonompi kuin väestössä, eikä MCT:llä ollut siihen vaikutusta. Hoidossa voi olla hyödyllistä arvioida kaikkia näitä tekijöitä, jotta saavutettaisiin kokonaisvaltaisempi ja yksilöllisempi kuva kunkin potilaan tilanteesta. MCT on huomionarvoinen kuntoutusmenetelmä oikeuspsykiatrisessa hoidossa, mutta muutosprosessi vie aikaa ja laajempaa harjoittelua suositellaan. Lisäksi, muita kuin oireiden hallintaan tähtääviä keinoja tulisi hyödyntää potilaiden terveyteen liittyvän elämänlaadun parantamiseksi.

Avainsanat: skitsofrenia, oikeuspsykiatria, metakognitiivinen harjoittelu, hoito, potilasnäkökulma, elämänlaatu, kognitiivinen oivalluskyky, sairaudentunto, hätäiset johtopäätökset

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I am oh-so grateful to my family, mom Airi and dad Jukka, for being proud of me and believing in me. I'm thankful to my sister Riina and her husband Pekka and their children Pietari, Lauri, Inari, Seela, and Frans for bringing joy into my life. Marko you have patiently supported me in so many different ways. Words are not enough to describe my thoughts of you. And to Kristian, Klaudia, and Kasper I want to say that I couldn't have believed how smooth life could be with you. You are the greatest. And Kristian, thank you for being the cover boy. Not forgetting my furry little family members who kept me rolling and smiling. And all you wonderful friends of mine, thank you for being there for me. Your support is invaluable.

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II Kuokkanen, R., Lappalainen, R., Repo-Tiihonen, E., & Tiihonen, J. (2014). Metacognitive group training for forensic and dangerous non-forensic patients with schizophrenia: A randomised controlled feasibility trial. *Criminal Behaviour and Mental Health, 24,* 345–357.

III Kuokkanen, R., Aho-Mustonen, K., Muotka, J., Lappalainen, R., & Tiihonen, J. (2015). A pilot study of group administered metacognitive training (MCT) for schizophrenia patients in a high-security forensic setting: Subjective training success and health-related quality of life. *Journal of Forensic Psychology Practice, 15,* 344–362.

Taking into account the comments and instructions given by the co-authors, the author of the dissertation designed the research, recruited the participants, collected the data, performed the analysis (for Studies II and III, the technical aspects of the statistical analyses were conducted by a co-author), and wrote the manuscripts of the three publications. The author of the dissertation was responsible for the translation of the material of the studied intervention (translated in collaboration with co-workers in Niuvanniemi Hospital) and instructed and supervised the implementation of the intervention.

FIGURES

TABLES

LIST OF ABBREVIATIONS

BACE = bias against confirmatory evidence
BADE = bias against disconfirmatory evidence
BCIS = Beck Cognitive Insight Scale
BCIS/CI = composite index of BCIS
BCIS/SC = self-certainty subscale of BCIS
BCIS/SR = self-reflectiveness subscale of BCIS
DTD = draws-to-decision
G12 = lack of judgment & insight item in PANSS
HRQOL = health-related quality of life
JTC = jumping to conclusions
MCT = metacognitive training
MCT+ = Individualized Metacognitive Therapy Program for Psychosis
PANSS = Positive and Negative Syndrome Scale
P1 = delusions item in PANSS
P6 = suspiciousness item in PANSS
PSYRATS = Psychotic Symptoms Rating Scales
RCT = randomised controlled trial
SCIT = Social Cognition and Interaction Training
TAU = treatment-as-usual
TOM = theory of mind
15D = 15D health state descriptive system

CONTENTS

1 INTRODUCTION

1.1 Schizophrenia patients in forensic setting

Psychiatric patients who have committed crimes but whose sentences have been waived due to their insanity are classified as forensic patients. They have undergone a forensic psychiatric evaluation in which they have been found not criminally responsible due to their mental illness during the criminal act under prosecution, and for this reason they have been ordered to treatment in a psychiatric hospital against their will (Mental Health Act, 1990). According to Eronen, Repo, Vartiainen, and Tiihonen (2000), virtually all of those undergoing forensic psychiatric evaluation have committed serious violent crimes or other serious offences.

In forensic psychiatric hospitals in Finland, non-forensic difficult-to-treat patients are also treated. For these patients, the reason of admission is often, but not exclusively, violence. These patients are also considered to be and referred to as dangerous and difficult-to-treat patients. Because of dangerousness, or for some other reason, their treatment has been too difficult to implement and local community hospitals have been unable to treat them. At the request of the community hospital, the treatment of the patient can be implemented in a state mental hospital (Mental Health Act, 1990).

The ICD-10 classification of mental and behavioural disorders (World Health Organization, 1992) describes schizophrenia as characterized by deep thinking and perceptual distortions, and emotional flatness or irrelevance in addition to causing functional and occupational deficits. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) states that the characteristic symptoms of schizophrenia include a range of cognitive, behavioural and emotional dysfunctions along with impaired occupational and social functioning. According to both of these classification systems, the key features of schizophrenia are delusions, hallucinations, disorganized thinking, grossly disorganized or catatonic behaviour and negative symptoms. The DSM-5 stresses that individuals with schizophrenia show

substantial variation in most features due to the fact that schizophrenia is a heterogeneous clinical syndrome. As such a heterogeneous syndrome, schizophrenia includes a range of symptoms grouped in different ways, and different symptomatic dimensions in different configurations have been proposed. One way of grouping symptoms is, for example, into positive, negative, depressive and excitement symptom dimensions (Cichocki, Cechnicki, & Polczyk, 2012; Velligan et al., 2005). Additionally, many authors also emphasise cognitive symptoms in schizophrenia (see e.g. Meltzer, 2004). Salokangas (1997) has pointed out that the syndrome structure described by symptom dimensions appears to be complex and varies considerably according to the duration of the illness. ICD-10 states that the disorder may begin suddenly with intense symptoms or by slowly increasing strange thoughts and behavioural changes, the course of disease varies, and it is not necessarily chronic and degenerative (World Health Organization, 1992). However, schizophrenia is generally considered to be a chronic illness characterized by a variety of remission and relapse periods (Robinson et al., 1999). Especially the treatment of the first episode of schizophrenic psychosis is thought to affect to the course of the illness. If the first episode of psychosis goes untreated, particularly for a long period, it may lead to a more severe course and prognosis of the disease as well as contribute to the development of treatment resistance (Karson, Duffy, Eramo, Nylander, & Offord, 2016; Penttilä, Jääskeläinen, Hirvonen, Isohanni, & Miettunen, 2014). Additionally, social and cultural aspects, for example, may influence the prognosis (World Health Organization, 1992). The illness is considered to be treatment-resistant if the patient has persistent positive, negative, cognitive, mood and excitement symptoms (including aggressiveness) in addition to functional-disability symptoms, occupational deficits and continuous or frequent hospitalization (Lindenmayer, 2000). The prevalence of schizophrenia varies greatly between sites, but a general estimate is that about seven individuals per 1,000 will develop schizophrenia during their lifetime (McGrath, Saha, Chant, & Welham, 2008). In Finland, the lifetime prevalence of schizophrenia has been found to be 0.87% (Perälä et al., 2007). The aetiology of the illness is complex, and the syndrome probably represents more than one disease process. Yet genetic factors have a strong influence and a number of potential environmental factors may contribute to the development of schizophrenia, which suggests a neurodevelopmental pathological process in schizophrenia (Buchanan & Carpenter, 2005).

Forensic patients form a challenging group for treatment due to persistent and difficult symptomatology, aggressive behaviour, poor insight into the illness and comorbid problems such as personality disorders and substance dependencies (Tiihonen, 2010). Furthermore, it is not uncommon to face negative attitudes toward medication and treatment among these patients, and long-term treatment is usually needed (Tiihonen, 2010). It may also be difficult to measure the efficacy of interventions. In 2000 Lindqvist and Skipworth noted that the evaluation of rehabilitation regarding forensic patients with mental illness is only at its beginning. In 2005 Hillbrand presented a worrying observa-

tion that since the mid-1990s the number of forensic psychiatry research protocols in the United States had decreased so drastically as to be almost non-existent due to the complexity of the research protocol review process, which, of course, has undesirable effects on research and practice in the field, putting development of the field at risk of dying away. Hillbrand (2005) adds that in forensic psychiatric and psychology knowledge there is a huge difference between what is wrong with patients and how the problems can be amended.

1.1.1 Comorbidity

Many forensic patients have had long-standing problems since childhood (Hodgins, 2002; Hodgins et al., 2007; Müller-Isberner & Hodgins, 2000), and thus have multiple comorbid disorders dating back many years (Hodgins, 2002). A multisite study by Hodgins et al. (2007) describes forensic patients with mental illness as follows: nearly all forensic patients are men, from 80% to 95% have a schizophrenia spectrum disorder, most of them have repeated hospitalizations, and about 75% have a history of substance use disorder. Timmerman and Emmelkamp (2001) found in their study that some 87% of the forensic patients had a personality disorder. They also observed that those who had either a diagnosis of personality disorder or a substance abuse disorder had, in many cases, a comorbid mood or anxiety disorder as well. The co-occurrence of antisocial personality disorder among forensic patients with mental illness has varied between 10% and 53%, with the figure at 27% in Finland (Hodgins et al., 2007). Having an antisocial personality disorder in addition to schizophrenia makes patients more susceptible, for example, to more severe psychiatric impairment, graver substance abuse and aggression (Mueser, Drake, Ackerson, Alterman, Miles, & Noordsy, 1997).

In their multisite study Hodgins et al. (2007) found that many forensic patients have been victims of physical abuse as children and almost one third of Finnish forensic patients have been under 21 years at the time of their first offence (ranging from 32% to 65% between study countries). They also found that 54% of the Finnish forensic patients had prior criminal history to index crime, the range being from 54% to 90% between the study countries. In the same study it was also noted that 41% of Finnish forensic patient had committed a homicide. Accordingly, schizophrenia has been shown to be associated with violence, particularly homicide (Fazel, Gulati, Linsell, Geddes, & Grann, 2009). There is evidence for a mediating effect of substance abuse between schizophrenia and violence (see e.g. a meta-analysis by Fazel et al., 2009). Even though alcohol dependency increases the risk significantly, it does not clearly explain the whole association between violence and schizophrenia. The association between schizophrenia, substance misuse and violence is more complicated than that because not everyone who has schizophrenia and who misuses drugs or alcohol commits violent crimes (Hodgins, 2002). Swartz et al. (1998) have stated that among persons with severe mental illness, substance abuse combined with medication non-compliance is associated with serious violent behaviour. Furthermore, research has found conflicting evidence regarding the

connection of symptomatology to violence. Some studies have found a relationship (see e.g. Bjørkly, 2002; Cornaggia, Beghi, Pavone, & Barale, 2011; van Dongen, Buck, & van Marle, 2012) whereas some have not (see e.g. Appelbaum, Robbins, & Monahan, 2000). Thus, Hodgins (2002) suggests that there are different subgroups of offender patients with schizophrenia with different characteristics associated with offending, such as antisocial behaviour as a child or alcoholism in one subgroup, or symptomatology and emotional aspects in another. It has been stated, for example, that in psychotic patients, paranoid delusions are associated with on-the-ward aggression (Cornaggia, Beghi, Pavone, & Barale, 2011). It has also been suggested that distress caused by these persecutory delusions partly explains inpatient aggression (van Dongen, Buck, & van Marle, 2012). Nevertheless, there are numerous biological, sociological and psychological causes of violence in psychiatric patients.

On the whole, the predominance of comorbid psychiatric disorders among forensic patients (European Monitoring Centre for Drugs and Drug Addiction, 2013; Hodgins, 2002; Timmerman & Emmelkamp, 2001) makes the treatment of this patient group challenging and can easily lead to chronic illness. Given the vast range of comorbidity, there is great heterogeneity among forensic patients. The heterogeneity of forensic patients indicates that the individual needs of each patient should be assessed and, based on those needs, individualized treatment plans must be made and implemented (Müller-Isberner & Hodgins, 2000; Thomas et al., 2004).

1.1.2 Health-related quality of life and patient perspective

Even today, forensic psychiatry is lacking research regarding the application of evidence-based rehabilitation methods on offender patients, meaning there is also a lack of guidance for practitioners on optimal treatment approaches for this patient group (Robertson, Barnao, & Ward, 2011). Clinicians in forensic mental health care are trying to balance between relapse prevention/risk management models, predominantly used in correctional settings, and providing treatment for mental disorders in ways consistent with models of psychopathology, the primary focus of mental health services (Barnao, Robertson, & Ward, 2010). In the worst-case scenario, this can lead to inconsistent and arbitrary tactics for rehabilitating seriously mentally ill forensic patients.

In their systematic review, Fitzpatrick et al. (2010) state that forensic mental health research has strongly focused on public safety in terms of recidivism, but to date other important areas, such as health-related quality of life (HRQOL), have been only infrequently studied. They conclude that researchers should consider using measures to assess such understudied clinical, rehabilitation and humanitarian areas. Additionally, the patient perspective has been given too little attention even in studies concerning clinical mental health outcomes. Also in forensic psychiatry, successful treatment is dependent on promoting individuals' well-being and ensuring that they are able to meet a number of important human needs (Barnao et al., 2010). Barnao et al. (2010) state that even an individual who has committed a disagreeable crime seeks to live a

good life. This definition of well-being and needs cannot come from outside the patient, from an authoritarian point of view. For example, many patients with chronic schizophrenia end up discontinuing psychological interventions for the reason that they do not appraise the intervention as being suitable for themselves (Tarrier, Yusupoff, McCarthy, Kinney, & Wittkowski, 1998). So as to be able to construct interventions that are more efficient and more responsive to patients' needs, the patient perspective should also be included in research and clinical practice. It could be assumed that if the patients view the intervention as effective and appropriate for themselves, it may improve compliance. Thus, in order to form a collaborative working relationship in treatment and rehabilitation, there is a need to integrate subjectively evaluated satisfaction with life and patients' subjective appraisal of the interventions into research and practice.

The World Health Organization (1998) defines quality of life as an individual's perception of their position in life within the context of the culture and value systems they live in, and in relation to their goals, expectations, standards and concerns. This definition can be seen as a broader concept of quality of life, in addition to which the narrower branch of HRQOL can be identified. HRQOL has been defined as, for example, the part of the quality of life that can potentially be influenced by health and healthcare (Saarni et al., 2010). HRQOL has been seen as a heterogeneous concept that includes dimensions of physical and social functioning, role functioning, mental health and general health perceptions (Ritsner, Lisker, & Arbitman, 2012). Nevertheless, to date, there is no consensus on and common definition of quality of life or HRQOL. Furthermore, the operationalization of quality of life in forensic psychiatry is still in its infancy (van Nieuwenhuizen, Sclene, & Koeter, 2002). There are numerous subjective self-rated and objective clinician-rated measures of quality of life and HRQOL. The content of these, however, varies, with some similarities but many differences. Some of them are generic scales that can be used across different diseases and some are disease-specific scales. These issues, of course, make it difficult to compare the results from different studies. In any case, the measure should be utilized depending on the purpose of the assessment (Chino, Nemoto, Fujii, & Mizuno, 2009). When clinicians attempt to engage patients in their own rehabilitation and encourage them to be active agents of it, they cannot really settle for observer-rated measures in assessing quality of life, but should aim, instead, for a patient's subjective appraisal.

There are a vast number of studies focusing on exploring the links between well-being and other factors. The most consistent link between poor subjective well-being and symptoms in schizophrenia patients have been found to exist regarding depression (see Bechdolf et al., 2003; Kim, Lee, Kim, & Han, 2013; Margariti, Ploumpidis, Economou, Christodoulou, & Papadimitriou, 2015). However, other associations with subjective quality of life have been found regarding positive symptoms (see Heider et al., 2007; Ritsner, 2003) and insight into illness (Boyer et al., 2012; Chakraborty & Basu, 2010; Karow et al., 2008; Margariti et al., 2015). There is a significantly more limited number of studies investigating schizophrenia patients' HRQOL than there are ones examining

the more general quality of life. However, depression has also been found to strongly affect HRQOL (Chou, Ma, & Yang, 2014). Additionally, prominent positive and negative symptoms have been found to be associated with poorer HRQOL (Rabinowitz, Berardo, Bugarski-Kirola, & Marder, 2013) although with lesser impact on it (Chou et al., 2014). In a general population-based study, Saarni et al. (2010) found that schizophrenia was related to a significant decrease in the overall HRQOL, even after controlling for depression. However, they stress that depressive symptoms are the strongest predictors of poor HRQOL in psychotic disorders. They also noted that schizophrenia patients had significantly worse ratings on almost all of the dimensions of HRQOL compared to the general population. This result is consistent with an earlier study by Folsom et al. (2009), although they found that older age was associated with better mental HRQOL among patients with schizophrenia. In their decade-long follow-up on the HRQOL of patients with schizophrenia and schizoaffective disorder, Ritsner, Lisker, and Arbitman (2012) observed that most (64%) of the patients remained dissatisfied with their HRQOL and some even worsened (12%), while a quarter of patients felt that their HRQOL improved (16%) or remained satisfactory (8%). They also identified different patterns of predictive factors for different domains of HRQOL: emotional distress, medication side effects, and general functioning explaining the largest part of variance. In their study, sociodemographic and background variables did not have any association to HRQOL over time.

One might conclude that the research concerning forensic psychiatric patients' quality of life is still in its infancy. The comorbidity and heterogeneity of this patient group makes the picture more complex. The comorbidity of disorders, especially the presence of personality disorder in general, has been found to have a big impact on poorer subjective quality of life in outpatients (Masthoff, Trompenaars, Van Heck, Hodiamont, & De Vries, 2006). The global subjective quality of life has been found to be lower among forensic patients with personality disorders than among forensic patients with major mental disorders regarding both outpatients and inpatients (Bouman, van Nieuwenhuizen, Schene, & de Ruiter, 2008; Swinton, Oliver, & Carlisle, 1999). Furthermore, the concept of quality of life held by patients with personality disorders seems to be more complex (Bouman et al., 2008). Chou, Ma, and Yang (2014) found that the number of hospitalizations is also associated with poor subjective HRQOL. This may, for example, have an important impact on forensic patients' quality of life, because they often have several previous hospitalizations. To include a patient perspective in this research, it was decided to use a measure of HRQOL and a questionnaire on the subjective training success of the MCT intervention under study.

1.1.3 Insight in schizophrenia

Clinical insight

One of the prevailing characteristics of schizophrenia is the lack of insight into one's own illness (Amador et al., 1994). It has been estimated that from 50% to 80% of schizophrenia patients do not consider themselves as having a mental illness (Lincoln, Lüllmann, & Rief, 2007). In a majority of the research nowadays, clinical insight is viewed, in the formulation of Amador and David (1998), as a multidimensional concept. This concept includes five dimensions: (1) awareness of having a mental illness, (2) understanding its consequences, (3) recognizing the need for treatment, (4) the recognition of symptoms, and (5) that these symptoms are attributable to the illness.

The lack of clinical insight has been conceptualized in many ways: as a positive symptom, a negative symptom, a disorganized symptom, as denial (a defence mechanism), misattribution, impaired metacognition (cognitive neuropsychological perspective), a sociocultural process, a brain malfunction (neuropsychological model), and as an individual model of insight that considers individuals' perspectives, beliefs and values (Chakraborty & Basu, 2010). The model of clinical insight as impaired metacognition was especially intriguing in light of this research. In this conceptualization, insight is based on the cognitive ability to see yourself through the eyes of another person, which promotes the metacognitive ability to reflect on the person's own mental health (Langdon & Ward, 2009). Poor insight in schizophrenia is, therefore, seen as a dysfunction of this metacognition. The neurobiological basis of clinical insight is still poorly understood, although there is growing evidence for a mediational role of cognitive impairment, largely mediated by deficits in frontal cortical systems (Chakraborty & Basu, 2010). It has been suggested, however, that metacognition is an important mediator between basic cognitive deficits and poor insight – and that metacognition could be even more relevant to poor insight than cognitive deficits as such (Koren et al., 2004). Lincoln, Lüllmann, and Rief (2007) suggest that the different components of insight may differ in their aetiology, for example, unawareness of symptoms might be more directly associated with neuropsychological deficits, whereas the failure to attribute the symptoms to mental illness might be associated with reasoning biases (e.g. jumping to conclusions, JTC), and unacceptance of illness or its implications might be linked to attitudes toward treatment.

Although research has yielded contradictory results concerning the association between insight and psychopathology, Mintz, Dobson, and Romney (2003) suggest, in their meta-analysis of 40 studies, that higher clinical insight correlates with less global psychopathology and positive as well as negative symptoms, but more strongly among acute patients. However, the association between insight and symptoms over time is a complex one (see a review by Lincoln, Lüllmann, & Rief, 2007). Higher insight has also been associated with fewer re-hospitalizations (see reviews by Chakraborty & Basu, 2010; and Lincoln et al., 2007). Additionally, good insight has been linked to depression, low

self-esteem and low quality of life, but the association between insight and these clinical aspects has been suggested to be moderated by stigma (see a review by Chakraborty & Basu, 2010). In their review, Lincoln et al. (2007) state that poor insight and non-adherence to pharmacological treatment has also been found to correlate in most studies, but due to contradictory evidence no clear relationship between clinical insight and violence specifically among schizophrenia patients has been found. However, they suggest that lack of association in some studies might be due to ignoring possible moderating factors such as non-adherence and substance abuse. It has been suggested, however, that poor insight and medication non-adherence might after all be independent risk factors for violence among forensic patients (Alia-Klein, O'Rourke, Goldstein, & Malaspina, 2007). More evidence has accumulated of a link between poor insight and violence regarding diagnostically more heterogeneous patients, also in a forensic setting (Alia-Klein et al., 2007; Lincoln et al., 2007).

The diversity of research results indicates that clinical insight is a very complex concept regarding both aetiology and links to other problems. Altogether, based on scientific research, poor clinical insight is reckoned as a dynamic risk factor for violence in mentally ill patients (see e.g. Historical Clinical Risk Management-20 version 3, Douglas, Hart, Webster, & Belfrage, 2013). Without the adequate development of clinical insight, it is considered to be too risky to discharge forensic patients from the hospital. As such, it was considered essential that clinical insight was included as one of the outcome measures in the studies included in this research.

Cognitive insight and metacognition

The dimensions of clinical insight are incorporated into numerous clinical scales, but they do not evaluate the capacity for appraising unusual experiences and incorrect inferences per se. Hence, besides the multidimensional clinical insight, a more recent concept of cognitive insight (Beck, Baruch, Balter, Steer, & Warman, 2004) has been introduced. The concept of cognitive insight centres on the metacognitive processes of appraising and correcting beliefs, thereby presenting an alternative concept for insight (Beck et al., 2004). Metacognition and metacognitive abilities can be defined in different ways. Most often metacognition is described as the general ability to reflect on one's own mental processes. Metacognition was understood in this research as Dimaggio and Lysaker (2010) define it: "Metacognition refers to a thought which is about another thought or the process of thinking about thinking" (p. 1). They note that this ability to make sense of mental states has been labelled in many ways: theory of mind, mentalizing, social cognition, social understanding, mindreading or psychological mindedness. Metacognition can be understood as an umbrella concept and as a set of different skills and domains which have a social and neurocognitive basis (Dimaggio & Lysaker, 2010). Lysaker et al. (2013) make a distinction between more discrete abilities (e.g. social cognition) and synthetic metacognitive abilities and consider cognitive insight as a component of a wider synthetic

concept of metacognitive awareness, an ability to form complex images of others and oneself. As such, metacognition comprises a variety of aspects, for example, the ability to recognize emotions and beliefs or a more synthetic aspect of reasoning cause and effect and synthesizing different elements of experience into a meaningful whole. In this research, the intention was to focus not on the synthetic metacognitive abilities – that is, on the broader definition of metacognition or metacognitive awareness – but on a narrower form of metacognition, cognitive insight, and describe abilities such as social cognition that correspond to the purposes and scope of this research.

There is a variety of methods designed to assess different aspects of metacognition. For the assessment of cognitive insight, as one aspect of metacognition, a measure called the Beck Cognitive Insight Scale (BCIS, Beck et al., 2004) has been developed. BCIS consists of two factors: self-reflectiveness and self-certainty. Self-reflectiveness seizes on a person's willingness to recognize and admit fallibility and to receive feedback. Self-certainty indicates overconfidence in beliefs. The composite index score of this scale illustrates cognitive insight and mental flexibility. In the original validation study by Beck et al. (2004), the mean score for self-reflectiveness was 12.97 (SD = 5.00) and 7.94 for self-certainty (SD = 3.78) among schizophrenia patients. Several studies on psychotic patients have reported comparable mean scores as Beck et al. (2004; see e.g. Martin, Warman, & Lysaker, 2010; Pedrelli et al., 2004; Warman, Lysaker, & Martin, 2007), although there has been some discrepancy (cf. Greenberger & Serper, 2010; Guerrero & Lysaker, 2013; Tastet, Verdoux, Bergua, Destaillats, & Prouteau, 2012). Ekinci and Ekinci (2013) observed a self-reflectiveness mean score of 9.3 (SD = 3.9) and a self-certainty mean score of 9.5 (SD = 3.5) in violent schizophrenia outpatients. It has been suggested that self-certainty and self-reflectiveness are clinically and neuropsychologically independent dimensions (Cooke et al., 2010). BCIS has been reported to distinguish patients with psychosis from healthy controls (Martin, Warman, & Lysaker, 2010; Riggs, Grant, Perivoliotis, & Beck, 2012). However, there is no clear cut-off score for predicting patient status (Martin et al., 2010).

Previous research has produced conflicting results on the connection between clinical insight and cognitive insight. An association between these two constructs of insight has been found in some studies (Riggs, Grant, Perivoliotis, & Beck, 2012) whereas some studies have not been able to find one (Greenberger & Serper, 2010; Tastet, Verdoux, Bergua, Destaillats, & Prouteau, 2012). Riggs et al. (2012) argue that, in spite of their correlation, these two constructs of insight complement each other rather than overlap.

The theoretical background, on which BCIS has been built, assumes that there is a relationship between delusions and poor ability for self-reflection together with high overconfidence (Beck et al., 2004). However, studies on the connection between self-reflectiveness and delusions have reached inconsistent results. Studies comparing actively deluded and non-deluded patients have found both lower self-reflectiveness (Buchy, Malla, Joober, & Lepage, 2009; Engh et al., 2010) and higher self-reflectiveness in actively deluded patients

than in non-deluded patients (Warman, Lysaker, & Martin, 2007). Regarding self-certainty, in turn, studies have quite consistently come to the conclusion that there is an association with positive symptoms, especially delusions (Bora, Erkan, Kayahan, & Veznedaroglu, 2007; Bruno, Sachs, Demily, Franck, & Pacherie, 2012; Engh et al., 2010; Pedrelli et al., 2004; Warman et al., 2007) even if all do not agree (cf. Favrod, Zimmermann, Raffard, Pomini, & Khazaal, 2008; Granholm, Auslander, Gottlieb, McQuaid, & McClure, 2006). At least one explanation for these mixed findings has been suggested by Guerrero and Lysaker (2013). They propose that socially naïve self-appraisal might moderate the relationship between self-certainty and self-reflectivity with positive symptoms and, moreover, between self-certainty and delusions. Nonetheless, higher baseline cognitive insight appears to predict delusions reduction at the end of therapy (Perivoliotis et al., 2010). In addition, psychosocial treatment can increase cognitive insight, and particularly self-reflectiveness, and this improvement is related to a decrease in positive symptomatology at the end of therapy among psychotic and chronically ill schizophrenia patients (Granholm et al., 2005; Perivoliotis et al., 2010).

Although research on cognitive insight has existed for only a little over a decade and the knowledge from studies on cognitive insight is accumulating, not many studies regarding cognitive insight, psychosis and positive symptoms have included inpatients or forensic patients. In their study of violent and non-violent schizophrenia outpatients, Ekinci and Ekinci (2013) compared cognitive insight, clinical insight and positive symptoms between the two patient groups. They noted that violent patients had poorer self-reflectiveness and cognitive insight combined with more positive symptoms than the non-violent patients did.

1.1.4 Cognitive biases in schizophrenia

Among schizophrenia patients, a variety of neuropsychological and cognitive problems have been studied and shown to exist, concerning, for example, memory, attention, psychomotor speed, learning, and executive function. Nevertheless, there is a discrepancy between the results of studies concerning cognitive functioning in schizophrenia. Moustafa et al. (2016) suggest that the type of cognitive domain under investigation (e.g. learning, working memory, attention), medication state and type, and severity of positive and negative symptoms can explain the conflicting results in the literature. They suggest that this could be due to individual differences among the patients (i.e. variation in the severity of symptoms). Leeson et al. (2011) propose that following psychosis onset, general intelligence is stable and that there are three subgroups of schizophrenia patients regarding intelligence: people with stable low intelligence quotient (25%), with stable average/high intelligence quotient (31%) and with deteriorated intellectual ability (44%) established by psychosis onset. In their multisite study, Hodgins et al. (2007) observed that the intelligence of forensic patients with mental illness was within the normal variation.

In this research, however, the focus was not on deficits of basic cognitive abilities but on so-called cognitive biases, meaning those biases concerning thinking processes and styles, reasoning and problem-solving. In schizophrenia, the presence of certain cognitive biases has been established. Cognitive models of psychosis and positive symptoms shed light on understanding schizophrenia and its symptoms. The established cognitive biases are incorporated into these theoretical models to varying degrees. There are several competing theories, including larger entities than just cognitive biases, for example a cognitive model of paranoid delusions proposed by Freeman and Garety (2014) consists of six key factors: a worry thinking style, negative beliefs about the self, interpersonal sensitivity, sleep disturbance, anomalous internal experience, and reasoning biases (i.e. cognitive biases). Not forgetting that, in addition, genetic vulnerability to schizophrenia has been established and also environmental factors are thought to play a crucial role in the onset of the disease. Thus, the aetiology of the illness is complex. Here the focus is only on the evidence of biases that are related to the selection, processing and appraisal of information and thought to have a role in the formation and maintenance of psychotic symptoms, particularly delusions (Freeman, 2007; Freeman & Garety, 2014; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001; Sarin & Wallin, 2014). To note, this is not an exhaustive presentation of cognitive biases in schizophrenia, but here, only those biases related to the theoretical background of MCT-intervention under study are described.

Jumping to conclusions. The most studied of these biases is the data-gathering bias known as jumping to conclusions (JTC, Garety & Freeman, 1999). The theory suggests that schizophrenia patients base their decisions on less information than healthy controls and other psychiatric patients do, and the response pattern is most notable in acutely deluded patients (Dudley, Taylor, Wickham, & Hutton, 2016; Garety & Freeman, 2013; Moritz & Woodward, 2005). JTC bias is thought to be present when a decision is made after requesting only one or two pieces of evidence in a data-gathering task, although, it would be more appropriate to gather more information before reaching a conclusion. According to current literature, 50%–60% of schizophrenia patients jump to conclusions. For comparison, approximately 20% to 30% of healthy controls make hasty decisions (see e.g. Dudley et al., 2016; Garety & Freeman, 2013; Freeman, Pugh, & Garety, 2008; Warman, Lysaker, Martin, Davis, & Haudenschield, 2007). This bias is suggested to be most closely related to the severity of delusions (So, Garety, Peters, & Kapur, 2010). For example, Garety et al. (2005) have noted that JTC bias relates to delusions and stronger delusion conviction. More recently, however, the same study group found no association between JTC and stronger delusional conviction, even though among patients prone to high conviction beliefs, there were also significant levels of JTC (So et al., 2012). Freeman et al. (2008), on the other hand, discovered that JTC is related to paranoia-induced distress and conviction in paranoid ideation. In addition, JTC has been shown to be aggravated by stress among schizophrenia patients (Moritz, Burnette et al., 2011; Moritz, Köther, Hartmann, & Lincoln, 2015). Hasty decisions

have also been shown to more likely be false conclusions (Jolley et al., 2014). It has been argued that JTC is not explained by impulsivity, memory deficit (Dudley, John, Young, & Over, 1997; Menon, Pomarol-Clotet, McKenna, McCarthy, 2006) or general cognitive functioning (Mortimer et al., 1996). However, it has been suggested that in more complex situations, low intelligence quotient and emotional biases may contribute to reasoning errors (Jolley et al., 2014). Some authors have thought this bias to be a relatively stable trait which does not improve with symptom reduction (Peters & Garety, 2006; So et al., 2010, 2012). Others, on the other hand, argue that the change in hasty conclusions is related to changes in symptoms (see e.g. Woodward, Munz, LeClerc, & Lecomte, 2009). Van Dael et al. (2006) suggest that JTC has trait features and as such reflects vulnerability to psychosis and state-like features because it co-varies with delusional states.

Need for closure. People prone to delusional ideation and patients currently delusional or remitted have been shown to have difficulties dealing with ambiguous situations and situations in which no solution has been reached, thereby presenting an elevated need for closure (Bentall & Swarbrick, 2003; Colbert, & Peters, 2002; Colbert, Peters, & Garety, 2006; McKay, Langdon, & Coltheart, 2007). Need for closure could be described as a strong need to reach a solution to a matter, such as an explanation for an experience, due to the discomfort that the ambiguity evokes, even with a risk that the solution could be a bad one. It has been suggested that need for closure is independent of anxiety (Colbert, Peters, & Garety, 2006) and is not linked to a person's intelligence (Colbert, & Peters, 2002). It is still debatable whether need for closure is independent of JTC bias (Colbert, & Peters, 2002; McKay et al., 2007) or whether it would have some link to hasty conclusions (cf. Van Hiel & Mervielde, 2002), but as Moritz, Veckenstedt et al. (2010) summarizes, the results have been mostly negative. A non-linear positive relationship between need for closure and severity of (paranoid) delusions has been suggested up to a point, after which need for closure diminishes as severity increases further (McKay et al., 2007). On the other hand, it has been also suggested that need for closure is a stable trait that does not fluctuate with recovery and may represent a stable cognitive style promoting the development of delusional beliefs (Colbert, Peters, & Garety, 2006).

Bias against disconfirmatory/confirmatory evidence. When compared to healthy controls, schizophrenia patients fail to integrate new evidence even though contradictory or confirming evidence is introduced to them, and so they seem to display overconfidence in errors and at the same time to be less confident in correct responses (Köther et al., 2012; Moritz, Woodward, Jelinek, & Klinge, 2008; Riccaboni et al., 2012). These biases are called bias against disconfirmatory evidence (BADE) and bias against confirmatory evidence (BACE). BADE appears to be specifically associated with the presence of delusions (Riccaboni et al., 2012), and it has been suggested to be more pronounced in the presence of acute paranoia (Woodward, Moritz, Cuttler, Whitman, 2006). BACE, on the other hand, seems to be an index of knowledge inflexibility ascribable to

the diagnosis of schizophrenia (Riccaboni et al., 2012). BADE has been suggested to be independent from memory and executive functions and as such it taps a unique aspect of cognition (Woodward, Buchy, Moritz, & Liotti, 2007). The existence of BADE and BACE has been termed as a reduced 'confidence gap', a diminished ability to differentiate between errors and correct judgements (Moritz, Woodward, & Chen, 2006).

Memory. The reduced confidence gap also exists concerning memory recollections. Studies indicate that schizophrenia patients are overconfident in their incorrect memories, but less confident in correct recollections (Bhatt, Laws, McKenna, 2010; Moritz & Woodward, 2002; Moritz, Woodward, & Chen, 2006). This, in combination with a greater chance of error in patients (Aleman, Hijman, de Haan, & Kahn, 1999; Jolley et al., 2014), leads to a situation where a person holds an increased number of strong beliefs and memories which are, however, false, a phenomenon referred as 'knowledge corruption' (Moritz & Woodward, 2002; Moritz, Woodward, Cuttler, Whitman, & Watson, 2004). Knowledge corruption is considered to be a vulnerability factor to development of delusions (Moritz et al., 2006). Memory confidence reflects metamemory: when a person is evaluating the accuracy of memories, that person is thinking about his or her own cognition. These metamemory biases have also been observed among patients in a high-risk mental state for psychosis, though it is more pronounced in psychotic patients, and as such they are considered as possible early markers of a beginning psychotic state (Eisenacher et al., 2015). Moritz and Woodward (2004) have suggested that a reduced confidence gap may arise from the liberal acceptance bias observed among schizophrenia patients.

Liberal acceptance. Another observed data-gathering bias in schizophrenia, in addition to JTC, is liberal acceptance bias. According to the liberal acceptance theory, schizophrenia patients are more prone to accept implausible interpretations than healthy controls are (Moritz & Woodward, 2004; Moritz et al., 2008; Riccaboni et al., 2012; Woodward, Moritz, Cuttler, & Whitman, 2006). Liberal acceptance can be studied, for example, with a visual memory task, which includes distractors (lure items) that resemble the actual targets to varying degrees (see e.g. Moritz et al., 2008). Moritz et al. (2008) discovered that false recognition was increased for patients compared to controls for weakly and moderately related distractors only, whereas lure items with strong resemblance induced similar levels of false recognition for both groups. Consequently, the central assumption of the liberal acceptance account is that false recognition in schizophrenia is particularly high when the distractor–target resemblance is weak. Thus, when ambiguity is high (weak resemblance), rather than jumping to one particular interpretation, patients consider multiple alternatives as plausible (Moritz & Woodward, 2004; Moritz, Woodward, & Lambert, 2007; Riccaboni et al., 2012). Whereas when ambiguity is low, in the presence of strong resemblance lures, JTC bias tends to occur (Moritz, Woodward, & Lambert, 2007). The patients, thus, seem to have less strict criteria in making decisions. In the light of the current literature, liberal acceptance is seen as a possible promoter in the development of delusions. The initial ambivalence may subsequently

contribute to the acceptance of weakly supported response alternatives and to metamemory deficits, particularly confidence in memories (Moritz & Woodward, 2004; Moritz et al., 2008; Moritz, Woodward, & Lambert, 2007). Patients are satisfied with inadequate information and a sheer sense of familiarity justifies acceptance, which makes them susceptible to high-confidence incorrect judgements because opposing information that might decrease confidence is more readily overlooked (i.e. BADE; Moritz & Woodward, 2004; Moritz et al., 2008).

Social cognition. Schizophrenia patients also have problems with social cognition. The concept of social cognition refers to how people think about themselves and others in the social world. It offers a broad theoretical perspective that focuses on how people process information within social contexts (Penn, Sanna, & Roberts, 2008). The research in this area can roughly be divided into five partially overlapping domains: emotion processing, social perception, social knowledge, theory of mind, and attributional biases (Green & Leitman, 2008). In schizophrenia, problems of social cognition have been observed, for example, as difficulties in facial processing, including emotion perception (see reviews by Kohler, Walker, Martin, Healey, & Moberg, 2010; Phillips & David, 1995), and in drawing conclusions about the intentions of others and integrating context-related information (Brüne, 2005). Not unreasonably, impaired facial processing may be related to the misinterpretation of social interactions and delusion formation (Phillips & David, 1995). In particular, schizophrenia patients have a tendency to misinterpret neutral emotions as negative (Kohler et al., 2003), and it has been suggested that elevated threat perception may act as a mechanism for formation of persecutory delusions (Green & Phillips, 2004). In some studies, a greater deficit in the ability to perceive facial affect has been found to be related to higher levels of negative and positive symptoms of schizophrenia (see e.g. a review by Kohler et al., 2010). Recently, facial emotion recognition deficits have been described as being one of the important deficits in schizophrenia and that these deficits seem to be stable deficits persisting in both the acute and remission phase, thereby indicating that they could be trait markers for the illness (Behere, 2015). Köther et al. (2012) have demonstrated that overconfidence in erroneous beliefs applies to social cognition judgements as well. They stress that it makes an important difference if someone thinks, for instance, that some other person might maybe look angry, or is certain that this other person is angry. These interpretations may have quite different impacts on the person's behaviour.

Theory of mind. The cognitive ability to attribute mental states such as thoughts, beliefs and intentions to people, thus allowing a person to explain, manipulate and predict behaviour, is commonly called theory of mind (TOM) (Sprong, Schothorst, Vos, Hox, & van Engeland, 2007). TOM includes, for example, understanding false beliefs, hints, deception, metaphors and irony (Penn, Sanna, & Roberts, 2008). The TOM research in patients with schizophrenia began with the work performed by Frith (see e.g. Frith & Corcoran, 1996). He was the first to propose that some symptoms in schizophrenia, such as delusions,

may be due to deficits in TOM. To date, the difficulties schizophrenia patients' possess concerning TOM are well known (see meta-analyses and reviews by Bora, Yucel, & Pantelis; Brüne, 2005; Harrington, Siegert, & McClure, 2005; Sprong et al., 2007). The degree of TOM impairment has been found to be less pronounced, but still significant, among remitted patients than among acutely ill patients and the persistence of TOM deficits suggests that these impairments may represent a possible trait in schizophrenia (Bora et al., 2009; Sprong et al., 2007). Current evidence suggests that TOM deficits are most consistently related to thought disorder and paranoid symptoms in schizophrenia (Harrington et al., 2005). Sprong et al. (2007) conclude that intelligence, gender and age do not seem to moderate these deficits nor do they seem affected by verbalization deficits found in schizophrenia. According to Harrington et al. (2005), it is still unclear how general cognitive abilities affect TOM. Brüne (2005), on the other hand, states that general cognitive impairments (including e.g. attention, executive functions, memory impairments) do not explain TOM deficits as they persist after controlling for these general deficits, and TOM is, therefore, a specific deficit. Bora et al. (2009), in turn, have suggested that deficits in general intelligence may contribute to TOM deficits only in the remission phase of schizophrenia. All things considered, Sprong et al. (2007) suggest that general cognitive abilities possibly represent a necessary but not sufficient condition for adequate TOM. Nonetheless, the aetiology of TOM deficits still remain unknown to date (Penn et al., 2008).

Attributional biases. Bentall and his co-workers (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Bentall, Kaney, & Dewey, 1991; Kinderman & Bentall, 1997) first discovered that biases in the so-called attribution–self-representation cycle cause negative events to be attributed to external agents and hence contribute to the building of a paranoid world view. Others have also arrived at the same conclusion that paranoid patients are inclined to attributional biases: more prone to blame other people (external causes) for negative events and presumably attribute positive events and success to oneself (internal causes), a tendency which is also known as self-serving bias (Garety & Freeman, 1999). Janssen et al. (2006) conclude that psychotic patients tend to use an externalizing bias in their explanations of negative social events, and this bias is associated with the presence of positive psychotic symptoms, in particular delusions. Although self-serving bias is seen in healthy people as well, compared to normal controls, paranoid patients blame other people for bad events rather than external circumstances (Kinderman & Bentall, 1997), which is a personalised blame. On the other hand, it has been suggested that paranoid patients make fewer internal attributions than healthy controls do for both negative and positive events, which refers to a decreased sense of self-causation (Moritz, Woodward, Burlon, Braus, & Andresen, 2007; Randjbar, Veckenstedt, Vitzthum, Hottenrot, & Moritz, 2011). This kind of attributional style, a feeling of loss of control, has been found to be related to acute positive symptomatology (Randjbar et al., 2011). In addition, psychotic patients tend to make significantly more mono-causal explanations for events than healthy controls do

(Moritz, Köther et al., 2015; Randjbar et al, 2011). Moritz, Köther et al. (2015) have also found that the tendency for patients to make mono-causal attributions is increased under social stress. Due to the contradictory evidence, external attribution bias is still under debate.

Table 1 presents a short summary of the biases introduced above as a basis for the theoretical background of metacognitive training, along with some references for additional information. Overlaps between these different cognitive biases remain largely unknown (Woodward, Buchy, Moritz, & Liotti, 2007). However, it has been suggested that these biases only partially overlap, and targeting these biases independently via metacognitive training is encouraged (Moritz, Veckenstedt et al., 2010). Thus, these assumptions of cognitive models of psychosis, that is, biases established in schizophrenia and psychosis, open the door for applying cognitive-behaviourally based therapy interventions in the treatment of schizophrenia and psychosis.

TABLE 1 A summary of cognitive biases presumably contributing to the formation of delusions.

Bias	Description	For more information
Jumping to conclusions (JTC)	A data-gathering reasoning bias. Hasty conclusions are based on only one or two pieces of evidence. Apparent in 50%–60% of schizophrenia patients compared to 20%–30% of healthy controls.	Garety & Freeman (2013); So et al. (2010; 2012); Van Dael et al. (2006)
Need for closure	Difficulty dealing with ambiguous and no-solution situations. A strong need to reach a solution to a matter, due to the discomfort that the ambiguity evokes, even with a risk that the solution could be a bad one.	Colbert et al. (2006); McKay et al. (2007)
Bias against disconfirmatory/ confirmatory evidence (BADE/ BACE)	Failure to integrate new, both confirming and contradictory, information with existing information. Overconfidence in errors and simultaneously uncertainty with correct responses and memories. A reduced 'confidence gap', a reduced ability to distinguish between errors and correct judgements.	Köther et al. (2012); Moritz, Woodward, & Chen (2006); Riccaboni et al. (2012)
Memory	The above mentioned reduced 'confidence gap' also applies to memory recollections. A person has an increased amount of strong beliefs and memories, which, in fact, are false. This phenomenon is called 'knowledge corruption'.	Eisenacher et al. (2015); Moritz & Woodward (2002); Moritz, Woodward, & Chen (2006)
Liberal acceptance	A data-gathering bias where implausible interpretations are accepted. Can be described as less strict criteria in making decisions and acceptance of weakly supported response alternatives. Makes a person vulnerable to high-confidence false judgements because conflicting information that might undermine confidence is more willingly overlooked.	Moritz & Woodward (2004); Moritz et al (2008); Riccaboni et al. (2012)

Social cognition	Refers to how people process information within social contexts. Can be divided into emotion processing, social perception, social knowledge, theory of mind, and attributional biases. Includes difficulties in facial and emotion perception, especially interpretation of neutral emotions as negative, in concluding the intentions of others and integrating context-related information. Overconfidence in errors relates to social cognition judgements as well.	Behere (2015); Brüne (2005); Green & Phillips (2004); Kohler et al. (2003; 2010); Köther et al. (2012)
Theory of mind (TOM)	The ability to attribute psychological phenomena, such as thoughts, intentions, and beliefs to other people, which allows the person to comprehend and predict behaviour. TOM includes, for instance, understanding hints, irony, deception and metaphors.	Penn, Sanna, & Roberts (2008); Sprong, Schothorst, Vos, Hox, & van Engeland (2007)
Attribution	Paranoid attribution: blaming other people for negative events and attributing positive events to oneself, also known as self-serving bias. Paranoid patients may also make fewer internal attributions than healthy people do for both adverse and positive events, a tendency which implies a decreased sense of self-causation, i.e. a sense of lost control. Additionally, psychotic patients present more mono-causal explanations than healthy people do, a tendency that increases under social stress.	Garety & Freeman (1999); Kinderman & Bentall (1997); Moritz, Köther et al. (2015); Randjbar et al. (2011)

1.1.5 Depression and self-esteem

The incidence of depression and low self-esteem among schizophrenia patients is high and numerous studies underline the role of depression and low self-esteem among psychotic patients (see e.g. Birchwood, Iqbal, Chadwick, & Trower, 2000; Freeman, 2007; Freeman et al., 1998; Sarin & Wallin, 2014). Psychotic patients with more severe depression, low self-esteem and more negative evaluations about themselves have been shown to have more severe paranoid delusions accompanied by greater distress caused by these delusions (Smith et al., 2006). Depression, low self-esteem and negative evaluation of oneself are seen as influential factors in the development of delusions (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001; Garety et al., 2013; Smith et al., 2006). It has been suggested that delusions are a result of a dysfunctional psychological defence against low self-esteem and depression (Bental, Kinderman, & Kaney, 1994). Nowadays, cognitive models of psychosis, in which the role of negative emotions in the development and maintenance of psychosis are seen to be central and direct, in other words, non-defensive, are gaining more evidence (e.g. Garety et al., 2001; Smith et al., 2006). There is substantial evidence that suicidal thinking and hopelessness accompany depressive pathology in the period following the remission of acute psychosis (Birchwood, Iqbal, Chadwick, & Trower, 2000). To note, according to their observations, Hodgins et al. (2007) point out that almost half of all the forensic patients have had self-harming behaviour. It has been found that depression can follow the same course as positive symp-

toms during acute psychosis and relapse, but can also occur independently of the symptoms of schizophrenia and several months after recovery from an acute episode, that is, post-psychotic depression (Birchwood, Iqbal, Chadwick, & Trower, 2000). Additionally, a depressive mood can result in depressive attributional biases which are contrary to the attributions that paranoid people make (see e.g. Ball, McGuffin, & Farmer, 2008).

1.2 Cognitive-behavioural therapy for schizophrenia and psychosis

Because the patients treated in a forensic health care setting have numerous problems, their treatment and rehabilitation must approach all of their problems and in a multidisciplinary way (Robertson, Barnao, & Ward, 2011). Despite antipsychotic medication, more than half of patients are thought to suffer from permanent positive symptoms (Lindenmayer, 2000). Pharmacological treatment alone is, therefore, inadequate in helping patients to cope with their illness. In addition, the second generation antipsychotic drugs have failed to improve the treatment compliance in schizophrenia and high drop-out rates have prevailed (Voruganti, Baker, & Awad, 2008). Noncompliance has persisted especially among patients with a forensic history (Owen, Rutherford, Jones, Tennant, & Smallman, 1997). In addition to pharmacological treatment, different psychosocial interventions, including cognitive behavioural therapy (CBT), are recommended for schizophrenia in treatment guidelines in a number of countries. According to the Finnish Current Care Schizophrenia Guideline (Schizophrenia, 2015), the essential components in treatment of schizophrenia are medication, specific psychosocial interventions, such as cognitive-behavioural therapy (CBT), family psychoeducation and other rehabilitation that aims at improving patients' functioning, quality of life, daily living and occupational skills. In cases of medication-resistant illness, when the role of psychosocial rehabilitation is pronounced, CBT is especially recommended.

CBT for psychosis is based on cognitive models of psychosis and positive symptoms (see e.g. Beck, Rector, Stolar, & Grant, 2009; Nuechterlein & Subotnik, 1998), on cognitive therapy developed by Beck et al. (see e.g. Beck, Rush, Shaw, & Emery, 1979) as well as on stress-vulnerability models of schizophrenia (see e.g. Strauss & Carpenter, 1981). Competing cognitive theories include cognitive neuropsychological and self-monitoring deficits and motivational origins explaining psychotic experiences. This theoretical foundation is, however, outside the scope of this research because MCT differs from the more traditional CBT due to its somewhat different emphasis and perspective. The more specific theoretical basis for MCT is described in the previous section. This theory of biased reasoning styles is only one part of those theories explaining delusions. Notwithstanding, the goals of CBT are shortly described here, because, after all, MCT is developed from and within a cognitive-behavioural approach, and it

can be considered as one branch of a bigger CBT tree. The following description hopefully also helps to identify the similarities and differences along with the common and different factors of CBT and MCT.

An essential goal of CBT for psychosis is to normalize the patient's psychotic experience and to elaborate a reasonable explanation for this ideation (Pfammatter, Junghan, & Brenner, 2006; Tai & Turkington, 2009). The therapy focuses on identifying thoughts, beliefs and images of the patient (Garety, Fowler, & Kuipers, 2000; Tai & Turkington, 2009). The symptoms, their triggers and maintaining conditions are analysed (Pfammatter et al., 2006) while the relations between thoughts, mood and behaviour are elucidated (Garety et al., 2000). The subjective consequences and meanings of the symptoms are the targets of therapy (Pfammatter et al., 2006; Tai & Turkington, 2009). Primarily, making sense of a patient's experiences is the goal in therapy (Garety et al., 2000). The patients are helped and encouraged to self-monitor their cognitions as well as to identify thinking biases (Garety et al., 2000). Thinking (i.e. cognitive) biases are directly dealt with by focusing on the content of thoughts and styles of thinking (Tai & Turkington, 2009). Another key feature of CBT is that the patient's coping strategies are enhanced, usually situation specifically (Pfammatter et al., 2006). After the turn of the millennium CBT researchers and therapists have paid more attention to psychosis itself as well as to patienthood as traumas, and targeted their research and treatment accordingly (see e.g. Birchwood, 2003; Jackson et al., 2009; Mueser, Lu, Rosenberg, & Wolfe, 2010). With patients who do not respond adequately to medication, the main objective of therapy is to reduce symptom-induced distress and functioning deficiency, ease emotional disturbance and help the patient to understand psychosis, which encourages the patient to take actions that reduce the risk for relapse and lessens social disability (Garety et al., 2000). The foundation of the therapy is a good therapeutic relationship and alliance (Garety et al., 2000).

Even though CBT is widely recommended for schizophrenia patients, the debate over whether CBT really works for schizophrenia patients is still ongoing. Some authors claim that in schizophrenia, CBT is not more effective than non-specific control treatments and the beneficial effects of it are only due to the influence of methodological shortcomings of CBT trials (see e.g. a review by Lynch, Laws, & McKenna, 2010). However, many speak on its behalf as well (see e.g. reviews and meta-analyses by Gould, Mueser, Bolton, Mays, & Goff, 2001; Pilling et al., 2002; Tai & Turkington, 2009; Turner, van der Gaag, Karyotaki, & Cuijpers, 2014; Wykes, Steel, Everitt, & Tarrier, 2008). In individual studies and in meta-analyses, CBT has been shown to exert small to medium effect sizes, even though more positive estimates have been proposed. The proponents argue that CBT has been implemented successfully in treatment of schizophrenia with acute and also stabilized patients with chronic positive symptoms (Gould et al., 2001; Pfammatter, Junghan, & Brenner, 2006; Wykes, Steel, Everitt, & Tarrier, 2008; Zimmermann, Favrod, Trieu, & Pomini 2005). The beneficial effects of CBT on psychotic symptoms have also endured or increased over time (Gould et al., 2001; Pilling et al., 2002; Zimmermann et al., 2005). CBT

for psychosis is especially designed to target positive symptoms, but in schizophrenia patients it may also have positive effects on negative symptoms, functioning, emotional dysfunction and social anxiety (Pfammatter et al., 2006; Staring, Ter Huurne, & van der Gaag, 2013; Wykes et al., 2008). Anyhow, it is noteworthy that in almost all studies concerning chronic patients, the study subjects have been outpatients (Wykes et al., 2008). Although a majority of studies with methodological rigor concern individual therapy, Wykes et al. (2008) argue that there is no difference in clinical significance between individual and group CBT for psychosis. Yet, according to Lawrence, Bradshaw, and Mairs (2006), whether group-based CBT is an effective treatment for schizophrenia patients remains to be established. Orfanos, Banks, and Priebe (2015), in turn, argue that there is no difference between the efficacy of CBT-based therapeutic group interventions and group interventions based on other orientations and that group psychotherapeutic treatments can improve negative symptoms and social functioning but not positive symptoms.

The research concerning cognitive-behaviourally based interventions for offenders with serious mental illness seems to have really started only in the 2000s and the evidence of efficacy of CBT for violent and psychotic patients is scarce. In their review of structured group interventions for mentally ill offenders, predominantly CBT-based, Duncan, Nicol, Ager, and Dalgleish (2006) categorize the interventions from 20 included studies into four main themes: problem-solving skills training, anger and aggression management, self-harm interventions, and other, which included a variety of CBT-based interventions such as CBT for psychosis and psychoeducation. They concluded that the results were positive despite the heterogeneous study populations, small sample sizes and the lack of methodological rigor in most studies. Nonetheless, some evidence has emerged of CBT for violent and psychotic patients reducing violence, delusions and the amount of risk management required (Haddock et al., 2009) in addition to reducing aggression and improving social skills (Hornsveld & Nijman, 2005). Despite the limited evidence, CBT-based treatment programmes are widely used in forensic mental health services (Howells, 2010) and they are becoming an important factor in the treatment and rehabilitation of mentally ill offenders (Duncan et al., 2006). CBT-based interventions have evolved in recent times and new methods, such as mindfulness-based interventions and group metacognitive training, are already in use in the treatment of psychiatric patients. It has been questioned, however, whether the methods based on the CBT model are up to date in the field of forensic psychiatry (Howells, 2010).

1.3 Metacognitive group training for psychosis

1.3.1 MCT intervention

The aim of many psychosocial interventions, like CBT, is to reduce symptoms and to help patients cope with their symptoms. The symptoms and their con-

tents (individual delusional themes) are, in many cases, dealt with in a very direct way. For many patients, this approach can lead to avoidance, resistance and denial. The main cause for chronic schizophrenia patients to terminate psychological treatment is that they did not consider the intervention to be suitable for themselves (Tarrier, Yusupoff, McCarthy, Kinney & Wittkowski, 1998), an experience which, among other things, direct encounter of individual delusional themes may increase.

Based upon the research concerning cognitive biases, a treatment approach called Metacognitive Training (MCT) for Psychosis has been introduced (Moritz & Woodward, 2007a). Because psychotic breakdown is preceded by gradual changes in the interpretation of one's surroundings and cognition (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001), strengthening metacognitive abilities by an intervention may prevent psychotic episodes. MCT is based on the CBT model of psychosis but differs somewhat from traditional CBT in therapeutic approach. MCT does not address a patient's individual delusional themes directly but alters the cognitive biases and the 'metacognitive infrastructure' that underlie symptoms (Moritz & Woodward, 2007a). The main focus is not on practicing cognitive skills themselves, but on demonstrating how cognitive processes work. Research-based knowledge is shared with patients in order to improve their awareness of these problems in cognitive processes, to clarify the negative consequences, and to propose ways to manage these biases. MCT offers support as well as corrective experiences and helps patients to improve their problem-solving abilities. It includes elements of psychoeducation, cognitive rehabilitation and social reasoning.

MCT is a manualized intervention (Moritz, Woodward, Stevens, Hauschildt, & Metacognitive Study Group, 2010). In addition to the manual, the material includes two parallel cycles of PDF presentations, each cycle consisting of eight modules, group rules and homework sheets for every session. The intervention can be delivered in one or two cycles, in other words containing either eight or sixteen sessions. Table 2 describes the eight basic modules, which include themes of attribution, hasty decision-making, inflexible beliefs, memory, social cognition, depressive mood and self-esteem. In 2015, after the research was completed, the developers of MCT launched two additional modules focusing on self-esteem and stigma. These modules can be added on the basic modules. The eligible group leaders are psychologist, psychiatrist, psychiatric nurses or occupational therapists. All of the material can be downloaded from the website of the Clinical Neuropsychology Unit at the University Medical Center Hamburg-Eppendorf (2010) at no cost.

The manual (Moritz, Woodward et al., 2010) recommends 45- to 60-minute sessions twice a week and instructs that all of the PDF slides containing the theory be presented. The number of practices used in each session is more flexible and group leaders can alter it according to the participants. The contents of the modules are designed in such a way that they take into account the cognitive problems that schizophrenia patients may have. For example, the learning objective of the day is always repeated at the end of every module. In addition,

two types of cards are given to the patients for memory support: a yellow card including instructions for delayed decision-making and a red card for individuals' contact numbers in case they require help.

TABLE 2 MCT modules and their descriptions

Module	Description
1: Attribution – blaming and taking credit	Extreme attributional styles and their consequences are introduced and discussed. Participants are asked to come up with alternative explanations for different events. It is pinpointed that many factors can lead to one event.
2: Jumping to conclusions I	The consequences of hasty decision-making are outlined. The importance of sufficient information gathering and possible disadvantages in relying on first impressions is emphasized.
3: Changing beliefs	The participants learn that information mismatching one's opinions and attitudes is often ignored. Participants are reminded of the importance of reconsidering first impression because otherwise it can lead to faulty decisions.
4: Empathy I	The participants learn that facial expressions and gestures are relevant cues for interpreting someone's motives and feelings but do not give you sound proof, because they are easily misinterpreted. The participants are encouraged to consider contextual information instead of relying on details.
5: Memory	Participants are introduced to the false memory effect. They are taught to doubt those memories of theirs which are not recalled vividly and to collect additional proof to avoid false memories.
6: Empathy II	Different clues for judging other people are discussed including disadvantages and advantages of those criteria. Participants are also asked to take the perspective of another person. They are asked to consider what additional information is needed in making a correct interpretation about someone or some situation.
7: Jumping to conclusions II	Arguments for and against beliefs are collected, talked about and evaluated for their plausibility. Participants are taught how jumping to conclusions may lead to delusional ideas. The importance of investing enough time in solving complex problems is emphasized.
8: Self-esteem and mood	The participants are introduced to the symptoms of depression and dysfunctional thinking styles. The negative cognitive schemata are targeted by the exercises, and participants are taught how they can be corrected.

An experiential approach to learning creates a frame to the MCT intervention (Moritz, personal communication, October 4, 2016). According to the experiential approach the person's subjective experience plays a key role in the learning process (for more information see e.g. Kolb, Boyatzis, & Mainemelis, 2001). MCT emphasises the use of experiential exercises as a basis for learning and gaining corrective experiences. Every session starts by introducing the theme with psychoeducational and normalizing examples and exercises along with discussion of how the human cognition is fallible. This is followed by highlighting the pathological extremes of the thinking biases by illustrating how normal thinking biases, if exaggerated, may cause problems in everyday life and possi-

bly even escalate to delusions. Case examples of individuals with psychotic episodes are used in demonstrating this. The case examples also give the group the opportunity to reflect on their own experiences if they wish to do so. By doing this, the participants are aided in noticing and correcting the pitfalls of thinking. The coping strategies that backfire, such as thought suppression and avoidance, are also brought into the discussion in addition to how to adopt more helpful strategies. If a patient is unable to attend a session, it is not necessary to repeat the content of the missed session with the patient because individual modules deal with different topics.

The group is intended for patients with schizophrenia or schizophrenia spectrum diagnosis (Moritz, Woodward et al., 2010). Patients with other diagnoses are also eligible if they are currently displaying, or have previously had, psychotic symptoms, especially delusions, ideas of reference, or hallucinations. Only patients who are expected to be able to attend the whole session should be included. It is not advisable to include patients who have severe delusions or inappropriate maniac behaviour because it could be too stressful to these patients and the group dynamics could be disturbed. To them, individualised treatment should be offered instead. Present symptoms are not otherwise exclusion criteria unless strong self-referential delusions occur.

1.3.2 Studies on group MCT

Although the number of studies concerning group MCT is still limited and merely a handful of follow-up studies has been published only recently, encouraging evidence of the efficacy and feasibility of group MCT has already been gained (see e.g. a meta-analysis by Eichner & Berna, 2016, and reviews by Moritz, Andreou et al., 2014; Moritz, Vitzthum, Randjbar, Veckenstedt, & Woodward, 2010; Moritz, Vitzthum, Veckenstedt, Randjbar, & Woodward, 2010). More critical opinion have also been presented (cf. van Oosterhout et al., 2016). In their review, Eichner and Berna (2016) conclude that MCT shows a small to moderate effect on delusions and positive symptoms in addition to a large effect on acceptance of the intervention. They note that when the possible sources of bias are considered, the effect on delusions is diminished but remains significant. Moritz, Andreou et al. (2014) also reach a similar conclusion that the majority of studies show that MCT reaches its aim of reducing delusions and they suggest MCT as a complementary treatment method to antipsychotic medication. In their review, Jiang et al. (2015) present a more conservative estimate of MCT's effectiveness and despite some promising results, they end up in the conclusion that there is not yet sufficient evidence of the benefits of MCT on positive symptoms. Van Oosterhout et al. (2016) suggest that studies so far do not support a positive effect for MCT on positive symptoms, delusions and data-gathering. However, they reported that MCT exerted small to medium positive influence on these outcomes. In an invited commentary on van Oosterhout et al. (2016), Moritz, Werner, Menon, Balzan, and Woodward (2016) bring up some problematic issues concerning this meta-analysis, for example, that even though van Oosterhout et al. report the positive effects of MCT mentioned

above, they ignore these results in their conclusion. In addition, Moritz et al. (2016) note that the meta-analysis has omitted some noteworthy studies with positive results, and the authors of the meta-analysis claim that there was great heterogeneity among studies, which made the interpretation of the results difficult, despite the fact that, according to Moritz et al. (2016), this heterogeneity was due to one study only (in each analysis performed).

The individual studies on MCT suggest several results. For example, Aghotor, Pfueller, Moritz, Weisbrod, and Roesch-Ely (2010) studied inpatients and found stronger attenuation in positive symptoms and in JTC without any adverse effects among MCT participants compared with an active control condition (newspaper group). Accordingly, Moritz et al. (2013) and Moritz, Veckenstedt et al. (2014) found that participants in an MCT group showed significantly greater reductions in delusions and in positive symptomatology than did participants in a neuropsychological training group and that these improvements were sustained up to three years. The same study reported a significant improvement in self-esteem and quality of life, but only a trend for improvement in JTC, after the three year follow-up period in favour of MCT participants. In their study on outpatients only partially responsive to antipsychotic medication, Favrod et al. (2014) observed, in congruence with previous studies, a bigger reduction in positive symptoms in the MCT group than in the treatment-as-usual control group both immediately after intervention and at six-month follow-up.

In their study on outpatients, Favrod, Maire, Bardy, Pernier, and Bonsack (2011) demonstrated a decrease in the severity of delusions and depression, along with improvements in awareness of the delusions and the disorder, and in attribution of the delusions to the disorder (i.e. clinical insight). Gawęda, Krężołek, Olbry´s, Turska, and Kokoszka (2015) have also reported improvements in clinical insight, in addition to improvements in self-reported paranoia and subjectively assessed cognitive biases following MCT among chronic schizophrenia patients, but they found no effect on objectively evaluated symptoms, JTC and theory of mind. Briki et al. (2014) compared supportive therapy and MCT and found improvement favouring MCT in social functioning and in insight on hallucinations at a trend level and a significant difference in positive symptoms. Lam et al. (2015) report that MCT participants showed significant improvements in cognitive insight (i.e. increased self-reflectiveness), relative to treatment-as-usual (TAU) controls. MCT has also proven to be feasible for young people in the early phases of psychosis (Ussorio et al., 2016). The intervention has received good responses from patients, such as being helpful to recovery and increasing knowledge (Howe & Brown, 2015; Lam et al., 2015), and it has also gained better subjective training success appraisals than active control interventions (Aghotor et al., 2010; Moritz et al., 2013; Moritz, Veckenstedt, Randjbar, Vitzthum & Woodward, 2011; Moritz & Woodward, 2007b). Only one study by van Oosterhout et al. (2014) has implied that MCT is not more efficacious than TAU in terms of reducing delusions, subjective paranoid thinking or ideas of social reference, nor changing cognitive insight or subjective experience of cognitive biases and metacognitive beliefs.

Yet little is known about the feasibility of MCT in patients with comorbid problems. Moritz, Kerstan et al. (2011) have achieved promising results in chronic patients where approximately half have prior substance abuse. They discovered that patients participating in MCT showed significantly bigger amelioration in distress caused by delusions, JTC and social quality of life relative to the TAU control group. Among seriously mentally ill forensic patients, only one prospective naturalistic cohort study has been conducted focusing on the effects of MCT on mental capacity and functioning (Naughton et al., 2012). The results of the study implied an improvement in capacity to consent to treatment and global functioning following MCT, but there were no changes in psychotic symptoms. To my knowledge, neither randomised controlled trials (RCTs) of MCT nor any follow-up studies on this population have been carried out.

1.4 Background for this research

There is so little research on how to treat forensic psychiatric patients (Hillbrand, 2005; Robertson, Barnao & Ward, 2011) due to the fact that research on forensic patients with mental illness has strongly focused on recidivism (Fitzpatrick et al., 2010). In any case, one of the treatment methods recommended to be offered to patients with schizophrenia, including forensic patients, in different treatment guidelines is CBT. Nearly all of the research conducted on CBT-based interventions among chronic schizophrenia patients has been implemented on outpatients (Wykes, Steel, Everitt, & Tarrier, 2008). In addition, there is not much evidence on the efficacy of CBT for violent patients with psychosis. However, in the field of forensic psychiatry, CBT-based interventions are commonly used (Howells, 2010), and they are consolidating their status in the treatment of offenders with serious mental illness (Duncan, Nicol, Ager, & Dalgleish, 2006). It is questionable, however, if CBT methods in the forensic field have been keeping up with the development (Howells, 2010).

Several psychological treatments, including CBT, aimed at helping people to cope with their illness and symptoms, may address psychotic symptoms quite directly. This can be a very sensitive subject for the patients, and thus possibly cause resistance and avoidance. To open up the area of forensic research to mental health issues and treatment, and to avoid problems arising from a direct approach to symptoms, it was decided to study the feasibility of metacognitive group training for schizophrenia patients in forensic setting. Even though it is a CBT-based intervention, MCT does not address symptoms directly. Instead, it utilizes a detour and focuses on the cognitive biases underlying the symptoms (Moritz & Woodward, 2007a). As far as is known, only one prospective naturalistic cohort study regarding group MCT and its effects on the mental capacity and functioning of psychotic forensic patients has been published (Naughton et al. 2012). Therefore, to date, there have been no randomised controlled trials (RCT) on forensic inpatient populations, nor any follow-up studies on this patient group. Because MCT is proposed to influence the biases underlying symp-

toms, it was clear that symptom measures were to be included among the outcome measures. Because recidivism has dominated research in this field, other areas, such as HRQOL, have received less attention (Fitzpatrick et al., 2010). Furthermore, interest in patients' opinions towards treatment has not been very strong in the field of forensic mental health research. Many schizophrenia patients with chronic illness drop out from psychological treatment because they feel that the treatment does not meet their needs (Tarrier, Yusupoff, McCarthy, Kinney, & Wittkowski, 1998). In order to be able to develop more effective treatment methods that meet patients' needs, these patient-focused perspectives must also be taken into account in research and clinical practice. For these reasons, a subjective evaluation of HRQOL and patients' subjective appraisal of the MCT intervention was included in this research. To the best of the author's knowledge, the effect of MCT on HRQOL and the patients' appraisal of the programme have not been studied in a forensic setting.

Because a lack of clinical insight is a dynamic risk factor for violence in patients with mental illness (see e.g. Historical Clinical Risk Management-20 version 3, Douglas, Hart, Webster, & Belfrage, 2013), it would be too daring to release a forensic patient from a hospital unless the patient has developed an adequate amount of clinical insight, even if a patient's symptoms were in a state of remission. For this reason, an assessment of clinical insight was included among the outcome measures used in studies included in this research. Even though a more novel concept of cognitive insight was introduced a decade ago (Beck, Baruch, Balter, Steer, & Warman, 2004), the amount of studies on cognitive insight, psychosis and positive symptoms among inpatients – or forensic patients – is scarce. Most of the previous studies looking at cognitive insight, positive symptoms and psychosis have included outpatients. There was only one study that came across on violent and non-violent schizophrenia outpatients (Ekinci, & Ekinci, 2013) which compared cognitive insight, clinical insight and positive symptoms between the two patient groups. As far as is known, no previous studies have been published on cognitive insight (measured by BCIS) in forensic and violent non-forensic inpatient population. It is important to understand illness- and symptom-related factors in order to be able to begin the development of treatment methods in the right direction, toward methods that target all of the important factors specifically. The patient's perspective on insight (measured by BCIS) is as important as that of the clinician's regarding commitment to, and agreement about, treatment (Tranulis, Lepage, & Malla, 2008), which gives further impetus to investigate it. Due to the lack of research in this field on cognitive insight and its associations with other factors brought about by a psychotic illness, such as symptoms and challenges in problem-solving ability and in insight into illness, it was decided to study their manifestation in this patient group.

Although the MCT-intervention under study builds upon and concentrates on all of the biases introduced in the Introduction, only the bias with the most literature and knowledge, a JTC data-gathering bias, was selected to be studied. This decision was done because it would not have been reasonable to

include the assessment of all of the biases in the protocol. To the best of this author's knowledge, JTC data-gathering reasoning bias has not been studied among mentally ill patients in a forensic setting.

As a whole, this research was designed to fill these identified gaps in the previous research and to add new perspectives to the development of the treatment in forensic psychiatric care.

1.5 Aims of the research

Because the research concerning cognitive and metacognitive biases and applicability of metacognitive training in a forensic setting is very limited, if not non-existent, it was decided to focus on the following questions in this research. The first aim was to examine the manifestation of the cognitive (reasoning in terms of JTC) and metacognitive (cognitive insight) biases possibly underlying the positive symptoms of schizophrenia in chronically ill schizophrenia patients with a history of violence. The second aim was to explore the associations of these biases with each other and with positive symptoms and clinical insight. A further aim was to study the possible effects of metacognitive group training (MCT) to positive symptoms, more specifically delusions (including paranoid delusions), and overall severity of illness in addition to reasoning in this patient group. The feasibility of the intervention in terms of attendance and the patients' subjective appraisal of MCT were also investigated. Lastly, the perceived HRQOL of these patients and possible effects of MCT on HRQOL were explored.

The aim of Study I was to investigate the possible characteristics of these patients in terms of cognitive insight and reasoning ability and the possible relationships between cognitive insight, clinical insight, reasoning and symptoms (delusions). In other words, the aim was to identify possible treatment needs and mechanisms related to schizophrenia in this patient population. More specifically, the research questions of the study were:

(1) What kind of cognitive insight and data-gathering ability do the patients have?
(2) Are these abilities associated with clinical insight, positive symptoms of schizophrenia, and with each other?

Study II aimed to provide new information regarding the feasibility of MCT for forensic and dangerous difficult-to-treat non-forensic schizophrenia patients in terms of symptoms, reasoning, and attendance. It was hypothesised that compared to the control group the MCT group will experience greater improvements in symptom reduction and reasoning in terms of data-gathering (see Moritz, Andreou et al., 2014) and that these effects will be maintained three and six months later (Favrod et al., 2014; Moritz et al., 2013; Moritz, Veckenstedt et al., 2014). It was also hypothesised that the patients' attendance at the interven-

tion would prove satisfactory with a low number of drop-outs and missed sessions. The research questions were:

(3) Does MCT have any favourable effect on positive symptoms of schizophrenia and reasoning in terms of data-gathering?
(4) How well is MCT accepted among patients in terms of attendance?

In Study III, the aim was to investigate how participants assess the usefulness, interest and effect of the MCT intervention and to determine if the intervention had either positive or adverse effects on the participants' HRQOL in comparison to that of the control group. In addition, the patients' HRQOL was compared with an age- and gender-matched population group. It was hypothesised based on prior studies that the patients would appraise the intervention positively (Aghotor, Pfueller, Moritz, Weisbrod & Roesch-Ely, 2010; Moritz et al., 2013; Moritz, Veckenstedt et al., 2011; Moritz & Woodward, 2007b). In addition, a more negative HRQOL was expected to be present among the patient group than among the population group, also based on previous research (Saarni et al., 2010). No hypothesis was set regarding the treatment effect on HRQOL because it was thought that both positive and negative effects and development could be possible. The research questions were:

(5) How do the patients appraise the MCT intervention?
(6) What kind of health-related quality of life do schizophrenia patients in forensic psychiatric care have compared to a general population?
(7) Does MCT have any effect on health-related quality of life?

As such an entity, Study I formed a basis for Studies II and III in describing some relevant characteristics of patients in forensic psychiatric care. In addition to symptomatology, it investigated what kind of deficits or biases in cognition and metacognition could be targeted in treatment. In other words, these characteristics affect, for example, the planning and selection of psychosocial treatment methods. Study II built and added upon the ground laid by Study I by investigating how metacognitive training method affected symptomatology and JTC bias, which is one of MCT's target domains (disease-centred outcomes). Study III added a patient-centred approach by investigating patients' HRQOL and the patient perspective of the intervention.

2 METHOD

2.1 Service setting

The research was conducted in a high-security forensic hospital setting where all patients are in involuntary treatment. Niuvanniemi Hospital is a state mental hospital and there are patients with mental disorders from two service types: forensic and non-forensic patients. A person can also be committed to this hospital in order to receive a court-ordered forensic psychiatric evaluation (Mental Health Act, 1990). At end of 2013 there were a total of 275 adult patients in the hospital. Of those patients, 142 were forensic (51%) and 129 (47%) non-forensic difficult-to-treat patients. The remaining four people (2%) were in the hospital due to forensic psychiatric evaluation. In 2013 the average duration of treatment for forensic patients discharged from the hospital was 13 years and 5 months and that of the non-forensic patients was 4 years and 11 months.

It has been found that the criminal histories of the offenders with schizophrenia treated in the general and forensic hospitals are similar, except that all patients who had killed are treated in forensic hospitals (Tengström & Hodgins, 2002). This suggests that schizophrenia patients who have committed crimes are, at least in this respect, similar, regardless of the treatment facility or service type in forensic hospital. In this research it was presumed that forensic and non-forensic patients did not differ from each other significantly, because the allocation to the forensic and non-forensic group may be due to mere chance. Many non-forensic patients have also committed criminal acts in the past. In fact, at the time of the research, 97% of non-forensic male patients in the hospital had a history of violent behaviour. Despite the violent behaviour in their history, some patients are not prosecuted and some who have been prosecuted and sentenced have already fulfilled their sentence. For this reason their service type is non-forensic difficult-to-treat.

2.2 Participants

All of the recruited patients participated in all three studies. The participants were recruited by the author in September 2011 using the hospital's patient registry. The inclusion criteria were as follows: a diagnosis of schizophrenia diagnosed before commencement of the research by the treating psychiatrists according to ICD-10 criteria (World Health Organization, 1992), male sex, age over 18, Finnish as a native language and completion of a psychoeducation group. Because of its effectiveness (Bäuml, Froböse, Kraemer, Rentrop, & Pitschel-Walz, 2006), group-administered psychoeducation is offered routinely to the patients in the hospital and withholding psychoeducation for such a long time was considered unethical. Thus, the completion of a psychoeducation group was included among the inclusion criteria because no one participating in Studies II and III was allowed to take part in these groups until the completion of the research. The exclusion criteria were as follows: moderate to severe intellectual disability, dementia or a gross neurological disorder, an inability to participate for security reasons and an inability to consent for any reason (assessed by the treating psychiatrist).

Out of 291 screened patients, 91 eligible patients were found. Random sampling was carried out using a random number generator to obtain a representative clinical sample (Levin, 2006). Out of 33 randomly selected patients, 12 declined to participate. One patient was excluded due to inability to consent. A total of 20 participants consented (10 forensic and 10 non-forensic patients), and all of these patients participated in all three studies included in this research. As a cross-sectional study, Study I included all of these 20 patients and for Studies II and III the participants were randomised evenly into intervention and control groups. All patients were medicated with antipsychotics during the entire research period. The detailed demographic information and description of the medication history of the participants during the research period are described in the original articles. Overall, the sample can be described as chronic and heterogeneous.

In Study III, the age- and gender-matched general population data (N = 1615) came from the representative Health 2011 study by the National Institute for Health and Welfare (Koskinen, Lundqvist, & Ristiluoma, 2012). Professor Harri Sintonen conducted the comparisons between the age-standardized general population and the patients.

2.3 Design

2.3.1 Cross-sectional design in Study I

Study I was conducted as a cross-sectional descriptive study. The aim of this study was to shed light on the characteristics of the patient population (preva-

lence) and explore the associations between these characteristics. For this reason, a cross-sectional design and correlational analyses were adopted (see e.g. Mann, 2003). The assessments were made during a single research assessment session in November 2011 and all 20 participants underwent the same assessments, which were also the baseline assessments for Studies II and III.

2.3.2 Randomised controlled trial design in Studies II and III

Studies II and III were single (rater) blind RCTs. All of the participants underwent the same interviews and assessments including symptoms ratings, a reasoning task, and self-assessment questionnaires (described in the Measures section). After the baseline assessment, the patients were arranged in a hierarchy corresponding to severity of illness (described in Measures) and randomly matched, pairwise, to the MCT treatment group and to the treatment-as-usual (TAU) control group. The pairwise randomization was adopted to avoid (selection) bias resulting from incomparability of the intervention and control group, thus avoiding biased treatment-effect estimates. The randomization was administered using a random number generator (Stat Trek, 2011) by a person independent of the research. The assignment to the MCT and to the control group was not stratified for service type. This was because eight of the forensic patients and all of the non-forensic patients positively had violent behaviour in their history. This information was missing from two forensic patients.

All of the assessments were administered blind to the group allocation and the participants were instructed not to reveal their group allocation to the researcher to avoid detection bias from the researcher (differences in the assessments of patients). The researcher was informed of the allocation only after the final follow-up assessment. The same assessments were conducted at the baseline in November 2011, at the immediate post-treatment phase in December 2011 and at the three-month follow-up in March 2012 and at the six-month follow-up in June 2012. The only difference in the assessments between the MCT group and the control group was that, at the immediate post-treatment phase, the treatment group was also given a questionnaire about the group program. The questionnaire was given by the group leaders in order to guarantee the blinding of the research. One participant dropped out at the first follow-up stage and one participant was excluded after post-treatment because there were significant changes made to his medication that lead to a worsening of his mental condition. Both patients were from the MCT group.

The treatment group underwent an eight-session MCT intervention, described in detail in the Introduction, in addition to TAU. The modules included the following themes: session 1: Attribution - blaming and taking credit; sessions 2 and 7: Jumping to conclusions; session 3: Changing beliefs; sessions 4 and 6: Empathy; session 5: Memory; session 8: Self-esteem and mood. Four psychologists working in pairs delivered the intervention for two groups of patients, with five patients in each. Although they were experienced in group interventions, the group leaders had not administered the MCT intervention prior to the research. Thus, they were introduced and trained to the MCT programme

by a 2-hour training. The MCT group interventions were conducted by the manual (Moritz, Woodward et al., 2010) and the group leaders were instructed to present the same PDF slides, containing all of the theory and selected practice tasks, for both intervention groups. If a patient missed a session, the session was not repeated. The adherence to the content and programme (manual) was documented by group leaders after every session to a group administration diary and only minor differences occurred. The 45-minute sessions were held twice a week. The participants also received homework after every session matching the topic of the day. The ward staff was not offered training for the intervention but they were informed of the research.

The control group continued TAU during the whole research. After the immediate post-treatment assessment, the treatment group also continued TAU. The TAU consisted of pharmacotherapy, ordinary ward activities and appointments with a designated key-worker (psychiatric or practical nurse). In addition to psychoeducation, the participants were not allowed to participate in social skills training groups during the research because of the partially overlapping target domains. The treatment effects of these rehabilitation groups could, therefore, interfere with the possible MCT treatment effects. However, the participants were free to participate in other group activities, such as leisure time activities, work therapy and other forms of therapeutic groups. Participation in other group activities was not monitored. At the end of the research the experimenter tried to guess the group allocation of each patient to assess how successful the blinding was. Comparison with actual group allocation showed that guesses were not significantly better than chance. This indicates that blinding was sufficient.

2.4 Measures

In this research, the intention was to reach a balance between observer-rated illness-centred and patient-focused self-report outcome measures. Because MCT is targeted at alleviating biases underlying psychotic symptoms (Moritz & Woodward, 2007a), outcome measures evaluating symptom severity were seen to be essential. Observer-rated outcome measures included three clinical interview-based symptom measures. All of the patients also performed a reasoning task and filled in two self-report questionnaires. An additional subjective training satisfaction questionnaire was given to the MCT participants. All of the measures are briefly described below. In addition to subjective feedback, acceptance and feasibility of the MCT intervention were determined by the completion rate of the intervention and a number of sessions missed per patient.

Symptom measures. The Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein, & Opler, 1987) was selected as a symptom measure because it is widely used and well known among researchers and clinicians. The presence of delusions, suspiciousness and a lack of insight were determined using P1 delusions, P6 suspiciousness and G12 lack of judgement and insight items, respec-

tively. The items are assessed on a 7-point scale (1–7). These three items were summed up (PANSS Sum) as central but not inclusive to chronic schizophrenia. PANSS Sum served as an index of the overall severity of the illness and characterised chronic schizophrenia since the patients were still symptomatic in spite of the treatment they had received. The items were selected for clinical relevance, as lack of insight has an impact on discontinuing medication (Voruganti, Baker, & Awad, 2008), for possible responsiveness to MCT (Favrod, Maire, Bardy, Pernier, & Bonsack, 2011), and for their relevance to the theoretical model of Beck Cognitive Insight Scale (BCIS; Beck, Baruch, Balter, Steer, & Warman, 2004), another measure included in evaluation. P6 Suspiciousness was included for coherent assessment because the evaluation of paranoid delusions is included in the Delusions Scale of the Psychotic Symptoms Rating Scales (PSYRATS; Haddock, McCarron, Tarrier, & Faragher, 1999) which was also used in the assessment of the symptoms. The rest of the PANSS items were excluded in order to avoid making the interviews too exhausting to the patients and to minimize the loss to follow-up. In Study II, the PANSS Sum was used as a primary outcome measure.

Although the PANSS is a widely used measure, it does not take into account different dimensions of symptoms. For this reason, the Delusions Scale of the PSYRATS (Haddock et al., 1999), which is based on a clinical interview, was also included in the assessment. In addition, these two measures are easily administered during the same interview. On PSYRATS, the severity of symptoms is assessed on a 5-point scale (0–4). The scale comprises of six dimensions: amount of preoccupation with delusions, duration of preoccupation with delusions, conviction, amount of distress, intensity of distress and disruption to life caused by beliefs. A total score of the scale can be generated by adding up the item scores. In Study I, the PSYRATS items conviction, amount of distress, intensity of distress and total score were selected for comparisons based on indications that JTC bias, also under investigation in this study, is associated with delusions, distress caused by paranoid delusions, delusion conviction and belief inflexibility (see Freeman, Pugh, & Garety, 2008; Garety et al., 2005).

For the symptom measures (PANSS items and PSYRATS Delusion Scale), the researcher was trained by a senior expert clinician. The inter-rater agreement (kappa) was over .70 for all measures. The measures used for stratification prior allocation randomization in Studies II and III were the above mentioned PANSS and PSYRATS items and the global severity item of Clinical Global Impressions (CGI; Guy, 1976). The global severity item summarizes wide areas of functioning on a 7-point scale (1–7), and for that reason, was selected and included as a simple measure of general severity of illness. The cumulative score from these measures indexed a crude global severity of illness and was considered to give an overall impression of the severity of the patient's illness.

Reasoning ability. To measure reasoning ability in terms of data-gathering, that is, JTC bias, which the MCT intervention aims to influence, a computerized version of a reasoning task was used, adapted from Moritz, Veckenstedt et al. (2010). For this research the task was translated into Finnish.

In this task participants were shown pictures of two lakes and they had to decide how much information (i.e. how many fish) they needed to gather before making a decision from which of two lakes the fishes are caught. The lakes had fish of two different colours in a 20:80 ratio in opposing ratios. Participants were told that a fisherman would select one of the two lakes at random and fish from that lake only. After each fish was caught, participants were asked whether they would want to gather more fish or whether they were ready to make a decision. The adapted tasks first slide with instructions is presented in Figure 1. Once the fish was caught, the picture of it remained at the top of the screen as a memory aid. The maximum number of fish that could be gathered was 10. The draws-to-decision (DTD) variant of the JTC paradigm (see Fine, Gardner, Craigie, & Gold, 2007; Garety & Freeman, 1999) was used as an outcome variable in Study I. In Study I, JTC was classified as requesting a maximum of two fishes before making a decision. In Studies II and III, because the objective was to investigate the most extreme response pattern, a more stringent classification was adopted, in which JTC was determined as requesting only one fish. The JTC outcome variable was a binomial yes/no variable (in Study I: $\leqslant$ 2 fish = yes, > 2 fish = no; in Studies II and III: 1 fish = yes, > 1 fish = no).

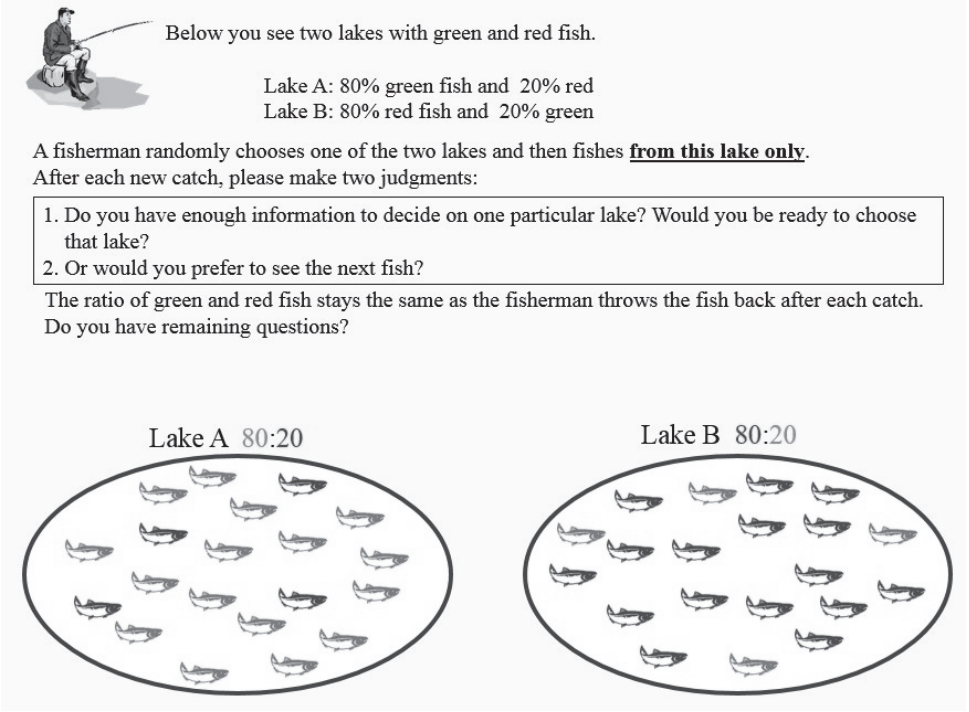

FIGURE 1 The first slide of the adapted version of the fish task with instructions

Cognitive insight. The authorized Finnish version of the Beck Cognitive Insight Scale (BCIS; Beck, Baruch, Balter, Steer, & Warman, 2004), translated for this research, was used to measure cognitive insight. A measure of cognitive insight

was included in the assessment because it considers many of the features and metacognitive abilities related to the studied MCT intervention and the author wanted to perform a preliminary exploration of the state of these abilities in this patient group. BCIS is a 15-item self-assessment questionnaire in which each item is assessed on a 4-point scale ranging from 0 to 3 (0 = do not agree, 3 = agree completely). It comprises two subscales: self-reflectiveness and self-certainty. BCIS composite index score, representing cognitive insight, is obtained when the self-certainty score is subtracted from the self-reflectiveness score. A lower score on the self-reflectiveness subscale, a higher score on the self-certainty subscale and a lower BCIS composite index score indicate poorer cognitive insight.

Health-related quality of life. The 15D health state descriptive system was used to assess HRQOL. This self-administered measure is generic, comprehensive and standardized (Sintonen, 2001), and it can be used as a single index and as a profile score measure. 15D is used to evaluate 15 different aspects of individuals' health state: mobility, vision, hearing, breathing, sleeping, eating, speech, excretion, usual activities, mental function, discomfort and symptoms, depression, distress, vitality, and sexual activity. The 15D score (the single index score) represents overall HRQOL on a scale ranging from 0 to 1 (1 = full health, 0 = being dead) and the dimension-level values reflect the goodness of the levels relative to no problems on the dimension and to being dead. These values are derived from the health state descriptive system by using a collection of population-based preference or utility weights (Sintonen, 2001). This measure was used because it is developed in Finnish and Finnish population reference values are, therefore, available. The profile scores for depression and distress dimensions in addition to the 15D score were selected for the examination of the impact of MCT. These single dimension level values were selected because they are the most univocal measures of quality of life associated with mental health in 15D.

Subjective feedback. A short subjective feedback questionnaire was developed for this research so that the patients' appraisal of the intervention could be taken into account. The questionnaire developed consisted of eight questions, which covered distinct aspects of subjective training success, on a 4-point scale (0 = not at all, 1 = slightly, 2 = quite a lot, 3 = a lot): (1) "How willingly did you participate in this group?", (2) "Did you understand the contents of the programme?", (3) "How fun did you think the content was?", (4) "How much did you like working in a group?", (5) "How positively did this group affect your every-day life?", (6) "How important do you think this group is for your treatment and rehabilitation?", (7) "Would you recommend this treatment to others?", and (8) "Did you acquire any knowledge or skills that could be beneficial to you?". The patients also had a possibility to give examples of skills or knowledge they had obtained from the group treatment. The questions selected resembled the questions asked in previous MCT studies (Aghotor, Pfueller, Moritz, Weisbrod, & Roesch-Ely, 2010; Moritz et al., 2013, Moritz, Veckenstedt et al., 2011; Moritz & Woodward, 2007b).

The following information was also collected after the actual trial was finished: level of education, main offences for forensic patients and reason for admission for non-forensic patients, Global Assessment of Functioning (GAF, American Psychiatric Association, 2000, determined by a trained member of the treatment team as a part of routine treatment-related assessment), duration of current admission and history of prior hospitalizations. This information is missing from two patients, one from the intervention and one from the control group. One patient refused to give this information and the other was released from the hospital and could not be reached to give his consent.

2.5 Data-analyses

The data analyses for the descriptive statistics, and correlations (Kendall's tau-c) were conducted using the SPSS statistics software versions 19 and 22 for Windows. Due to the non-normally distributed variables and the small sample size non-parametric tests were used. The Mann-Whitney U test and the chi-square test (for categorical variables) were used to compare the differences between the MCT and control groups (in Studies II and III), between the forensic and non-forensic patients (in Study I) in the demographic variables and between the patients and the population group in HRQOL measures (in Study III). Because after post-treatment measurement, two participants in the MCT group dropped out, their follow-up scores were replaced with their post-treatment scores regarding JTC. No other scores were replaced due to drop-outs.

In Study I, Kendall's tau-c (τc) was used to examine rank correlations due to the fact that the variables were characterized by many tied ranks, in addition to non-normality, and because the data produced large rectangular contingency tables instead of square tables. Additionally, the use of rank correlation reduces possible distortions produced by nonlinearity, unequal variances and outliers. To test statistical significance, the Monte Carlo method was used. In tau-c the standard errors (SE) of the measures affect statistical significance. Because SEs vary between different cross tabulations according to the measures included in the table, large correlations in one table may not reach statistical significance even though smaller correlations in another table might reach significance.

In Studies II and III, the differences in change between the MCT intervention group and the control group were analysed by hierarchical linear modelling (HLM) (Woltman, Feldstain, MacKay, & Rocchi, 2012) with Mplus version 7 (Muthén & Muthén, 1998-2015). This modelling is ideal because it allows, for example, missing data. The dummy-coded variables were used in analysing the repeated measures effect, that is, the change in relation to time. The occurrence of missing values were assumed to be random. In the presence of non-normal distribution, the estimation was based on a full information approach with robust standard errors. For testing the effects in this model, the Wald test was used. In other words, the question was if the control group's mean value changes in relation to time and is there any difference in the change between

the MCT group and the control group. The model testing the between-group effect determined the mean starting value, β10, and the mean change of the control group across subsequent measurements, one parameter regarding each time interval: β20, β30 and β40. The model also defined the difference of the MCT treatment group from the control group at the starting level, β11, and the difference in mean change across subsequent measurements: β21, β31 and β41.

Regarding JTC in Study II and to illustrate the magnitude of the treatment effect, when appropriate, in Study III, controlled effect sizes (Cohen's d) were calculated. The calculation was made by dividing the mean scores (in Study III) and mean change scores (in Study II) in the MCT intervention and control groups by the pooled standard deviations (SD) at the different time points (Cohen, 1988). Cohen (1988) describes the effect size of 0.2 to be small, a value of 0.5 as a medium effect size and an effect size of 0.8 as large.

3 OVERVIEW OF THE ORIGINAL STUDIES

Table 3 (p. 55) presents a summary of the participants, the study design, research questions, measures, and the main results for the three studies. The detailed numerical results have been presented in original articles and only a summary of results is presented here.

3.1 Descriptive statistics

Regarding Study I, it was found that none of the differences between forensic and non-forensic group in the demographic variables or in the measures selected for analysis were statistically significant. This finding further implicates the resemblance of these patient groups. Only one statistically significant correlation was found between demographic data and measures and that was between PSYRATS intensity of distress caused by symptoms and duration of current admission.

Regarding Studies II and III, no significant differences between the treatment group and the control group in demographic variables or in clinical measures at baseline were found. The standard deviations of all outcome measures were, however, large. The characteristics of the sample demonstrate its heterogeneity and chronicity. There were no dropouts during the trial and eight patients in treatment group and all patients in the control group participated in the follow-up. The number of missed modules (group sessions) was considered to be low. Three out of ten patients missed one session and two patients missed two group sessions.

3.2 Study I

The first study investigated the patients' cognitive insight and the possible relationships between cognitive insight, clinical insight, reasoning and symptoms (delusions).

Jumping to conclusions bias. The amount of data gathered (DTD) before reaching a decision was low. Of the participants, 75% jumped to conclusions and 55% (n = 11) made a decision after the first fish, thereby demonstrating an extreme JTC data-gathering bias. In addition, 20% (n = 4) of the participants made a decision after the second fish.

A statistically significant negative correlation between data-gathering (DTD) and lack of clinical insight (PANSS G12 lack of judgment) was observed. This suggests that the more data the patient gathers for making decisions, the more insight he has into his illness. Further, significant negative correlations between data-gathering and distress dimensions of delusions (PSYRATS amount and intensity of distress caused by symptoms) were found. Thus, the more information patients acquire, the less distressing they experience their symptoms. Data-gathering did not show any prominent association with PSYRATS delusional conviction. In turn, PSYRATS delusion conviction was significantly associated with both delusions (PANSS P1) and suspiciousness (PANSS P6), which implies that the more delusional the patient is, the more convinced he is of his delusional ideation. Furthermore, delusions were significantly linked to intensity of distress caused by symptoms. That is, the more delusional the patient is, the more distressing he experiences the symptoms to be. The observed relationships between different characteristics are described in Figure 2 (except for the associations between different symptom dimensions described here). To note, the mean score of lack of clinical insight item (G12) was the most elevated of the PANSS item scores, representing moderate to moderately severe disruption, implying that the patients were more disturbed regarding clinical insight than regarding delusions.

Cognitive insight. Mean scores of 15.30 (SD = 5.98) for BCIS self-reflectiveness (BCIS/CR) subscale, of 9.15 (SD = 4.17) for self-certainty (BCIS/SC) subscale, and of 6.15 (SD = 7.14) for composite index (BCIS/CI, reflecting cognitive insight) were found.

Only low and non-significant correlations between data-gathering and BCIS self-reflectiveness, self-certainly, and cognitive insight were found. Also, no statistically significant correlations were found between the BCIS scales and symptom measures. Nonetheless, a moderate non-significant correlation between self-certainty and lack of clinical insight was observed (see Figure 2). There was a mild negative non-significant correlation between self-reflectiveness and lack of clinical insight.

Cognitive insight showed a moderate negative correlation with lack of clinical insight, which was just over the threshold for statistical significance. In

addition, lack of clinical insight showed a moderate non-significant correlation with suspiciousness.

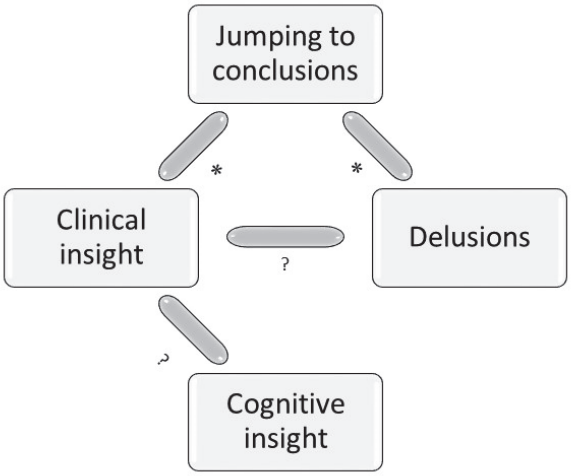

FIGURE 2 The observed correlations between JTC bias, delusions, clinical insight, and cognitive insight.

Note. * = The statistically significant correlations. ? = Non-significant trends.

3.3 Study II

The aim in Study II was to test the feasibility of MCT for forensic and dangerous non-forensic schizophrenia patients. It was hypothesized that, compared to the control group, greater improvements in symptom reduction and reasoning (data-gathering) in MCT group would be detected. It was also expected that these effects would be sustained three and six months later. Additionally, it was expected that there would be a low number of missed sessions and only few drop-outs from the intervention at most.

A significant difference between the groups, in favour of the intervention group, was observed in the overall severity of illness (PANSS Sum) and suspiciousness. The overall change in the severity of illness score was influenced by the change in suspiciousness score. In the control group, both the overall severity of illness and suspiciousness increased from baseline to 3 months, but both of these scores decreased to some extent by 6 months. Almost an exactly opposite pattern of change was seen in the MCT treatment group. The development of mean suspiciousness scores in both groups are seen in Figure 3. The results indicate that the greatest benefit of MCT is seen 3 months after the intervention. Although the treatment effect diminished to some degree by 6 months, the MCT group still manifested significantly fewer symptoms. Over the whole pe-

riod of study, no other significant group differences in change were observed. However, there were some differences in single time intervals. In PSYRATS duration of preoccupation with delusions, a significant difference in change between post-assessment and three-month follow-up was seen, favouring the MCT treatment group. However, the overall pattern of change did not reach significance, because in other time intervals the difference between groups in this item was so minor. In PANSS P1 delusions or PSYRATS disruption to life items, no change at all was seen in either group at any point.

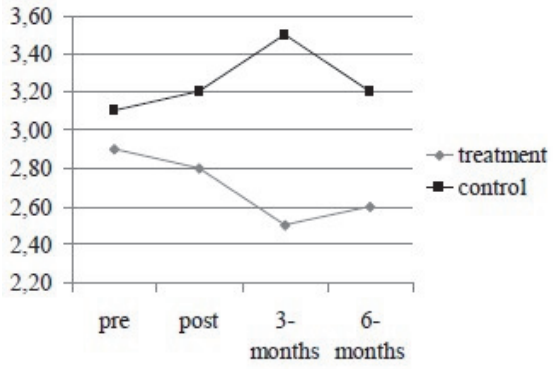

FIGURE 3 The development of mean PANSS P6 suspiciousness scores by groups

On JTC change scores or frequencies, no significant differences between the MCT intervention group men and the control group were observed at any point. The non-significant result was probably largely due to the small sample size and the resulting low frequencies. Only a not significant trend for reduction in JTC was seen between baseline and the post-assessment in MCT group, but this decline was not sustained to the follow-ups.

No one dropped out from the MCT intervention and the number of missed modules was considered to be low (M=0.70, SD= 0.82).

3.4 Study III

Study III examined how patients assessed the usefulness, interest and effect of the MCT intervention. A further aim was to determine any positive or adverse effects the intervention might have on the participants' HRQOL compared to HRQOL of the control group. The patients' HRQOL was also compared to that of an age- and gender-matched population group.

The participants rated MCT intervention high on each of the different aspects of training satisfaction. All of the participants viewed it as pleasing for them to participate in the group treatment and the participants thought the programme was fun. The subject areas were seen to be quite understandable.

The participants also thought that working in a group was a relatively pleasant way to approach the matter. They felt that the group had some positive impact on their lives. The participants were of the opinion that this intervention had an important role in their treatment. All of the participants also saw MCT as a recommendable treatment option for other patients. Some new helpful skills were also gained. Lastly, the patients gave some free feedback as well as examples of the skills they had acquired: "I learned to handle my thoughts in a different way, with the help of the examples", "It is easier to carry out your own life", and "The "mindreading" part was beneficial". These examples describe the perspective and the insight the patients had gained into their lives and to their own thoughts.

Regarding what kind of HRQOL the patients have compared to the population, out of the fifteen dimensions of HRQOL, in nine of them the patient group had a statistically significantly worse mean score than the population group (see Figure 2 in original paper III). These dimensions were mobility, vision, breathing, speech, usual activities, mental function, depression, distress, and vitality. There were no statistically significant differences in hearing, sleeping, eating, excretion, discomfort and symptoms, and sexual activity. Additionally, the overall HRQOL (15D score) was significantly worse among patients than it was in the general population.

When comparing the MCT participants' HRQOL to that of the control group participants, no statistically significant group differences in relation to time over the entire study period was observed in the overall HRQOL, in depression or in distress. Only one difference in a single time interval reached statistical significance: a significant change in subjective distress in favour of the control group between the post-assessment and three-month follow-up. Among the control group, the distress showed a decrease as opposed to an increase in the MCT intervention group. Only small differences in change between the control and intervention groups in other time intervals were seen, and therefore the overall change in distress in relation to time throughout the whole study period was not statistically significant, although a tendency was seen. However, the changes in distress progressed differently between the groups. At baseline, there were no differences in mean distress levels between the two groups, but after the intervention was finished distress decreased in the MCT group and increased in the control group. At three months the trend was reversed and at the six-month follow-up there was no longer any difference between the two groups.

Because there were no significant differences between the intervention and the control groups in the progression of HRQOL, it was decided to further investigate how the perceived HRQOL progressed in the entire patient group during the six-month study period even though this was not originally planned. It was discovered that there was no statistically significant change in subjectively perceived distress, depression or in overall HRQOL during the six months. Thus, irrespective of the treatment the patients received, it had no effect on subjectively perceived HRQOL.

TABLE 3 A summary of the research questions, methods, and results of the Studies I–III.

Study	Research questions	Measures	Results
I **n = 20** **Cross-sectional**	1) What kind of cognitive insight and data-gathering ability do the patients have? 2) Are the a/m abilities associated with clinical insight, positive symptoms of schizophrenia, and with each other?	BCIS; DTD; JTC; PANSS: P1, P6, G12; PSYRATS	Both self-reflectiveness and self-certainty were slightly higher than those in the original study by Beck et al. (2004). For self-reflectiveness, a mean score of 15.30 (*SD* =5.98) and for self-certainty a mean score of 9.15 (*SD* = 4.17) were observed. The mean score for cognitive insight was 6.15 (*SD* = 7.14). The amount of data gathered was low, 75% of the patients jumped to conclusions. A negative association was observed between data-gathering and lack of clinical insight. Likewise, a negative association was seen between data-gathering and amount and intensity of distress. Therefore, the more information the patient gathers, the more insight he has and the less distressing the symptoms are, or vice versa. In addition, the observed positive associations implied that the more delusional the patient is, the more convinced and distressed he is of his delusional ideation.
II **n = 20;** **MCT:** **n = 10** **Control:** **n = 10** **RCT**	3) Does MCT have any favourable effect on positive symptoms of schizophrenia and reasoning in terms of data-gathering? 4) How well is MCT accepted among patients in terms of attendance?	JTC; PANSS: P1, P6, G12 and Sum; PSYRATS; completion rate; number of unattended sessions	MCT produced improvement in symptoms, especially in suspiciousness, but only a short-lived positive trend for improvement in hasty decisions. All patients completed the group and the number of unattended sessions was low (*M* = 0.70, *SD* = 0.82). The intervention thus proved feasible.
III **n = 20;** **MCT:** **n = 10** **Control:** **n = 10** **RCT**	5) How do the patients appraise MCT? 6) What kind of HRQOL do the patients have compared to a general population? 7) Does MCT have any effect on HRQOL?	15D; Subjective training success questionnaire	The participants appraised MCT positively on every aspect of training satisfaction. For example, they liked working in a group, saw the content as understandable and fun, and thought the intervention had positive effects on everyday life. They would also recommend MCT to other patients. Patients' HRQOL was poorer in 9 out of 15 dimensions and in total score compared to the general population. Regardless of the treatment received, it had no effect on perceived HRQOL in the entire patient group during the six months. MCT did not have any beneficial or adverse effects on HRQOL.

Note. MCT = metacognitive training; BCIS = Beck Cognitive Insight Scale; DTD = draws-to-decision; PANSS = Positive and Negative Syndrome Scale; P1 = delusions; P6 = suspiciousness; G12 = lack of judgment & insight; Sum = P1 + P6 + G12; PSYRATS = Psychotic Symptoms Rating Scales; JTC = jumping to conclusions; RCT = randomized controlled trial; HRQOL = health-related quality of life; 15D = 15D health state descriptive system

4 DISCUSSION

One of the aims of the research was to identify potential mechanisms related to schizophrenia and possible treatment needs among patients in a forensic mental health care setting. More precisely, the interest was in what kind of cognitive insight and data-gathering ability the patients had and if these abilities were associated with clinical insight, positive symptoms of schizophrenia, and with each other. An additional aim was to examine the feasibility of MCT for this particular patient group. The objective was to find out whether MCT had any effect on positive symptoms of schizophrenia, reasoning and perceived HRQOL compared to a control group. Furthermore, the patients' HRQOL was compared with that of the general population. The development of the whole patient groups' HRQOL during the six-month research period was also investigated. The final objective was to determine how well MCT was accepted among patients in terms of attendance and subjective appraisal of the MCT intervention.

4.1 Main findings

4.1.1 Cognitive insight, reasoning and their associations with clinical characteristics

As far as is known, no previous studies have been conducted investigating cognitive insight (measured by BCIS) in inpatients in a forensic mental health care setting, let alone its links with other manifestations in chronic schizophrenia. In Study I, it was found that 75% of the patients with schizophrenia in a high-security forensic mental health care setting made quick decisions on the basis of gathering very little information (after two or fewer pieces of information), and thus demonstrated JTC bias. This percentage may even be seen to be somewhat higher than in most previous studies. For example, Garety and Freeman (2013), in their review, state that approximately half of the people with psychosis make hasty decisions, and Dudley, Taylor, Wickham, and Hutton (2016) propose a

figure of 48% to 60%. In comparison, JTC appears among roughly 20% to 30% of healthy controls (see e.g. Dudley et al., 2016; Garety & Freeman, 2013; Freeman, Pugh, & Garety, 2008; Warman, Lysaker, Martin, Davis, & Haudenschield, 2007). It was also noteworthy that, regarding delusions, the clinical insight of the patients was more severely disturbed, being moderately or moderately severely disrupted, than patients' ideation was.

A link between data gathering and clinical insight was seen. The more information the patient was able to consider in the decision-making process, the better insight into his condition he was able to attain (clinical insight). The results also suggest that when a patient is able to gather more information, the less distressing the symptoms are experienced as being. Of course, these effects could also be the opposite way around, suggesting that the more insight the patient has, the more information he is able to gather to help problem-solving, and when the patient is less distressed about his symptoms, the more information he is be able to gather. This observed association between data-gathering ability and the distress caused by delusions was in line with the previous observation made by Freeman, Pugh, and Garety (2008). On the whole, the observations of Study I suggest that JTC bias plays a crucial role in schizophrenia also among this patient group. This result is in line with the findings made among other patients with psychosis because JTC has been linked to the formation and maintenance of the illness (see e.g. Dudley, Taylor, Wickham, & Hutton, 2016; Garety & Freeman, 2013; Garety et al., 2005; Moritz & Woodward, 2005).

Regarding the issue of the patients' cognitive insight, it was found that in a forensic mental health care setting, chronic schizophrenia patients manifested slightly higher scores on self-reflectiveness and on self-certainty compared to the scores observed in the original study by Beck, Baruch, Balter, Steer, and Warman (2004). Interestingly, the difference in self-reflectiveness was even larger in favour of the inpatients in our study when compared to violent schizophrenia outpatients in a study by Ekinci and Ekinci (2013). If a patient shows high scores on both subscales, he may think and believe that he is being careful in his judgements, and so may be very confident in his decisions. This, however, may not be the case when evaluated objectively. It should be kept in mind that in BCIS cognitive insight is determined by subtracting self-certainty from self-reflectiveness, and so if over-confidence in beliefs is very high, it lowers the cognitive insight and flexibility of the patient. A better ability to self-reflect is usually considered to be an asset. For example, self-reflectiveness has been found to be associated with competence to consent to treatment in schizophrenia (Raffard et al., 2013). On the other hand, better self-reflectiveness has been linked to a more negative social quality of life in patients with schizophrenia (Hasson-Ohayon et al., 2015). High overconfidence, on the other hand, has fairly consistently been shown to be associated with delusions (Bora, Erkan, Kayahan, & Veznedaroglu, 2007; Bruno, Sachs, Demily, Franck, & Pacherie, 2012; Engh et al., 2010; Pedrelli et al., 2004; Warman, Lysaker, & Martin, 2007) and may pose a problem. However, no association between symptoms and cogni-

tive insight or its components, self-reflectiveness and self-certainty, was found. This finding is against the expectations suggested by the theoretical background laid out by Beck et al. (2004) and contrary to results of some previous studies (e.g. see above). In previous studies, indications have also been found that in patients suffering from psychosis and chronic schizophrenia, psychosocial treatment can improve cognitive insight, and particularly self-reflectiveness, and that this progress of insight is related to a decrease in positive symptoms at the end of therapy (Granholm et al., 2005; Perivoliotis et al., 2010). There is also evidence that metacognition-augmented cognition remediation training ameliorates overconfidence (Moritz, Thöring et al., 2015). It is also important to acknowledge the discovery regarding this patient population that poorer self-reflectiveness and cognitive insight (measured by BCIS) are connected to violence (Ekinci & Ekinci, 2013). To note, no significant connection was found between self-reflectiveness and self-certainty to data-gathering.

With regard to other associations between different abilities, no significant link between clinical insight and symptoms were found. This is contrary to the previous findings concerning insight and symptoms. Better clinical insight has been shown to be associated with less global psychopathology in addition to less positive and negative symptoms, although more prominently among acute patients (see the meta-analysis by Mintz, Dobson, & Romney, 2003). Again, the failure to find an association does not prove that there could not be one, as the connection between insight and symptoms over time has been proven to be a complex one (see a review by Lincoln, Lüllmann, & Rief, 2007). It was also observed that the more delusional the patient was, the more convinced he was of his delusions and the more distress he was experiencing due to his delusions. This seemed quite understandable that the different dimensions of symptoms went hand in hand.

Anyhow, there was an indication that cognitive insight was to some degree associated with clinical insight, although this correlation did not quite reach statistical significance. The results are, to some extent, consistent with the results obtained by Cooke et al. (2010) and Engh et al. (2007), who have found clinical insight to be significantly but modestly associated with both components of cognitive insight (i.e. self-reflectiveness and self-certainty). More specifically, poorer clinical insight seems to be linked with higher overconfidence and a lower ability to self-reflect. Additionally, the findings from the current study appeared to be coherent with the report by Riggs, Grant, Perivoliotis, and Beck (2012), who found out that although clinical insight and cognitive insight were associated, these two insights are separate and complementary constructs.

4.1.2 The feasibility of MCT regarding to symptoms, reasoning ability, and attendance

As far this author is aware, this was the first randomized controlled trial of group metacognitive training for forensic and dangerous and difficult-to-treat schizophrenia patients with chronic symptoms, despite its being a small-scale research. First, group MCT seems to reduce suspiciousness and thereby the

overall severity of the illness. The greatest benefit was seen after three months, and it lasted up to six months, even though it diminished somewhat. In addition, the time spent pondering the delusions lessened significantly, but only temporarily, during the next three months after the intervention in the MCT group compared to the control group. But alas, this benefit of consuming less time with delusions among MCT participants with respect to the controls was not sustained. These results can be interpreted to support the hypothesis of greater and lasting reduction in symptoms in the MCT group compared to controls, and the results agree well with those of previous studies. Most studies on MCT have detected a reduction in delusion following MCT (see e.g. the meta-analysis by Eichner & Berna, 2016) and the benefits of the intervention have been sustained through follow-ups of up to three years (Favrod et al., 2014; Moritz et al., 2013; Moritz, Veckenstedt et al., 2014). Prior research has also indicated that the efficacy of CBT is somewhat better at 3 to 12 months follow-ups in comparison to immediate post-treatment results (Zimmermann, Favrod, Trieu, & Pomini, 2005). The same pattern appeared in a study of group psychoeducation for forensic long-term schizophrenia patients (Aho-Mustonen et al., 2011). The results of Study II are in line with these prior observations.

An intriguing finding in Study II was an observed increase in positive symptoms among men in the control group. A similar pattern of increase in PANSS scores following an MCT intervention has been seen in a study on forensic patients by Naughton et al. (2012). This does not necessarily indicate a patient's worsening situation. One possible explanation for the increase might be that the researcher has become more familiar to patients, and so patients have become more open in terms of their symptoms. Another explanation might be that the patients who previously denied their symptoms gained more insight into the symptoms and were more able to disclose aspects related to them. This last explanation appears unlikely, however, because the increase in the symptoms was larger in the control group than in the intervention group. This effect, though, might possibly hide or confound some of the actual treatment effects.

Second, only a trend for improvement in JTC was seen immediately after the intervention in the MCT group, but this improvement was not maintained. This result means that the hypothesis of group MCT leading to improvements in reasoning is only partly and weakly supported. An improvement in reasoning (data-gathering) has been previously found even for brief trainings, in a single session training (Ross, Freeman, Dunn, & Garety, 2011), although in which no effect was found on the extreme form of JTC bias, and in a three session training that also ameliorated the extreme form of this bias (Garety et al., 2015). These studies did not include a follow-up period, so the maintenance of the results is not known. In an inpatient study of MCT, a stronger reduction of JTC was found among MCT participants in comparison to active control condition (Aghotor, Pfueller, Moritz, Weisbrod, & Roesch-Ely, 2010). Moritz et al. (2013) and Moritz, Veckenstedt et al. (2014) reported a trend in JTC favouring MCT group participants compared to neuropsychological training group in a

three year follow-up study. But then again, in a study on chronic schizophrenia patients, MCT demonstrated no effect on JTC (Gawęda, Krężołek, Olbry´s, Turska, & Kokoszka, 2015). Greater and lasting improvements of JTC in participants in metacognition-augmented cognition remediation training compared to a standard cognition remediation have been seen in a three month follow-up (Moritz, Thöring et al., 2015). The results from Study II, and the mixed results from previous studies, seem to concur with the previous remarks made, for example, by Peters and Garety (2006) and Ross et al. (2011) that JTC is quite a resistant bias to change. But, in turn, there is also evidence that it is not impossible to change it and that the bias would not be as robust as some suggest. For example, Woodward, Munz, LeClerc, and Lecomte (2009) have demonstrated that increase in data-gathering is linked with a decrease in delusions. However, they suggest that a practice effect which comes from becoming more familiar with the task may affect participants' decision-making so that in successive measurements, they ask for less information and end up with earlier decision-making. This decrease in data-gathering due to practice may, of course, counteract and mask the increase in data-gathering with decreasing delusions.

One way of determining the feasibility of the treatment is by patient attendance, the treatment's compatibility with service mandate and appropriate resource requirements (Proctor et al., 2011). In accordance with this definition of feasibility, no one dropped out of the group, and the number of missed sessions was low, even though participants were confronted with the cognitive biases associated with their illness. This result was in accordance with the hypothesis set. Patient attendance itself can be considered an important result. Considering the last point mentioned in the above mentioned definition of feasibility, it was possible to implement the intervention after only two hours of staff training and by following a short and clear manual. Overall, in light of the results, MCT appears to be a promising and applicable method even for a very challenging population and it seems to be well accepted among patients.

4.1.3 The patient's perspective: Health-related quality of life and subjective training success of MCT

In Study III, the focus was on the health-related well-being and the subjective perspective of the patient. An area previously overshadowed by risk assessment research in the forensic field was now explored. This study seems to be the first to focus on the patients' own assessments of the usefulness of the MCT intervention and its potential impact on patients' HRQOL in chronically ill and violent inpatients. It was found that discussing the difficulties associated with the patients' illness did not make the patients' perceive their overall state of health any worse. It is always possible that psychosocial treatment may cause undesirable effects in a patient. A potential momentary rise in subjectively felt distress was observed among the men in the MCT group after three months following the intervention in comparison to the men in the control group. Nevertheless, this distress lessened again at the six-month follow-up to the extent that there was no longer any difference between the two groups, a result indi-

cating that this potential adverse effect is only temporary. It was seen improbable that the changes in distress would be caused by changes in antipsychotic medication in the MCT group. Similarly, a potential adverse effect of group administered psychoeducation among forensic patients was proposed to be a minor increase in irritability at three-month follow up stage in spite of the positive influence of the intervention on knowledge about and insight into the illness, in addition to an increase in self-esteem (Aho-Mustonen et al., 2011).

In Study II it was interesting that three months after the MCT intervention, positive symptoms, especially paranoia, diminished among men in the MCT group in comparison to the men in control group. Furthermore, during this time, the symptom-induced distress did not show any intensification in the MCT group. These observations imply that the intensification in subjectively felt distress three months following the intervention was not caused by positive symptoms. The increase in subjective distress in Study III and in irritability in the study by Aho-Mustonen et al. (2011) are not surprising findings, because they can be seen as signals and results of psychological work associated with and required by these interventions. It is possible that at the same time when the patient's symptoms were relieved, his experience and assessment of his situation changed. In fact, general insight and insight into positive symptoms has been found to be linked to a poorer emotional part of quality of life (Hasson-Ohayon, Kravetz, Roe, David, & Weiser, 2006). But then again, MCT aims at improving patients' awareness of thinking biases and provoking self-assessment of problem-solving processes. This re-evaluation of one's own thinking can be stressful for the patient no matter how enjoyable it is a way of handling the issue. It is also possible that the decline in subjective distress six months after the intervention is caused by adaptation. The patients may perceive the concept of distress in a different way, their subjective criteria and values may change or a real change may occur in their health state regarding distress.

Compared to a general population, the patients perceived their HRQOL significantly worse on nine out of fifteen dimensions, including both the somatic and mental areas of HRQOL, despite the fact that they had continuous access to medical care. These findings concur with results from a general population-based study by Saarni et al. (2010), in which they demonstrated that schizophrenia is related to a decrease in the overall perceived HRQOL. It is a different matter, however, whether it is possible to improve HRQOL in general, particularly in involuntary treatment and in a closed hospital setting in which the environment itself may generate stress and discomfort in patients. In addition, the complexity of the patients' problems may make it more difficult. As it was demonstrated in Study III, regardless of what treatment was offered to patients, their HRQOL did not change during the course of the study. Ritsner, Lisker, and Arbitman (2012) followed HRQOL in patients with schizophrenia and schizoaffective disorder for 10 years and discovered that most patients were unhappy with their HRQOL and that the domain-specific and general quality of life did not change over time. They conclude that despite the clinical im-

portance of controlling and improving symptoms, these issues do not affect a patient's HRQOL much. Likewise, Heider et al. (2007) state that changes in an individual's characteristics and circumstances do not relate as strongly as expected to changes in quality of life, suggesting that effective intervention may be difficult.

Conversely, Ritsner (2003) has also argued that schizophrenia patients might improve some aspects of their quality of life and that a reduction in either emotional or somatic distress is strongly associated with improvement in domain-specific quality of life. For his study Ritsner assumed that the quality of life decreased if distress factors outweighed protective factors and that it might improve when protective factors, such as social support and a sense of self-efficacy, outweigh distress factors. An association between low quality of life and good insight into illness has been established, in addition to good insight and low mood (see a review by Chakraborty & Basu, 2010). This suggests that including modules that focus on depressive symptoms and quality of life in interventions, greater awareness of these questions by clinicians, and strengthening the therapeutic alliance might help improve insight without the risk of deteriorating mood and quality of life (Karow & Pajonk, 2006). Ferguson, Conway, Endersby, and MacLeod (2009) reported in their study on mentally ill offenders that a well-being intervention focusing on goal setting and planning skills positively affected life satisfaction and the patients reported reduced hopelessness and negative affect along with increased positive future thinking. In a study with forensic patients where no improvement was seen in a psychoeducation intervention group that demanded psychological work (Aho-Mustonen et al., 2011), it was suggested that neutral and non-judgemental extra attention may have affected a trend for improvement in HRQOL among control group patients. However, more research is needed on the quality of life of forensic patients, especially if it can be affected by such simple means as extra attention.

In forensic mental health care, violent patients with multiple problems and who possibly manifest, for example, personality disorders can easily arouse negative emotions among staff. This may promote the use of coercive treatment methods which, in turn, can lead to non-compliance and dropping out from interventions. Since no patients dropped out from the MCT intervention and the incidence of missed sessions was low, in addition to the positive subjective appraisals for every aspect of training success, MCT can be considered as highly accepted by the patients and compliance can be regarded as very good. This in itself is a very encouraging result because it has been noted that many patients suffering from chronic schizophrenia drop out from interventions because they do not see the intervention as appropriate for themselves (Tarrier, Yusupoff, McCarthy, Kinney, & Wittkowski, 1998). Everyone who participated in MCT was willing to do so and would recommend the intervention to other patients. The patients also appraised the intervention as, for example, fun, understandable, having a positive impact on life and having an important role in their rehabilitation. The patients provided examples of the skills they acquired that reflected gained insight into and perspective on their thoughts. These results are

similar to those from previous studies regarding the patients' satisfaction with MCT (see e.g. Howe & Brown, 2015; Lam et al., 2015).

4.2 Methodological evaluation

There are several confounding factors regarding all these studies. The patient sample in these studies was heterogeneous and consisted of chronically ill schizophrenia patients who also had comorbid disorders. Additionally, the size of the sample was small, meaning any generalization of the results must be made with caution. The results of these studies cannot, without any doubt, be considered to relate to every chronically ill schizophrenia patient with difficult symptomatology. The decision concerning the sample size was based on ethical reasons that are considered in more detail later on. Although the sample size was small, it can be regarded as somewhat representative because it was generated using a random selection (Levin, 2003).

4.2.1 Cross-sectional study

A cross-sectional study design was selected in Study I as the means of investigating the manifestation and associations of certain characteristics in this particular patient population. A cross-sectional study does not tell us cause and effect and it is not possible to differentiate these two from a simple association. As such, it fails to provide an explanation for the findings. The advantage in adopting a cross-sectional study design is the possibility to study multiple measures with fewer resources, and with such a study it was possible to use the whole sample collected (Mann, 2003). Another advantage is that studying possible associations is useful in formulating hypotheses for future studies (Levin, 2006). In addition, studying prevalence is a good indicator for treatment planning in this population. A further advantage is that, as far as is known, this was the first study to explore cognitive insight measured by a reasonably novel instrument, BCIS (Beck, Baruch, Balter, Steer, & Warman, 2004), in inpatients in a forensic setting.

There are several limitations to the cross-sectional Study I. The design does not produce information on insight and its relation to other characteristics over time. Due to the small sample size the demographic variables were not controlled for, for the reason that in the presence of small cell frequencies partial correlation does not give reliable results. Additionally, because no normative data for BCIS exists, formal comparisons could not be made. On the other hand, because the study was performed by one-to-one contact, and all of the measures were administered during a single appointment, the response rate was 100%. This is, of course, favourable for generalization. Nevertheless, the results should be seen as preliminary and further research is needed in order to be able to draw more far-reaching conclusions. However, the strength of this

study is that, in examining previously unexplored characteristics of this group of patients, it opens up a new direction for research.

4.2.2 Randomized controlled trial

Applying RCT to understudied areas of clinical practice, such as forensic mental health care and inpatient care, is encouraged (Fitzpatrick et al., 2010; Thornicroft, 2004). Contopoulos-Ioannidis et al. (2005) conclude that both large and small RCTs should be carried out in the field of mental health-related interventions because they present a continuum of evidence and the evidence obtained from these studies regarding the same research question is not usually incompatible. An RCT approach was chosen for this research due to these advantages. The design controls for many possible confounding factors as well as cancels out possible spontaneous recovery and regression to the mean (Thornicroft, 2004). Furthermore, RCTs have high internal validity (Donenberg & Lyons, 1999), meaning there is a high degree of certainty with which one can say that something caused the results. In addition, when blinding of the study is successful, the researcher conducting the assessments creates no bias in the results. There has also been criticism of RCT, which has been long thought of as a sort of gold standard in research. Donenberg and Lyons (1999) summarize that the prime limitations of RCT are the poor generalizability to real-life settings, the overly strict criteria for participation that can lead to small and homogenous samples, the possible overlap of outcomes between intervention and control groups, and the prominence they give to statistical significance at the expense of clinical significance. Keitner (2004) argues that many RCTs tend to have from 30% to 70% of placebo response because patients who have comorbid disorders, higher severity of illness, prior treatment failures and who do not cooperate with or adhere to treatment programmes are excluded from trials.

The patients in this service setting and in this research are quite the opposite. As the research was being designed, one goal was for the entry criteria of the participants to be sufficiently broad, because narrower criteria would excessively eliminate patients eligible for recruitment. The selectivity of the participants was considered to be low due to the reasonably low number of patients who declined to participate. Additionally, the value of the research is that it indicates how well the intervention works in a population consisting of patients with comorbid problems, and provides guidance to clinicians regarding how well this intervention might work in such a setting (Kraemer, Frank, & Kupfer, 2006). It was not the aim to study ideal patients under ideal circumstances. Instead, the goal was to simulate a so-called real-world situation as well as possible. This more heterogeneous sample may, after all, offer more generalizable and applicable answers, although the downside of it is that it does not provide clarity as to what the active components are (Keitner, 2004).

It was expected from the beginning that one disadvantage of this RCT was that it would be underpowered and incapable of fully answering all of the questions the research was interested in, as the case has been in many previous studies in mental health (Thornicroft, 2004). In addition, due to the very challenging

patient population, large treatment effects were not anticipated. The decision to include only the TAU control group was supported by its sample size requirements, which are smaller than when including both an active control group and a TAU control group. Furthermore, the likelihood of a Type I error increases when multiple comparisons are made in larger samples. Here, with the sample size being so small, the possibility of a Type I error is also small. However, in a small sample size, there is a greater possibility of failure to find a statistically significant difference when there actually is one, which would result in a Type II error. In addition, in Study III, the differences in HRQOL were such that might be expected to be found, so here as well the possibility of an error can also be considered small regarding those results. The heterogeneity, of course, is one confounding factor. The randomized selection of patients included some individuals with severe symptomatology and some with only a few symptoms. In the intervention as well as the control group, there were some people whose condition showed improvement and some whose did not. Additionally, changes were made to some patients' medication during the research, which may have acted as a confounding factor. However, changes were made in both groups, meaning this research is to be seen as a feasibility trial. The results should be considered to be preliminary and indicative, and intended as hypothesis suggestions for future studies. Nevertheless, as stated previously, this was the first RCT examining metacognitive training for inpatients in a forensic setting, which could be seen as a noteworthy asset of the research.

4.2.3 Measures

There are some issues to be considered regarding the measures used in the studies included in this research. First of all, the inclusion of only a very small part of the PANSS items (P1, P6, and G12), used in all three studies, and forming a novel index score of the overall severity of illness (PANSS sum), used only in one particular study (Study II), is unorthodox. The reasons for inclusion and exclusion of the items are considered in section 2.4. Even though the reliability of item G12 is not very good – meaning it does not adequately reflect general psychopathology as a standalone item (Kay et al., 1987) – it has been used to measure clinical insight in many previous studies. In several studies examining the factor structure of PANSS, however, it has been stated that G12 is a global index of psychosis that loads to more than one factor, including the factor of positive symptoms (see e.g. Lindström, Tuninger, & Levander, 2012; van der Gaag et al., 2006). Items P1 and P6, on the other hand, have a good reliability, and reflect positive symptomatology very well (Kay et al., 1987). For these reasons, it was considered that this compromise solution is bearable. In addition, the task for measuring reasoning ability (data-gathering) in Studies I and II was carried out using a computer, so it does not necessarily reflect the patients' problem-solving ability and JTC bias in other types of situations and environments. On the other hand, it can be seen as a strength that JTC bias was measured using a behavioural test in an actual problem-solving situation and not, for example, just using a questionnaire.

A hotly debated issue throughout the years has been the use as well as the validity and reliability of self-rated measures with mentally ill patients. Obviously, the validity of self-report measures of life satisfaction has also been questioned due to discrepancies between subjective and objective assessments: psychotic patients themselves rate their quality of life better than objective assessments do, possibly due to poor insight (see e.g. Atkinson, Zibin, & Chuang, 1997; Hayhurst, Massie, Dunn, Lewis, & Drake, 2014). On the other hand, robust correlations between subjective and objective assessments of quality of life have also been reported among patients with psychotic disorders (Voruganti, Heslegrave, Awad, & Seeman, 1998; Whitty et al., 2004). It has been considered unlikely that the symptoms and cognitive problems in psychosis cause clinically significant bias in patient-reported outcomes concerning quality of life and treatment satisfaction measures, among others (see a review by Reininghaus & Priebe, 2012). Voruganti et al. (1998) concluded that clinically compliant and stable patients with schizophrenia can evaluate and report their quality of life with a high degree of reliability and concurrent validity. However, a phenomenon called response shift may affect a person's responses and cause them to vary if the person's internal standards, values or semantic understanding of the quality of life changes (Schwartz & Sprangers, 1999). According to Schwartz and Sprangers (1999), this is catalysed by health state changes that promote a change in the meaning of quality of life to a person. In other words, the person's reference base changes. This, for example, can explain the observed discrepancies between subjective and objective assessments. Nevertheless, patient-reported measures are in place when the interest is to find out how people feel or see things and when the patient does not have to be afraid of negative consequences resulting from his answers. In this research, it was of interest to know how the patients experience their health state and to explore whether MCT can actually affect this experience (Study III). The BCIS used in Study I is also a self-assessment questionnaire focusing on the subjective reflections of patients on their thinking.

Another aspect worth mentioning is that Study III evaluated depression and distress with subjective evaluations of single-item measures, not with objective measures. Depression has been known to be associated with poor subjective quality of life in treatment-resistant schizophrenia (Kim, Lee, Kim & Han, 2013). Because the mood was not assessed with any other measure, the effect of it on HRQOL was not controlled. Neither was any evaluation of response shift incorporated into Study III nor were reasons for distress asked about from the patients. It cannot, therefore, be known exactly what the reasons were that caused or mediated the momentary increase in subjectively evaluated distress. Then again, patients tend, over time, to adapt to progressive diseases and to the negative effects the treatment may induce. A response shift also mediates this adaptation, and this shift may attenuate or exaggerate treatment results (Schwartz & Sprangers, 1999).

4.3 Ethical considerations

Ethical issues in both research and treatment are very important in forensic settings. Forensic mental health clinicians must balance and find a medium between two different ethical issues: security aspects such as risk management and recidivism, and providing comprehensive treatment for seriously mentally ill patients (Barnao, Robertson, & Ward, 2010). This is not an easy task to accomplish. Patients are detained against their will in a closed hospital environment and sometimes the treatment may last a very long time due to the public safety aspect (i.e. patients lack sufficient insight into their illness), despite showing remission regarding symptoms. The public security aspect may, therefore, sometimes override the mental health care aspect. On the other hand, the patients have numerous important human needs that must be met and the treatment must promote individuals' well-being (Barnao et al., 2010). In forensic health care the patients are in a very vulnerable position because they are dependent on the staff, who possess enormous power over the patients. For these reasons it is essential to handle ethical issues carefully.

The research and the procedure were reviewed and approved by the Kuopio University Hospital Committee on Research Ethics. According to Thornicroft (2004), the ability of patients to consent forms a special issue in mental health studies because mentally ill patients may or may not have sufficient capacity to give their informed consent. For this reason emphasis was put on evaluating the capacity to consent at two different stages of recruitment. At the first stage the psychiatrists of every ward (independent of the research) evaluated all of the eligible patients' capacity to consent. Those patients who lacked sufficient capacity were excluded from the random sampling. The second stage of evaluating the capability to comprehend the information regarding the research and the capacity to consent was when the patient was asked to participate in the research. This was done in an interview with the patient conducted by two people: the researcher and a nurse independent of the research. This nurse, who worked in the patient's ward, was familiar with the patient, and it can be assumed that the small clues of a patient's behaviour, which may possibly refer to inability, are easier to detect by such a person. After this procedure, during which they were given thorough oral and written information about the research, the participants gave their written informed consent (Act on status and rights of patients, 1992). It was also emphasized to them that refusal to participate would not affect their care or treatment in any way. Additionally, they were told that they could withdraw from the research at any stage without any impact on their treatment. It was considered important that the patient himself made the decision on his participation. Written informed consent was obtained for both personal involvement in the research and for the use of patient records.

To conceal the identity of the participants, every patient was given a code number used in the research and only the code number was marked on the research documents. To link this code number to a patient required (a) access to a

list that combined the patient numbers (given to every patient at admission) and code numbers, and (b) access to the patient registry with which, by using the patient number, it would be possible to discover the identity of the individual. This list of patient numbers and code numbers was kept in a locked cabinet in a locked room. Only the main researcher had access to this list. The other research documents were also stored in a similar way.

As mentioned, the sample size was based on ethical considerations because it was not known whether the intervention under study (in Studies II and III) was safe or beneficial to these chronically ill patients. Therefore, it was not desired to predispose too many patients to this novel treatment, taking into account that all of the participants had to refrain from psychoeducation and social skills training groups during the research. These patients are also committed to involuntary treatment, so in order to study patients in such a vulnerable position, the arguments for the research must be very sturdy, particularly with a larger number of patients. For these reasons, the advice given by the Kuopio University Hospital Committee on Research Ethics was to conduct a small pilot research first. The completion of a psychoeducation group prior to the research was also included among the inclusion criteria due to ethical reasons, because psychoeducation as an effective treatment method (Bäuml, Froböse, Kraemer, Ren-trop & Pitschel-Walz, 2006) was excluded from TAU. It was considered unethical to withhold psychoeducation for over six months from the participants. It should be further noted that, also due to ethical reasons, analyses of the characteristics of patients who refused to participate in the research were not performed (because they did not give their consent).

4.4 Practical implications

In order to develop treatment for these complex patients, it is important to understand the factors that explain symptoms and the mechanisms associated with symptoms. The results obtained from the current research suggest that it might be advantageous to evaluate data-gathering ability in a decision-making process, in addition to individuals' clinical and cognitive insight, in order to acquire a broader and more intricate picture of each person's situation. The possible problems of the connection between hasty conclusions and poor clinical insight often generates numerous challenges in treatment over time and in the patients' daily lives in general. It can lead to a situation in which the patient is anxious about his symptoms and cannot comprehend the illness and the situation, and makes hasty as well as, according to Jolley et al. (2014), quite possibly erroneous conclusions. In addition, it was found that the more symptoms a patient had, the more convinced he was of his delusions. This conviction is perhaps affected by biased reasoning, as suggested by previous studies (Freeman, Pugh, & Garety, 2008; Garety et al., 2005). This could, for instance, lead to unwise actions. It could further be assumed that if the data-gathering of an individual's decision-making ability could be improved, it might also positively

influence the ability to gain insight into the illness and possibly diminish symptom-induced distress, although the direction of the impact cannot be inferred from these results. In any case, a more detailed exploration of these abilities could help to design more personalized treatment plans and, for example, assess an individual's suitability for psychotherapeutic treatment and to offer specific rehabilitation accordingly.

What should also be kept in mind when determining individual treatment needs and designing a personalized treatment plan is that although the patient is involuntarily treated, he is not incompetent to take part in the evaluation of his situation, the treatment and its methods. The patient's subjective opinion and subjective assessment methods should, therefore, be integrated into the planning and evaluation of treatment as well as when assessing recovery. In line with the view of Karow, Wittmann, Schöttle, Schäfer, and Lambert (2014), which was drawn from previous studies, the treatment outcome of patients with schizophrenia in clinical practice should be evaluated by a composite assessment of symptom severity, functioning and quality of life in order to guide early treatment decisions from a comprehensive and patient-oriented view. Taking into account the patient perspective is particularly important in involuntary treatment in such a closed environment. In addition to the added value created for the selection of treatment options, it will bring more value, for example, to the development of effective interventions. It may be necessary to put aside a patient's crime and symptoms of mental illness and to meet the basic human needs such as HRQOL as well as to listen to the patient's subjective judgement in order to attain a therapeutic alliance and face the patient as a whole person. Taking the patient viewpoint into consideration signifies an imperative shift towards a mental health care setting where the patient turns into a subjective participant instead of being only a managed object.

Even if the chronically ill patient's insight into illness presents itself as incomplete, the HRQOL of the patient as well as his own opinions and complaints regarding his health should not be ignored and excluded from considerations. Treatment and rehabilitation that target the symptoms of mental illness do not necessarily increase patients' perception of their health state. Other ways to improve and maintain it are needed, especially under the challenging circumstances that involuntary forensic psychiatric care produces.

Even in this very challenging patient group, MCT seems to be a promising intervention that possibly reduces positive symptoms, especially paranoia, and perhaps alleviates cognitive biases and difficulties in decision-making. However, it could be hypothesized that to attain more long-lasting results, the training should be longer. At the same time, MCT seems to be a safe and valued method among patients, so it could be recommendable, particularly for paranoid patients. It should be kept in mind that the largest treatment effect of MCT, particularly on suspiciousness, was seen only after three months, which is an interesting observation. In light of the results obtained in this research and from previous research, the critical time frame concerning both positive and potentially adverse effects of MCT and other therapeutic psychosocial interventions

among schizophrenia patients in forensic psychiatric care appears to be not immediately after the intervention, but about three months after. In Study II, the influence of MCT weakened slightly in six months' time. Based on this observation, it could be hypothesized that to attain more lasting results, it could be advantageous to follow the longer treatment programme and, perhaps, repeat it later on. But what this alleviation of a patient's suspiciousness could mean to the patient's daily life is that it can possibly enhance his treatment adherence and relationships. What these results signify to clinicians and other staff is that it should be remembered that even if the intervention has ended, its effects and the changes caused by it may still be in progress and if adverse emotional effects occur, the patient needs full support from the staff. This delay in observed effects suggests that the maturation of the information provided to the patient and the psychological processes and changes it possibly triggers require time. For this reason it is advisable to evaluate interventions for long enough after completion and psychosocial treatment methods should not be abandoned as fruitless if the effects of it are not instantly visible. During this time it is not possible, or recommendable, to deter patients from other interventions, because combining different treatment methods is generally more effective. It should also be kept in mind that the last intervention that was carried out is not necessarily the one that caused the change in a patient's situation. Clinicians must also change their expectations and understanding of what is effective treatment and recovery. Taking this delay in change into account (i.e. the continuum of the treatment effect) could reduce the possible frustration among health care professionals in a situation when the alleviation of the symptoms cannot be observed immediately after the treatment.

The results of this research and previous studies as well as the knowledge attained from clinical practice suggest that it could be advisable to rehabilitate the patients' reasoning ability and insight into illness before releasing violent patients from a forensic hospital. Based on the results attained here, it appears that the treatment of symptoms alone is not enough and complementary means of rehabilitation are needed to improve problem-solving skills and insight. For example, a group-based psychoeducation programme has resulted in improvements in insight into illness among seriously mentally ill offenders, especially after a three month follow-up period (Aho-Mustonen et al., 2011). Although the patients had participated in group psychoeducation prior to MCT, some participants had quite poor insight into their illness. Some patients had participated in the psychoeducation group years prior to the MCT group and some could not even remember participating. This suggests that most patients are likely to require repeated and long-lasting psychoeducation in addition to other methods along the course of their rehabilitation. It is preferable to use psychoeducation and MCT in combination and administer the MCT group rehabilitation sometime after psychoeducation. Although, it seems important to pay great attention to insight into illness both before and after the MCT group.

Psychoeducation offers knowledge but MCT offers additive ways to refine ones thinking. The experiential approach MCT utilises seems to be suitable for

schizophrenia patients taken into account the possible or even likely inflexibility (e.g. bias against disconfirmatory evidence and overconfidence in beliefs) and concreteness of their thinking. It is presumably easier to believe your own eyes and ears (i.e. concrete experiences) than what other people are telling you. The participant is seen as an active agent creating one's own constructs of knowledge by interpreting experiences in a critical and adaptive way. This approach also supports the patient's own agency and empowerment using personal experiences. This is important because especially paranoid patients often feel that they don't have control over any event that happens (attributional bias implying a decreased sense of self-causation). It helps them to see that it is they who make the interpretations, have influence on events, and choose their own actions. One strength of this intervention, as the author sees it, is doing more hands-on exercises, keeping it on a concrete level, and sharing real-life personal experiences. It seems reasonable that this is exactly the way of doing therapy among chronically ill schizophrenia patients. In this way it is more comprehensible to the patients compared to, for example, talking about a matter on an abstract level. The patients are able to gain new experiences and knowledge, perhaps contradicting their previously held beliefs and knowledge, and by the help of a personal experience they are able to change their point of view. This way of doing treatment and rehabilitation has proven itself feasible in this research. Thus, this is a call for even greater shift towards and use of a concrete hands-on approach.

Based on the findings of this research, modules focusing on hasty conclusions seem to be particularly important within the MCT intervention in this particular population. In Study II, and in previous studies, JTC was found to be resistant to change. It can be assumed, based on the finding of Study II that especially paranoia was reduced following MCT, that also modules focusing on empathy (social cognition) are also of great importance, i.e. theorizing about other person's mind. These themes are already emphasized in MCT as both themes are introduced twice over the course of the intervention. It could be suggested that these themes should be further highlighted within MCT and also in other ways and with the help of various other interventions. It might also help if specific interventions were developed focusing on JTC. Theory of mind and empathy are already covered by different interventions, such as social cognition and interaction training (SCIT, see e.g. Combs et al., 2007), a similar intervention to MCT. To note, SCIT also touches upon JTC.

Treatment-resistant patients require intensive, lengthy and wide-ranging rehabilitation methods. The effects may wear off, so to gain more lasting results it is crucial to build a strong foundation with MCT and psychoeducation upon which to build with other methods. On the basis of this research's results, continuous and long-term psychoeducation, according to each patient's individual needs, is recommended because it exerts a positive impact on insight and creates a foundation upon which to start building with other methods. Before psychoeducation, a patient can, if necessary on the grounds of cognitive challenges, attend cognitive remediation. Cognitive remediation, i.e. rehabilitation of dif-

ferent cognitive skills by drill and practice, can be administered, for example, following a structured or tailored programme (see e.g. Wykes & Spaulding, 2011). The other CBT-based treatment and rehabilitation methods following psychoeducation could include, for instance, social skills training, SCIT along with MCT. Cognitive remediation, psychoeducation and social skills training are, among other methods, recommended in the Finnish Current Care Guideline for Schizophrenia (Schizophrenia, 2015) and SCIT has achieved promising results in patients with schizophrenia (see e.g. Combs et al., 2007; Roberts et al., 2014). To note, these methods are already in use in forensic psychiatric care in Finland.

MCT can be seen as a low threshold intervention that could be the next group treatment choice offered following psychoeducation. A mild intellectual disability was not among the exclusion criteria and the patients assessed that the intervention was quite comprehensible. Also patients with mild intellectual disability seem to be able to attend this group and cognitive difficulties in schizophrenia do not seem to be too big of an obstacle. MCT may help the patient to reflect on his own decision-making and drawing of conclusions, including psychotic interpretations, and enhance his understanding of their experiences and symptoms. On the other hand, if the patient seems to need basic social skills training prior to participation in other forms of conversational groups, it could be a good idea to participate in social skills training group after psychoeducation, and before MCT.

Furthermore, it has been found that patients with chronic schizophrenia benefit from cognitive behavioural psychosocial treatment in such a way that it improves their cognitive insight, particularly their self-reflectiveness, and this change is associated with a reduction in positive symptoms at the end of therapy (Granholm et al., 2005; Perivoliotis et al., 2010). It is, therefore, recommended to use a variety of possible cognitive behaviourally based psychosocial interventions in an appropriate combination for each patient. Studies have found, for instance, such interventions as group cognitive behavioural social skills training (Granholm et al., 2005) and MCT (Lam et al., 2015) as beneficial in improving cognitive insight. After all, cognitive insight is basically a metacognitive ability. When considering the adequate length of treatment for improving the patients' cognitive insight, bearing in mind both prior research and the clinical experience, a very cautious estimate might be from three months upwards. In previous studies, the duration of CBT for psychosis has alternated from 5 weeks to 9 months (Gould, Mueser, Bolton, Mays, & Goff, 2001; Zimmermann, Favrod, Thieu, & Pomini, 2005). Granholm et al. (2005) suggest that three months of weekly 2-hour group cognitive behavioural social skills training may be sufficient for chronically ill older patients with schizophrenia for improving cognitive insight. Even though this finding may not be generalizable to other forms of CBT and to the population in this research, it gives a rough estimate of the minimum time needed for therapeutic interventions among chronically ill schizophrenia patients, at least in terms of improved cognitive insight. In their study of recently admitted inpatients and outpatients with schizophrenia spec-

trum disorders with no comorbid substance or alcohol abuse, Lam et al. (2015) found that 8-session MCT (i.e. lasting for one month) increased both overall cognitive insight and self-reflectiveness. Their study population did not seem to be as disturbed as the patient population in the current research, for example concerning above mentioned comorbidity and patients' clinical status. Thus, similar results wouldn't likely be reached with this patient population with a same duration and intensity of the MCT intervention. The clinical experience has taught that the time investment needed in the treatment and rehabilitation of this patient group is roughly at least three times longer than among the less seriously mentally ill patients. Taken this altogether, if cognitive insight was wished to be improved by MCT, a very cautious estimate might be that the MCT intervention among this patient group might take at least three months, that is 24 sessions or three whole cycles. This could, however, put pressure on further developing the content of the intervention. Another solution could be the one already used in clinical practise – combining different interventions with similar target domains, such as MCT and SCIT.

Alongside the group MCT, individual metacognitive training is advisable so that individual problems and delusional ideation can be addressed. There is also an individualized metacognitive training programme for psychosis (MCT+, for more information, see Moritz et al., 2012). The patients also always have an individual therapeutic relationship with mental health workers during their inpatient period. In addition to rather focused and structured individualized metacognitive training (MCT+), metacognitive themes can also be addressed in this individual therapeutic relationship without a predetermined formal structure. The individual therapeutic relationship can and should, of course, include all the possible themes important to the patient. This individual therapeutic work done with the patient helps in transferring the knowledge into everyday life and makes it more personal. The homework included in the MCT programme also aims to transfer learning into practice, but taking into account the lack of initiative and cognitive problems often associated with schizophrenia, experience has shown that it is useful for the patient to be assisted by a trusted member of staff. This discussion with a staff member about the homework can contribute to the re-evaluation and understanding of personal delusions, because personal delusions cannot be addressed in a group. In any case, it should be remembered, at least regarding psychoeducation and MCT, the (repeated) practice makes, if not perfect, then at least better. An example of what a patient's psychosocial group and individual treatment model might look like is shown in Figure 4. The selection of treatment methods is based on this research, on the Finnish Current Care Guideline for Schizophrenia (Schizophrenia, 2015), on results from previous studies and on the fact that these methods are already available in Finnish. Therefore, they can be immediately utilized in practice. The presented model is not exhaustive, and many other interventions can also be employed in the treatment of the patient.

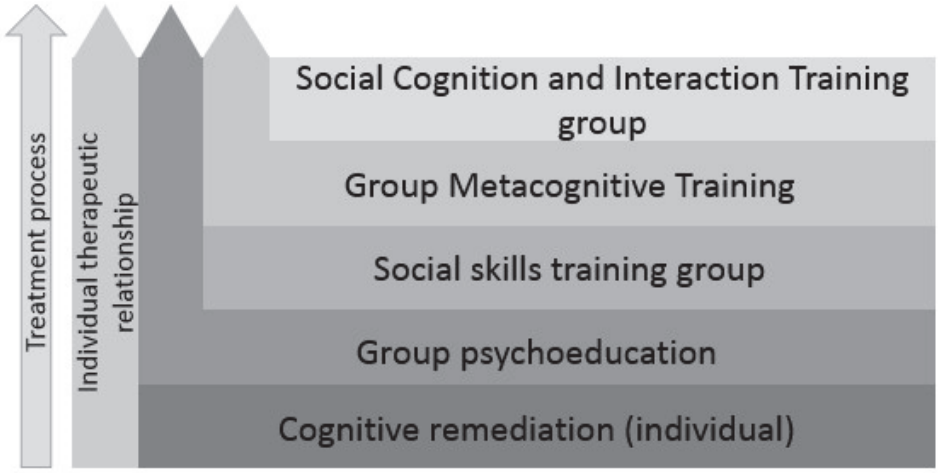

FIGURE 4 An example of a psychosocial treatment model for an individual patient as a continuum of cognitive remediation and cognitive-behaviourally based group interventions.

Note. The elements which include upward arrows represent the treatment components which are recommended to be repeated during the treatment, except for the individual therapeutic relationship, which should last the whole treatment period.

The area that is not especially covered and targeted in the treatment methods mentioned above is quality of life. Because studies have confirmed that there is an evident link between depression and poor quality of life, the interventions aiming at improving overall and HRQOL could include, for example, targeting depressive symptoms. The basic modules of the MCT programme already contain one module which relates to the mood. Additionally, another additional module on stigma, and another on self-esteem and mood, has been added to the MCT programme since this research was conducted. For the reason that depression affects negatively on quality of life, it is also recommendable to provide patients with these extra sessions of MCT on mood, self-esteem, and stigma in conjunction with the basic modules. That is, to offer a 10-session or 18-session MCT programme. It is also recommendable to include elements that focus on managing negative emotions (depression and distress) in other intervention programmes. Additionally, humane encounter with the patient, in a respectful and sensitive manner, is fundamental in treatment. In addition to the fact that it is the patient's right, this is supported by a suggestion in a study with forensic schizophrenia patients (Aho-Mustonen et al., 2011) that neutral, non-judgemental extra attention has a slight positive impact on HRQOL. Based on the overall picture that has formed when preparing this research, it is further recommended that the themes of hope, dealing with emotions and stigma, improving the patient's sense of self-efficacy, agency, and empowerment should permeate the entire treatment process, not just individual intervention methods.

Finally, based on the experience received from the process of this research, a few practical and economic points of view should be added to this discussion. First, the MCT treatment programme is conducted following a short and clear manual that is free of charge. Second, sufficient training to administer this intervention consists of a short educational course and practical training for mental health workers. With reasonable investments of time and money spent acquiring the necessary knowledge and skills for administration of MCT, the approach can be successful. Further, even if a longer programme is administered, the time invested in this treatment method is quite reasonable. However, it should be noted that a short familiarization of group leaders to these topics is no substitute for a deeper understanding of cognitive-behavioural theory and therapy.

4.5 Recommendations for future research

The results of the three pilot studies suggest a number of directions for future research. Because this exploratory pilot research suggests important links between characteristics manifested in schizophrenia, such as between JTC reasoning bias and lack of clinical insight as well as between JTC and symptoms, those links need to be studied more closely. These issues require a larger, more conclusive study, with a prognostic and mediation analysis. Additionally, a study with a larger sample size is needed to explore the effects of MCT on symptoms, reasoning ability, health-related and other areas of quality of life in addition to possible mediating factors. Furthermore, it would be interesting to investigate which aspects of MCT are effective, e.g. concrete exercises and specific modules or themes, and whether MCT would have any impact on aggression among paranoid patients. Although the approach is not intended to impact aggression directly, it may affect paranoid ideation. A study examining a longer MCT intervention could also be of importance, for example to find out whether MCT would have an influence on cognitive insight, as would one investigating which patients (e.g. particularly those with paranoia) benefit from MCT. It would also be advisable to compare group MCT to other psychosocial group treatments. Along with these issues, future studies in forensic mental health care could address different areas of quality of life and how to improve the patients' well-being.

YHTEENVETO (SUMMARY)

Kognitio, metakognitio ja potilaan näkökulma: Oikeuspsykiatrisessa hoidossa olevien skitsofreniapotilaiden arvioinnin ja kuntoutuksen uudet keinot

Tässä tutkimuksessa tarkasteltiin oikeuspsykiatrisessa sairaalahoidossa olevien väkivaltataustaisten skitsofreniapotilaiden sairauteen liittyviä tekijöitä sekä ryhmämuotoisen metakognitiivisen taitoharjoittelun käyttökelpoisuutta ja vaikuttavuutta tällä potilasryhmällä. Tutkimus toteutettiin ensimmäisen osatutkimuksen osalta poikkileikkaustutkimuksena, ja kaksi muuta osatutkimusta olivat pitkittäistutkimuksena toteutettuja satunnaistettuja kontrolloituja kokeita. Tutkimuskentässä tutkimus sijoittuu pääosin psykososiaalisen hoidon vaikuttavuustutkimuksen piiriin ja osin skitsofreniaa ja siihen liittyviä tekijöitä havainnoivan ja kuvailevan tutkimuksen piiriin. Tutkimusaineisto koostui yhteensä 20 oikeuspsykiatrisesta sekä vaarallisesta ja vaikeahoitoisesta skitsofreniaa sairastavasta miespotilaasta.

Ensimmäisessä osatutkimuksessa tarkasteltiin skitsofrenian positiivisten oireiden taustalla olevaa kognitiivista ongelmanratkaisun vinoumaa, vähäisestä tiedonkeruusta johtuvia hätäisiä johtopäätöksiä sekä metakognitiivista tekijää, kognitiivista oivalluskykyä ja joustavuutta (omaan ajatteluun liittyvää oivalluskykyä). Tutkimuksessa haluttiin tietää, millaiset ovat potilaiden kognitiivinen oivalluskyky ja tiedonkeruukyky ongelmaratkaisuprosessissa. Lisäksi haluttiin selvittää, ovatko nämä tekijät yhteydessä toisiinsa sekä skitsofrenian positiivisiin oireisiin (harhaluuloihin) ja sairaudentuntoon. Tavoitteena oli tunnistaa skitsofreniaan liittyviä mekanismeja ja mahdollisia hoidon tarpeita tässä potilasryhmässä.

Toisessa osatutkimuksessa tarkasteltiin ryhmämuotoisen metakognitiivisen harjoittelun (MCT) vaikutusta skitsofreniassa esiintyviin paranoidisiin ja muihin harhaluuloihin, yleiseen sairauden vakavuuteen sekä hätäisten johtopäätösten tekemiseen ongelmanratkaisussa. Lisäksi haluttiin selvittää MCT-ryhmäintervention käyttökelpoisuutta ja vastaanotettavuutta potilaiden osallistumisen perusteella.

Kolmannessa osatutkimuksessa haluttiin painottaa potilaskeskeistä lähestymistapaa ja selvittää oikeuspsykiatrisessa hoidossa olevien potilaiden terveyteen liittyvää elämänlaatua verrattuna iän ja sukupuolen suhteen yhteen sovitettuun väestöön. Lisäksi tarkasteltiin, onko MCT-interventiolla positiivista tai negatiivista vaikutusta potilaiden kokemaan terveyteen liittyvään elämänlaatuun kontrolliryhmään verrattuna. Lisäksi haluttiin selvittää MCT-ryhmäintervention hyödyllisyyttä ja käyttökelpoisuutta osallistujien subjektiivisen arvioinnin perusteella.

Tutkimus toteutettiin valtion oikeuspsykiatrisessa sairaalassa, jossa kaikki potilaat ovat suljetussa tahdosta riippumattomassa hoidossa. Potilaat ovat joko oikeuspsykiatrisia, rikoksesta vakavan psyykkisen sairauden takia tuomitsematta jätettyjä tai vaarallisia ja vaikeahoitoisia potilaita, ja lähes kaikilla on

esiintynyt väkivaltaista käyttäytymistä. Potilaat valikoitiin tutkimukseen satunnaisesti niiden potilaiden joukosta, jotka täyttivät seuraavat kriteerit: skitsofreniadiagnoosi, miessukupuoli, täysi-ikäisyys, äidinkieli suomi ja psykoedukaatioryhmään osallistuminen ennen tutkimusta. Psykoedukaatioryhmään osallistumista edellytettiin, koska se suljettiin pois tavanomaisesta hoidosta tutkimuksen ajaksi. Poissulkukriteerit olivat keskivaikea tai vaikea älyllinen kehitysvammaisuus, dementia tai muu vaikea neurologinen häiriö, kyvyttömyys osallistua turvallisuussyistä ja kyvyttömyys antaa tietoon perustuva vapaaehtoinen suostumus osallistumiselle. Sairaalan 291 läpikäydystä potilaasta löytyi 91 kriteerit täyttävää potilasta, joista 33 valittiin satunnaisesti tutkimukseen. Näistä potilaista 12 kieltäytyi osallistumasta, ja yksi jouduttiin jättämään pois tutkimuksesta, koska hänet arvioitiin kyvyttömäksi antamaan vapaaehtoinen suostumus. Tutkimukseen osallistui siis 20 potilasta (10 oikeuspsykiatrista ja 10 vaarallista ja vaikeahoitoista potilasta), jotka kaikki osallistuivat kaikkiin kolmeen osatutkimukseen. Ensimmäinen osatutkimus toimi myös lähtötilanteen arviointina toiselle ja kolmannelle osatutkimukselle. Lähtötilanteen arvioinnin jälkeen potilaat asetettiin järjestykseen psyykkisen sairauden vakavuuden perusteella ja satunnaistettiin pareittain joko koe- tai kontrolliryhmään toista ja kolmatta osatutkimusta varten.

Arvioinnit suoritettiin alussa, välittömästi MCT-intervention jälkeen sekä kolme ja kuusi kuukautta intervention päättymisen jälkeen. Yksi potilas jättäytyi pois tutkimuksesta kolmen kuukauden seurannan aikaan, ja samaan aikaan myös yksi potilas jouduttiin jättämään pois, sillä hänen psyykenlääkitystään muutettiin merkittävästi, mikä heikensi hänen psyykkistä vointiaan. Molemmat osallistujat olivat koeryhmästä. Osallistujien arvioinnit suoritettiin sokkona siten, ettei tutkija tiennyt, kuuluiko potilas koe- vai kontrolliryhmään.

Kaikilla arviointikerroilla käytettiin samoja menetelmiä, joihin sisältyi oireiden arviointia, tiedonkeruun ongelmanratkaisutehtävä ja itsearviointikyselyitä. Oireita mitattiin The Positive and Negative Syndrome Scale -mittarin (PANSS; Kay, Fiszbein & Opler, 1987) osioilla P1 Harhaluulot, P6 Epäluuloisuus/vainoharhat sekä G12 Arvostelukyvyn ja oivalluksen puute (sairaudentunto). Lisäksi näistä muodostettiin summamuuttuja PANSS Sum kuvaamaan yleistä sairauden vakavuutta kroonisessa skitsofreniassa. Toisena oiremittarina käytettiin Psychotic Symptoms Rating Scales -mittarin (PSYRATS; Haddock, McCarron, Tarrier & Faragher, 1999) Harhaluulot-skaalaa. Alkuarviossa sairauden vakavuusasteen määrittämiseksi käytettiin näiden oiremittareiden lisäksi myös Clinical Global Impressions -mittarin (CGI; Guy, 1976) Sairauden vakavuus -osiota. Tiedonkeruun arvioimiseksi käytettiin tietokonepohjaista ongelmanratkaisutehtävää, joka oli muokattu ja suomennettu englanninkielisestä tehtävästä (Moritz, Veckenstedt ym., 2010). Tehtävässä potilaan tuli päättää, kuinka paljon tietoa hänen tarvitsee kerätä ratkaistakseen tämä hänelle esitetty tehtävä. Tehtävä pysyi samana joka arviointikerralla. Kognitiivisen oivalluskyvyn itsearviointimittari oli tätä tutkimusta varten suomennettu Beck Cognitive Insight Scale (BCIS; Beck, Baruch, Balter, Steer & Warman, 2004). Terveyteen liittyvää elämänlaatua arvioitiin 15D-itsearviointimittarilla (Sintonen, 2001).

Itsearvioinneista ensimmäiseen osatutkimukseen sisällytettiin vain kognitiivista oivalluskykyä arvioiva BCIS-mittari ja kolmanteen osatutkimukseen terveyteen liittyvän elämänlaadun 15D-arviointimittari. Lisäksi kolmannessa osatutkimuksessa koeryhmäläiset arvioivat MCT-ryhmää tätä tutkimusta varten kehitetyllä palautekyselyllä. Kolmannen osatutkimuksen vertailuryhmänä toiminut väestöaineisto (N = 1615) saatiin Terveyden ja hyvinvoinnin laitoksen Terveys 2011 -tutkimuksesta.

Toisessa ja kolmannessa osatutkimuksessa koeryhmä osallistui tavanomaisen hoidon lisäksi kahdeksan kerran MCT-ryhmään, joka toteutettiin siihen kuuluvan käsikirjan mukaan. Ryhmätapaamisia oli kahdesti viikossa, ja ne kestivät 45 minuuttia. MCT-interventio sisälsi seuraavia teemoja: attribuutio, eli mistä syystä tai minkä ansiosta jotain tapahtuu (1. tapaaminen), hätäiset johtopäätökset (2. ja 7. tapaaminen), uskomusten muuttaminen (3. tapaaminen), empatia (4. ja 6. tapaaminen), muisti (5. tapaaminen) sekä itsetunto ja mieliala (8. tapaaminen). Jokaisen ryhmätapaamisen jälkeen osallistujat saivat päivän aiheeseen liittyvän kotitehtävän. Kontrolliryhmä sai tavanomaista hoitoa koko tutkimuksen ajan. Tavanomaiseen hoitoon kuului lääkehoito, yksilöllinen terapeuttinen hoitosuhde sekä tavanomaiset osaston aktiviteetit. Tutkimukseen osallistuneet potilaat saivat ottaa osaa kaikkiin muihin hoidossa tarjolla oleviin ryhmiin paitsi psykoedukaatioryhmään ja sosiaalisten taitojen ryhmään, sillä näiden ryhmien tavoitteet ja kohdealueet ovat osittain päällekkäisiä MCT:n kanssa ja ryhmien hoitotulokset voisivat sekoittaa tutkimustuloksia. MCT-intervention jälkeen myös koeryhmäläiset jatkoivat tavanomaista hoitoa.

Tutkimustulokset osoittivat, että potilaat keräsivät hyvin vähän tietoa päätöksentekonsa tueksi. Potilaista 75 % päätyi hätäiseen johtopäätökseen, eli teki päätelmän joko yhden (55 %) tai kahden (20 %) tiedonpalasen perusteella. Potilaiden ongelmaratkaisukyky näyttäytyi siten puutteellisena. Tämä hätäinen ongelmanratkaisutapa oli yhteydessä voimakkaampaan harhaluulojen aiheuttamaan ahdistuneisuuteen sekä huonoon sairaudentuntoon. Myös potilaiden sairaudentunto näyttäytyi tutkimuksessa puutteellisena. Nämä tulokset viittaavat siihen, että hätäisellä ongelmanratkaisutavalla on tärkeä rooli skitsofrenian sairaudenkuvassa. Tutkimuksessa havaittiin myös, että potilailla vaikutti olevan kykyä itsereflektioon, mutta jos potilas on samalla liiallisen itsevarma omista tulkinnoistaan, tekee se ajattelusta joustamatonta ja laskee kognitiivista (omaan ajatteluun liittyvää) oivalluskykyä. Kognitiivisella oivalluskyvyllä ja sairaudentunnolla ei näyttänyt olevan tilastollisesti merkitsevää yhteyttä sairauden positiivisiin oireisiin. Nähtävillä oli kuitenkin viitteitä, että kognitiivinen oivalluskyky saattaa jossain määrin olla yhteydessä sairaudentuntoon, mikä voi viitata siihen, että nämä kaksi oivalluskyvyn käsitettä ovat erillisiä ja toisiaan täydentäviä.

MCT-intervention läpikäynneillä potilailla yleinen sairauden vakavuus ja erityisesti epäluuloisuus lievittyivät merkitsevästi verrattuna kontrolliryhmäläisiin. Suurin MCT-interventiosta saavutettu hyöty oli nähtävillä kolmen kuukauden kuluttua interventiosta, ja saavutettu hyöty suhteessa kontrolliryhmään heikkeni hieman kuuden kuukauden seurannassa pysyen kuitenkin merkitse-

vänä. MCT-ryhmäläisillä oli myös havaittavissa tilapäinen lasku harhaluulojen huolehtimiseen käytetyssä ajassa kolmen kuukauden seuranta-ajankohtana verrattuna kontrolliryhmään, mutta muutosta koko tutkimusajanjakson aikana tarkasteltaessa erot ryhmien välillä eivät olleet merkitseviä. MCT-interventiolla kyettiin lisäämään tiedonkeruuta ongelmanratkaisussa tilapäisesti, mutta tämä havaittu hyöty ei yltänyt tilastolliseen merkitsevyyteen.

Potilaiden subjektiiviset arviot MCT-ryhmästä olivat myönteisiä. He pitivät ryhmämuotoisesta työskentelystä, olivat sitä mieltä, että ohjelman sisältö on ymmärrettävä ja hauska, sekä arvioivat, että ryhmällä on joitain myönteisiä vaikutuksia heidän elämäänsä. Osallistujat kokivat ryhmän myös tärkeänä osana hoitoaan ja arvioivat, että olivat sen myötä saavuttaneet joitain uusia taitoja. Osallistujat pitivät ryhmää suositeltavana myös muille potilaille. Kukaan ryhmään osallistuneista ei keskeyttänyt ryhmää, ja ryhmäkerroilta pois jääntejä oli vähän. Interventiolla ei kuitenkaan ollut myönteistä, eikä kielteistä, vaikutusta potilaiden kokemaan terveyteen liittyvään elämänlaatuun kontrolliryhmään verrattuna. MCT-ryhmäläisillä havaittiin tilapäinen nousu koetussa ahdistuneisuudessa kolmen kuukauden seurannassa verrattuna kontrolliryhmään, muttei enää kuuden kuukauden seurannassa. Kun koko potilasryhmää tarkasteltiin kokonaisuutena (n = 20) riippumatta heidän saamastaan hoidosta, ei heidän kokemassaan terveyteen liittyvässä elämänlaadussa havaittu muutosta kuuden kuukauden tutkimusaikana. Väestöön verrattuna potilaiden terveyteen liittyvä elämänlaatu oli merkitsevästi heikompi sekä kokonaisuudessaan että yhdeksässä viidestätoista elämänlaadun osa-alueesta (liikuntakyky, näkökyky, hengitys, puhuminen, tavanomaiset toiminnot, henkiset toiminnot, masentuneisuus, ahdistuneisuus ja energisyys). Tutkimuksessa saavutettujen tulosten voidaan katsoa olevan yleistettävissä oikeuspsykiatrisessa hoidossa oleviin skitsofreniapotilaisiin.

Tutkimuksen perusteella voidaan todeta, että oikeuspsykiatrisessa sairaalassa olevien moniongelmaisten potilaiden hoidossa on tärkeää ymmärtää oireita selittäviä ja niihin liittyviä tekijöitä, jotta voitaisiin kehittää tehokkaita hoitomuotoja. Tämän tutkimuksen tulokset viittaavat siihen, että hoidossa voi olla hyödyllistä arvioida potilaiden tiedonkeruuta ongelmanratkaisussa, sairaudentuntoa sekä kognitiivista oivalluskykyä, jotta saavutettaisiin laajempi ja kokonaisvaltaisempi kuva potilaan tilanteesta ja voitaisiin suunnitella hoitoa yksilöllisemmin. Voidaan myös olettaa, että jos potilaan tiedonkeruuta voitaisiin parantaa, sillä voisi olla myönteistä vaikutusta myös sairaudentuntoon ja oireiden ahdistavuuteen. Vaikutuksen suuntaa ei kuitenkaan voida tämän tutkimuksen perusteella päätellä.

Johtopäätöksenä voidaan myös todeta, että MCT-interventio voi lievittää erityisesti potilaan epäluuloista oireilua, mutta intervention potentiaaliset vaikutukset, sekä myönteiset että mahdolliset kielteiset, näkyvät viiveellä, kolmisen kuukautta intervention päättymisen jälkeen. Intervention vaikutuksia tulee siis arvioida riittävän pitkällä aikavälillä. Havaittu viive intervention hyödyssä antaa aihetta myös henkilökunnalle tarkastella omia odotuksiaan ja näkemyksiään siitä, mikä on vaikuttavaa hoitoa ja toipumista. Tämän huomioiminen voi

vähentää myös mahdollista turhautumista hoitohenkilökunnassa, kun oireiden lievittymistä ei olekaan heti havaittavissa. MCT voi mahdollisesti parantaa myös ongelmaratkaisukyvyn ongelmia, mutta nämä ongelmat vaikuttavat olevan vaikeasti muutettavia. MCT-interventiota voidaan pitää myös turvallisena menetelmänä, eivätkä mahdollinen lievä älyllinen kehitysvammaisuus tai skitsofreniaan liittyvät kognitiiviset ongelmat näyttäytyneet esteenä ryhmään osallistumiselle. Parhaan mahdollisen hyödyn saavuttamiseksi intervention tulisi kuitenkin olla pitkäkestoinen, ja se on mahdollisesti myös toistettava myöhemmin hoidon aikana. Koska MCT toteutetaan selkeän manuaalin mukaan ja ohjaamiseen voidaan perehdyttää lyhyellä koulutuksella, myös pidempikestoisena ryhmänä toteutettu interventio vie vain kohtuullisesti ajallisia ja taloudellisia resursseja. Potilaiden osallistuminen MCT-ryhmään ja heidän kokemuksensa ryhmän hyödyllisyydestä ovat tärkeitä tuloksia sinänsä ajatellen potilaiden sitoutumista hoitoon.

Kaiken kaikkiaan hoitoresistentit potilaat tarvitsevat intensiivistä, pitkäkestoista ja laaja-alaista hoitoa ja kuntoutusta. Hoidossa on suositeltavaa yhdistää psykoedukaatiota sairaudentunnon lisäämiseksi, metakognitiivista harjoittelua ongelmanratkaisukyvyn kohentamiseksi ja oireenhallintaan sekä myös muita yksilö- ja ryhmämuotoisia hoitomenetelmiä jokaisen potilaan yksilöllisten tarpeiden mukaan. Oireidenhallinnan lisäksi oikeuspsykiatrisessa hoidossa on tärkeä ottaa huomioon myös potilaan inhimilliset tarpeet ja kohdata potilas kokonaisvaltaisesti. Tästä syystä myös esimerkiksi potilaiden elämänlaadun arviointi ja sen parantamiseen tähtääviä keinoja on tärkeä sisällyttää hoitoon. Oireiden lievittymiseen tähtäävillä interventioilla ei välttämättä pystytä parantamaan potilaiden elämänlaatua, joten elämänlaadun parantamiseen tulisi panostaa muilla keinoin. On huomioitavaa, että alhainen mieliala voi vaikuttaa negatiivisesti elämänlaatuun. MCT-intervention perusmoduuleihin sisältyykin mielialaan liittyvä moduuli. MCT-interventioon on tämän tutkimuksen jälkeen liitetty myös kaksi lisämoduulia, jotka käsittelevät itsetuntoa ja stigmaa, ja potilaan elämänlaadun kannalta on suositeltavaa ottaa ne mukaan interventiota toteutettaessa. Myös muihin interventioihin olisi hyvä sisällyttää mielialaan ja tunteiden käsittelyyn liittyviä elementtejä.

Hoidon tuloksellisuutta arvioitaessa ja sitä kehitettäessä tulisi oireiden lievittymisen lisäksi ottaa huomioon myös potilaslähtöisiä näkökulmia, kuten elämänlaatu ja potilaan omat näkemykset hoidosta. Tämä on tärkeää myös terapeuttisen yhteistyösuhteen saavuttamiseksi. Potilaan osallistaminen oman hoitonsa suunnitteluun ja arviointiin on myös tärkeä askel hoidon kohteena olevan potilaan roolista aktiiviseksi toimijaksi.

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ORIGINAL PAPERS

I

COGNITIVE INSIGHT, CLINICAL INSIGHT, AND REASONING IN SCHIZOPHRENIA: A PILOT STUDY IN A FORENSIC SETTING

by

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Cognitive Insight, Clinical Insight, and Reasoning in Schizophrenia: A Pilot Study in a Forensic Setting

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ABSTRACT

This pilot study of 20 chronically ill male inpatients with schizophrenia and a history of violence investigates the relationships between cognitive insight, clinical insight, reasoning, and symptoms in a forensic setting. The majority (75%) of the patients with schizophrenia made hasty decisions based on a small amount of information (the jumping-to-conclusion bias, JTC). In addition, the data suggested that the more information patients gather, the more clinical insight they have and the less distressed they are by their symptoms. However, neither cognitive nor clinical insight were found to be statistically significantly associated with symptoms. The Beck Cognitive Insight Scale (BCIS) showed low and nonsignificant correlations with JTC bias as well as with symptoms. We discuss the potential significance of JTC bias, and clinical and cognitive insight in treatment of forensic schizophrenia patients with a history of violence.

KEYWORDS

Clinical insight; cognitive insight; forensic; jumping to conclusions; psychosis; schizophrenia; treatment

Poor insight into one's own illness is a predominant feature of schizophrenia (Amador et al., 1994). The concept of insight can be broken down into multidimensional clinical insight and the more recent construct of cognitive insight (Beck, Baruch, Balter, Steer, & Warman, 2004). Clinical insight consists of awareness of having an illness, its consequences, the need for treatment, and the recognition of symptoms attributable to the illness (Mintz, Dobson, & Romney, 2003). These dimensions are incorporated into various clinical scales, but they do not directly assess the capacity for evaluating unusual experiences and incorrect conclusions. The concept of cognitive insight, on the other hand, focuses on the metacognitive processes of evaluating and correcting beliefs, thereby providing an alternative way of conceptualizing insight (Beck et al., 2004). To assess cognitive insight, Beck et al. (2004) developed the Beck Cognitive Insight Scale (BCIS), which is comprised of two factors: self-reflectiveness and self-certainty. Self-reflectiveness

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indicates patients' willingness to acknowledge fallibility and their openness to feedback. Self-certainty reflects overconfidence in beliefs. The scale's composite index score reflects cognitive insight and flexibility.

Previous research has yielded contradictory findings concerning the relationship between clinical and cognitive insight. Some studies have found no association between the two types of insight (Greenberger & Serper, 2010; Tastet, Verdoux, Bergua, Destaillats, & Prouteau, 2012). Other studies, however, have found an association between these two constructs (for a review, see Riggs, Grant, Perivoliotis, & Beck, 2012). Riggs et al. (2012) state that, despite their correlation, these two constructs are complementary rather than overlapping.

Contradictory results have also been reported regarding the relationship between clinical insight and symptomatology. However, in their meta-analysis, Mintz et al. (2003) summarize the results of 40 studies (N = 2,838) and conclude that a modest negative association exists between overall clinical insight and positive symptoms—the more positive symptoms there were, the less insight there was. In addition, they found that this relationship was stronger during a period of acute psychosis than it was during a period of remission.

The theoretical model behind the BCIS presumes a relationship between delusions and low self-reflectiveness accompanied by high overconfidence (Beck et al., 2004). Previous studies have shown the relationship between self-reflectiveness and delusions to be inconsistent (Buchy, Malla, Joober, & Lepage, 2009; Engh et al., 2010; Warman, Lysaker, & Martin, 2007). Self-certainty, on the other hand, has been consistently shown to be associated with positive symptoms, especially delusions (Bora, Erkan, Kayahan, & Veznedaroglu, 2007; Bruno, Sachs, Demily, Franck, & Pacherie, 2012; Engh et al., 2010; Pedrelli et al., 2004; Warman et al., 2007). Contrasting observations, however, have also been reported (cf. Favrod, Zimmermann, Raffard, Pomini, & Khazaal, 2008; Granholm, Auslander, Gottlieb, McQuaid, & McClure, 2006). There is evidence that higher cognitive insight at baseline seems to predict reduction of delusions at the end of therapy (Perivoliotis et al., 2010). Furthermore, cognitive insight, especially self-reflectiveness, can be improved by psychosocial treatment, and this improvement is associated with a reduction in positive symptoms at the end of therapy in patients with psychosis and chronic schizophrenia (Granholm et al., 2005; Perivoliotis et al., 2010). According to Lysaker et al. (2013), cognitive insight represents one component of the broader concept of metacognitive awareness, which describes the ability to form complex images of others and of one's self, a process linked to disorganization symptoms, social function, and flexibility in abstract thought. This ability is not, however, linked to positive symptoms (Lysaker et al., 2013). Most of the previous studies looking at cognitive insight, positive symptoms, and psychosis have included only outpatients.

Ekinci and Ekinci (2013) compared clinical insight, cognitive insight, and positive symptoms in violent and nonviolent schizophrenia outpatients. They found that violent patients had, along with lower self-reflectiveness and cognitive insight, higher scores on positive symptoms than the nonviolent patients did. As far as we know, no previous studies have been published on cognitive insight measured by BCIS among an inpatient population in a forensic setting.

Another concept that is relevant when trying to understand self-reflectiveness and insight in schizophrenia is bias related to drawing conclusions. Moritz and Woodward (2005) demonstrated that patients with schizophrenia base their decisions on less information than other psychiatric patients and healthy controls do, and the response pattern is most prominent in acute delusions. When a decision is made after requesting only one or two pieces of evidence, the phenomenon is referred to as the jumping-to-conclusions (JTC) bias (see, e.g., Fine, Gardner, Craigie, & Gold, 2007; Garety & Freeman, 1999). The literature shows that between approximately 50% and 60% of schizophrenia patients exhibit this response pattern, whereas closer to approximately 20% or 30% of healthy controls jump to conclusions (see, e.g., Dudley, Taylor, Wickham, & Hutton, 2015; Freeman, Pugh, & Garety, 2008; Garety & Freeman, 2013; Warman, Lysaker, Martin, Davis, & Haudenschield, 2007). Freeman et al. (2008) found that JTC was associated with conviction in paranoid thoughts and distress caused by paranoid ideation. Garety et al. (2005) demonstrated that the bias was associated with belief inflexibility, delusions, and higher delusion conviction.

In the present descriptive pilot study, we investigated the possible characteristics of these patients in terms of cognitive insight and the possible relationships among cognitive insight, clinical insight, reasoning, and symptoms. More precisely, we were interested in testing the JTC bias among forensic schizophrenia patients. That is, we examined the amount of information gathered (draws-to-decision, DTD) before making a decision and its relationship with cognitive and clinical insight as well as with psychological distress or symptoms. We expected, on the basis of earlier studies, an association between DTD and insight as well as between DTD and psychological symptoms among schizophrenia patients in a high-security forensic setting. In addition, we tested the feasibility of the BCIS scale for these patients, and whether BCIS is associated with DTD and psychological distress.

Method

The study and the procedure were approved by the Kuopio University Hospital Committee on Research Ethics. The participants gave their written informed consent.

Design

This cross-sectional descriptive pilot study was conducted in a high-security hospital setting as a part of a wider and longer RCT intervention study, which is described in an article by Kuokkanen, Lappalainen, Repo-Tiihonen, and Tiihonen (2014). All participants underwent the same assessments during a single research appointment in November 2011.

Service setting and participants

Niuvanniemi Hospital is a state mental hospital treating patients with numerous previous hospitalizations and who have been committed to involuntary treatment. There are patients from two service types: forensic patients whose sentences have been waived due to their insanity, and nonforensic, difficult-to-treat patients. Most often the forensic patients in the hospital have committed violent crimes, such as homicides, attempted homicides, or assaults. At the time of the study, 97% of the difficult-to-treat male patients had a history of violent behavior and, thus, criminal activity (see Table 1). Therefore, it was presumed that forensic and nonforensic patients do not differ from each other significantly and all of the patients were dealt with as one group.

Figure 1 shows the participant flow. Adult male patients were recruited by a member of the research team (RK) in September 2011, using the hospital's patient registry ($N = 290$). The registry was screened according to the inclusion criteria: schizophrenia diagnosed prior to the study by the treating psychiatrist

Table 1. Demographic information for study participants.

Characteristic	Mean (*SD*)	Range (%)
Age (years)	43.55 (12.24)	19–67
GAF*	17.39 (5.56)	10–31
Duration of illness (years)	16.45 (9.48)	3–37
Number of hospitalizations*	13.06 (10.75)	1–37
Duration of current admission (years)*	8.03 (6.52)	0.92–21.58
Education, highest completed, *n**		
No formal education	1	(5%)
Elementary school	10	(50%)
Secondary education	7	(35%)
Diagnosis, *n*		
Paranoid schizophrenia	15	(75%)
Hebephrenic schizophrenia	1	(5%)
Undifferentiated schizophrenia	4	(20%)
Number of patients with		
comorbid substance abuse	11	(55%)
comorbid personality disorder	6	(30%)
History of violence*	18	(90%)

Note. *SD* = standard deviation; GAF = Global Assessment of Functioning.
*Values missing from two forensic patients ($n = 18$).

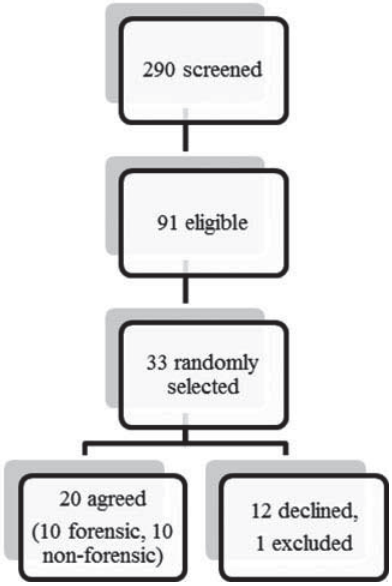

Figure 1. Participant flowchart.

using the ICD-10 criteria (World Health Organization, 1992), Finnish as a native language, and completion of a psychoeducation group. The latter criterion was due to the RCT intervention study described elsewhere (Kuokkanen et al., 2014). The exclusion criteria were moderate to severe intellectual disability, dementia, gross neurological disorder, or an inability to consent assessed by the treating psychiatrist. Out of 91 eligible patients, 33 were randomly selected. Twelve of them declined to participate and one was excluded due to inability to consent. Twenty patients consented to participate.

Measures

In addition to other demographic data, information about the following issues was collected after completion of the study: education, criminal history, Global Assessment of Functioning (GAF; *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text rev., American Psychiatric Association, 2000, determined by a trained nurse as a part of routine periodical assessment), number of prior hospitalizations, and the duration of current admission. Two forensic patients refused to share this information (see Table 1).

Symptom measures and clinical insight

Delusions, suspiciousness, and a lack of clinical insight were determined using the Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein, & Opler, 1987),

specifically the items P1 delusions, P6 suspiciousness, and G12 lack of judgment and insight (clinical insight). The selection of the positive symptom P1 and P6 items, reflecting paranoid and other delusions, was based on the theoretical model of BCIS (see Beck et al., 2004). The rest of the PANSS items were excluded in order to avoid making the assessments too exhausting for the patients. In addition, different dimensions of delusions and suspiciousness were assessed on the delusions scale of the Psychotic Symptoms Rating Scales (PSYRATS; Haddock, McCarron, Tarrier, & Faragher, 1999). The researcher (RK) was trained by a senior expert clinician (ER-T) in using these measures. Interrater agreement (kappa) was over .70 for all measures at the item level. The PSYRATS items conviction, amount of distress, intensity of distress, and total score were selected for comparisons based on the theoretical background (see Freeman et al., 2008) and because PANSS items do not differentiate these dimensions of symptoms.

Reasoning ability

Reasoning ability in terms of data gathering was determined by a computerized version of a reasoning task adapted from Moritz et al. (2010). In this reasoning task, a fisherman chooses one lake from two possible lakes and fishes from that lake only. The lakes have fish of two different colors in opposing ratios of 20:80. In the task used, participants had to decide how much information (i.e., how many fish) they would need to gather before they could make a decision regarding from which of the two lakes the fish were caught. The draws-to-decision (DTD) variant of the JTC paradigm was used as an outcome variable (see Fine et al., 2007; Garety & Freeman, 1999).

Cognitive insight

Cognitive insight was measured using the authorized Finnish version of the Beck Cognitive Insight Scale (BCIS; Beck et al., 2004). The instrument is a 15-item self-assessment questionnaire and it is comprised of two subscales: self-reflectiveness (SR) and self-certainty (SC). Each item is assessed on a 4-point scale ranging from 0 (do not agree) to 3 (agree completely). The self-reflectiveness subscale is a sum of 9 items, with the possible range being 0–27. The self-certainty subscale is a sum of 6 items and the possible range is 0–18. The BCIS composite index (CI) is calculated as self-reflectiveness minus self-certainty (CI = SR – SC). Poorer cognitive insight is indexed by lower scores on the self-reflectiveness subscale (e.g., BCIS/SR = 10 out of 27), higher self-certainty scores (e.g., BCIS/SC = 15 out of 18), and lower BCIS composite index scores (e.g., BCIS/CI = 10–15 = −5). The original validation study by Beck et al. (2004) reported a coefficient α for the self-reflectiveness of 0.68 and for the self-certainty of 0.60. The mean scores for schizophrenia patients in their study were 12.97 for self-reflectiveness (*SD* = 5.00), and 7.94 for self-certainty

(*SD* = 3.78). Several studies concerning psychotic patients have reached similar mean scores, as Beck et al. (2004) found (see, e.g., Martin, Warman, & Lysaker, 2010; Pedrelli et al., 2004; Warman et al., 2007), even though there has been some variation (cf. Greenberger & Serper, 2010; Guerrero & Lysaker, 2013; Tastet et al., 2012). Ekinci and Ekinci (2013) reported a mean score of 9.3 (*SD* = 3.9) for self-reflectiveness and of 9.5 (*SD* = 3.5) for self-certainty among violent schizophrenia outpatients. The BCIS has been shown to be able to distinguish psychotic patients from healthy controls (Martin et al., 2010; Riggs et al., 2012), but no clear cutoff score can be set for predicting patient status (Martin et al., 2010).

Analyses

The nonparametric tests were used due to the nonnormally distributed variables and the small sample size. The Mann–Whitney *U*-test and the chi-square test were used to compare the differences between the forensic and nonforensic patients. To examine the rank correlations, Kendall's tau-c (τc) was used because the variables were characterized by nonnormality and many tied ranks, and because the data did not produce square contingency tables but large rectangular tables. In addition, by using rank correlation it was also possible to reduce potential distortions produced by outliers, unequal variances, and nonlinearity. The Monte Carlo method was used to test statistical significance. The internal consistency of the BCIS scales was investigated by calculating Cronbach's alpha for both subscales.

Results

None of the differences in the demographic variables or in the selected measures between the forensic and nonforensic groups were statistically significant. The demographic information is shown in Table 1. The results indicate that the sample was heterogenic and chronically ill. There was only one statistically significant correlation between demographic variables and selected measures: between duration of current admission and PSYRATS intensity of distress caused by symptoms ($\tau c = .36$, $p < 0.05$). Table 2 shows the mean values, standard deviations, ranges, and confidence intervals for means for all of the measures. To note, the mean score of PANSS G12 represented a moderate to moderately severe disruption in clinical insight.

Jumping-to-conclusions bias

The amount of information gathered (DTD) before making a decision was low ($M = 2.15$, $SD = 1.76$). In fact, 55% ($n = 11$) of the participants made a

Table 2. Mean values, standard deviations, ranges, and confidence intervals for means.

Characteristic	Mean (*SD*)	Range	95% CI
PANSS P1 Delusions	2.20 (1.44)	1–5	1.53; 2.87
PANSS P6 Suspiciousness	3.00 (1.30)	1–5	2.39; 3.61
PANSS G12 Lack of judgment & insight	4.50 (1.15)	2–6	3.96; 5.04
PSYRATS Total	7.45 (5.51)	3–21	4.87; 10.03
PSYRATS Conviction	2.00 (1.75)	0–4	1.18; 2.82
PSYRATS Amount of distress	0.65 (1.27)	0–4	0.06; 1.24
PSYRATS Intensity of distress	0.50 (1.10)	0–4	–0.01; 1.01
BCIS Composite Index	6.15 (7.14)	–5–17	2.81; 9.49
BCIS Self-reflectiveness	15.30 (5.98)	6–27	12.50; 18.10
BCIS Self-certainty	9.15 (4.17)	0–16	7.20; 11.10
DTD	2.15 (1.76)	1–7	1.33; 2.97

Note. *SD* = standard deviation; CI = confidence interval; PANSS = Positive and Negative Syndrome Scale; PSYRATS = Psychotic Symptoms Rating Scales; BCIS = Beck Cognitive Insight Scale; DTD = draws-to-decision.

decision after only one piece of information (i.e., after the first fish) exhibiting an extreme JTC bias. An additional 20% (n = 4) of the patients made a decision after the second piece of information (i.e., after the second fish) and thus jumped to conclusions as well.

Table 3 shows the correlations between the measures. A statistically significant negative correlation between data gathering (DTD) and PANSS G12 lack of judgment (clinical insight) was found (τc = –.34, p < .05). Thus, the more information the patient gathers, the more clinical insight he has. In addition, we found a significant negative correlation between DTD and PSYRATS amount (τc = –.28, p < .05) and intensity of distress (τc = –.30, p < .05) caused by symptoms. This suggested that the more information patients gather, the less distressed they are by their symptoms. DTD did not show any notable correlation with PSYRATS delusional conviction. On the other hand, PSYRATS delusional conviction correlated significantly with both P1 delusions (τc = .60, p < .001) and P6 suspiciousness (τc = .50, p < .01). This finding suggested that the more delusional or suspicious patients are, the more convinced they are of their ideation. Further, PANSS P1 delusions correlated significantly with PSYRATS intensity of distress caused by symptoms (τc = .33, p < .05). In other words, the more delusional patients are, the more distress they experience. On the other hand, the correlations between P6 suspiciousness and amount of distress and intensity of distress were nonsignificant and low.

Cognitive insight

We found the BCIS to be internally consistent. The Cronbach's alpha for BCIS self-reflectiveness was 0.82, and for self-certainty 0.80. These results are in line with the internal consistency found in the original study by Beck et al. (2004). The mean BCIS self-reflectiveness (CR) score was 15.30 (*SD* = 5.98),

Table 3. The Kendall´s tau-c correlations of variables in study participants.

	BCIS			PANSS						
	SR	SC	CI	P1	P6	G12	PSYRATS Total	Amount of distress	Intensity of distress	Conviction
DTD	−.120	−.234	.054	−.293	−.113	**−.344***	−.246	**−.281***	**−.300***	−.173
BCIS SR		−.055	**.645*****	.167	.144	−.231	.117	.050	.087	−.013
BCIS SC			**−.445****	−.207	−.125	.319	−.117	−.044	−.060	−.113
BCIS CI				.187	.156	−.363	.094	.069	.100	−.020
PANSS P1					**.373***	.213	**.620*****	.287	**.327***	**.600*****
PANSS P6						.313	**.400***	.188	.220	**.500****
PANSS G12							.163	.013	.007	.233
PSYRATS Total								**.475*****	**.533*****	**.673*****
Amount of distress									**.513*****	.240
Intensity of distress										.253

Note. Significant values are shown in bold. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (2-sided). DTD = draws-to-decision; BCIS = Beck Cognitive Insight Scale; SR = self-reflectiveness; SC = self-certainty; CI = composite index; PANSS = Positive and Negative Syndrome Scale; P1 = delusions item; P6 = suspiciousness item; G12 = lack of judgment & insight item; PSYRATS = Psychotic Symptoms Rating Scales.

the mean self-certainty (SC) score was 9.15 (*SD* = 4.17), and the mean composite index (CI) score was 6.15 (*SD* = 7.14). The BCIS subscales CR and SC did not correlate with each other (τc = .06, see Table 3).

There were low and nonsignificant correlations between BCIS subscales (self-reflectiveness and self-certainty) and DTD (τc = –.12 – –.23, Table 3). In addition, very low correlation was observed between Composite Index (CI) and DTD. Furthermore, we found no statistically significant correlations between the BCIS subscales and symptom measures. There was a moderate (τc = .32), though nonsignificant, positive correlation between BCIS self-certainty (SC) and PANSS G12 lack of judgment. The correlation between self-reflectiveness (SR) and lack of clinical insight (G12) was inverse, modest (τc = –.23, Table 3), and nonsignificant.

The BCIS composite index (CI), on the other hand, showed a nonsignificant, though moderate, negative correlation (τc = –.36) with PANSS G 12 lack of judgment and insight (reflecting clinical insight). Additionally, PANSS G 12 (lack of judgment and insight) showed a moderate but nonsignificant correlation (τc = .31) with suspiciousness (P6).

Discussion

Our results revealed that the majority of the schizophrenia patients in a high-security forensic setting made hasty decisions based on a small amount of information reflecting the jumping-to-conclusion (JTC) bias. The prevalence of this bias was at least at the same level as in previous studies, if not even slightly higher (see, e.g., Dudley et al., 2015; Garety & Freeman, 2013). We also observed a significant association between data gathering (DTD) and clinical insight. The results thus suggested that the more information patients consider in making decisions, the better view of their condition they are able to achieve (clinical insight)—or vice versa. Our data also indicated that when patients gather more information, the less distressed they are about their symptoms. Of course, this effect could also be the other way around. Thus, less distressed patients may be able to gather more information. This observed link between data gathering and the distress dimension of delusions was in accordance with the prior observation made by Freeman et al. (2008). Overall, our findings of the significance of JTC bias among schizophrenia patients in a forensic setting are in accordance with the observations made among other psychotic patients (see, e.g., Dudley et al., 2015; Garety & Freeman, 2013; Garety et al., 2005; Moritz & Woodward, 2005).

The possible deficit in the connection between JTC bias and clinical insight often creates many challenges during treatment, and leads us to a situation where a patient may have poor insight into his condition, make hasty and possibly faulty decisions, and be distressed due to his symptoms. Moreover, we observed that the more delusional or suspicious patients are,

the more convinced they are of their ideations. This may, for example, lead to ill-advised actions. It could be hypothesized that if reasoning or data-gathering ability could be rehabilitated and improved, it might create favorable effects for clinical insight as well as for symptom-induced distress, even though we cannot infer the direction of the impact from this data. A trend for short-term improvement in JTC bias has been observed following an eight-session, group-administered metacognitive training program in a forensic setting (Kuokkanen et al., 2014). However, it was hypothesized that to achieve more lasting results, the period of training should be longer (Kuokkanen et al., 2014).

We observed that, in addition to making hasty decisions, the patients' clinical insight was quite poor, regardless of symptom severity. It could be assumed that both patients' JTC bias and insight regarding their symptoms need to be modified before violent patients can be released from a forensic hospital even if positive symptoms were in a state of remission. After all, poor insight is considered to be a risk factor for violence among forensic patients (Alia-Klein, O'Rourke, Goldstein, & Malaspina, 2007). On the basis of our results, it seems that treating symptoms is not enough and there is a need for complementary rehabilitation methods in improving both data-gathering skills and insight. Group-administered psychoeducation has shown improvements for clinical insight in offender patients with schizophrenia in a forensic setting (Aho-Mustonen et al., 2011). Because the patients in our study had already gone through group-administered psychoeducation prior to the study, it implies that the majority of the patients most likely need repeated and long-term rehabilitation in terms of psychoeducation and other methods at different stages of rehabilitation, such as specific training in data-gathering skills.

To our knowledge, this was the first study to examine cognitive insight measured by the Beck Cognitive Insight Scale (BCIS) in a forensic setting, and its relationship to inpatients with chronic schizophrenia. In our study, the BCIS was found, in accordance with previous studies, to be internally consistent. Contrary to the theoretical model formulated by Beck et al. (2004), we found no association between cognitive insight and symptoms. Further, we found no significant association between cognitive insight and clinical insight. This result seems to be in line with the statement by Riggs et al. (2012) that clinical insight and cognitive insight are two different constructs that complement each other. We observed that in a forensic setting, chronic schizophrenia patients scored slightly higher on self-reflectiveness as well as on self-certainty when these scores were compared to those in the original study by Beck et al. (2004). Additionally, the difference regarding self-reflectiveness was even greater in favor of forensic inpatients in our study when compared to the mean self-reflectiveness score of violent schizophrenia outpatients (Ekinci & Ekinci, 2013), which is an interesting finding. Although more research is

needed to confirm the benefits of BCIS among different populations, the evaluation of cognitive insight and flexibility using the BCIS might be advantageous in this population and service setting.

There are several limitations to this study. The cross-sectional design does not provide information on insight and its relation to symptoms over time. The sample was heterogenic, consisting of chronically ill patients with comorbid disorders. The sample size was also small, which has a number of consequences: The results may not be generalizable to the whole population of patients chronically ill with schizophrenia and possessing difficult symptomatology, and we did not control for the demographic variables, because small cell frequencies in partial correlation would not give reliable results. Data gathering was determined by a computerized task, and this may not adequately reflect JTC bias in other environments. In addition, because there is no normative data for the BCIS, we were not able to make formal comparisons. The results should be considered to be preliminary and this area needs more research before any strong conclusions can be reached.

This exploratory pilot study suggests an important link that needs to be studied more closely between JTC reasoning bias and clinical insight, and between JTC reasoning bias and symptom-induced distress. Our study suggests that it is worthwhile to focus on these issues and that a larger, more conclusive study is needed. In the future, it would be of importance to conduct a full prognostic and mediation analysis to investigate these connections and characteristics of chronically ill patients with schizophrenia in a forensic setting. Our results imply that it could be advisable to assess a patient's ability to gather sufficient information for making decisions, as well as the patient's clinical insight and cognitive insight to attain a wider, more diverse picture of the patient's current situation and to offer specific training accordingly. This training could include more frequent use of psychoeducation to increase clinical insight and long-term metacognitive training that could possibly improve data gathering skills and decision-making ability. A more precise analysis of the above-mentioned skills could help construct more individually designed treatment plans and, for instance, evaluate patients' suitability for psychotherapeutic treatment.

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II

METACOGNITIVE GROUP TRAINING FOR FORENSIC AND DANGEROUS NON-FORENSIC PATIENTS WITH SCHIZOPHRENIA: A RANDOMISED CONTROLLED FEASIBILITY TRIAL

by

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Metacognitive group training for forensic and dangerous non-forensic patients with schizophrenia: A randomised controlled feasibility trial

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ABSTRACT

Background *In schizophrenia, the presence of certain cognitive biases has been established. Informed by this, metacognitive training (MCT) has been developed for schizophrenia. There is increasing evidence of its effectiveness with some patients, but its applicability to dangerous patients has not yet been demonstrated.*

Aims *Our aim was to test the feasibility of a randomised controlled trial (RCT) of MCT for patients in a high-security hospital setting.*

Methods *Twenty of 33 eligible and selected male in-patients with schizophrenia and a history of violence were randomised pairwise to eight sessions of MCT or treatment as usual. Symptom severity and reasoning, according to the jumping to conclusions paradigm, were measured before, immediately after treatment, and 3 and 6 months later.*

Results *Men in both groups completed the trial, and those in the MCT arm, almost all of the group sessions. The MCT arm had a significant advantage in improvement of 'suspiciousness', greatest at 3 months, but then declining. No significant improvement in reasoning ability was achieved.*

Conclusions *Metacognitive training showed sufficient promise in this group for a full trial to be worthwhile, and the feasibility of an RCT methodology, even in a secure hospital, was established. The fact that the improvements faded during follow-up suggests that a useful modification to the treatment would be lengthening the protocol, repeating it, or both. Copyright © 2014 John Wiley & Sons, Ltd.*

Introduction

Certain cognitive biases have been established among people with schizophrenia. These biases are associated with the selection, processing and appraisal of information, and the formation and maintenance of the disorder, especially delusions (Garety et al., 2001; Freeman, 2007). Most studies concern the jumping to conclusions (JTC) data gathering bias (Garety and Freeman, 1999). The theory suggests that delusional individuals gather less information than their healthy peers before making decisions and thus jump to premature conclusions. In addition, patients with schizophrenia are more liberal than healthy controls in accepting illogical explanations, and although conflicting or confirmatory evidence is introduced, they fail to integrate new evidence, holding tightly to their misinterpretations and being less confident in correct interpretations (Veckenstedt et al., 2011; Riccaboni et al., 2012). Moreover, they are prone to attributional biases, for example more inclined to blame others for bad events (Garety and Freeman, 1999). There is also evidence of people with schizophrenia being over-confident in their incorrect memories but less convinced about correct recollections, which leads to a position in which the majority of the 'facts' that they accept are corrupted (Moritz and Woodward, 2002; Bhatt et al., 2010). In addition, people with schizophrenia have problems with social cognition, including difficulties inferring the intentions of others, integrating contextual information (Brüne, 2005) and interpreting facial expressions (Phillips and David, 1995). Often too, they have difficulties with low self-esteem and depression (Freeman, 2007).

Based on cognitive bias research, a new treatment approach called metacognitive training (MCT) for schizophrenia has been developed (Moritz and Woodward, 2007a). As gradual changes in interpretation of cognitions and environment precede psychotic breakdown (Garety et al., 2001), intervention to strengthen metacognitive abilities – skills in reflecting on one's own mental processes – may prevent a psychotic episode. MCT can be considered as a development of cognitive behavioural therapy (CBT).

There is emerging evidence for the efficacy and feasibility of group MCT (Moritz and Woodward, 2007b, Moritz et al., 2010b; Favrod et al., 2010; Moritz et al., 2011; Ross et al., 2011). Aghotor et al. (2010) found more improvement of positive symptoms and a reduced JTC bias, along with better subjective training success, compared with active control condition. Favrod et al. (2010) demonstrated a reduction in the severity of delusions and depression, and improved awareness of delusions and the disorder, in addition to improvement in the attribution of the delusions to the illness. Moritz et al. (2011) also found MCT effective with a sample of patients with chronic psychosis and prior substance abuse. There is only one prospective naturalistic cohort study by Naughton et al. (2012) of group MCT for improving mental capacity and function among forensic patients with psychosis. With MCT, they found improvements in capacity to consent to treatment and general functional competence, but no changes in

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psychotic symptoms. So far, there have been no randomised controlled trials (RCTs) with such patients, nor any follow-up studies.

Offender patients with psychosis tend to have particularly persistent and difficult symptoms, poor insight into the illness, aggressive behaviour, and co-morbid problems such as substance dependencies and personality disorders, often accompanied by negative attitudes toward treatment and medication (Tiihonen, 2010). Howells (2010) has been questioned whether treatments in the CBT family are up to date in this field. Our aim, therefore, was to test the feasibility of MCT for forensic and dangerous non-forensic schizophrenia patients. We hypothesised that MCT as a supplement to general care and standard medication [treatment as usual (TAU)] would yield greater improvements in symptom reduction and reasoning than TAU alone, and that these would be maintained for up to 6 months.

Method

The study was approved by the Research Ethics Board of Kuopio University Hospital. All participants gave written informed consent before proceeding.

Design

This study was a single (rater) blind RCT, conducted in a high-security hospital. All participants underwent assessments, including a probabilistic reasoning task and symptoms ratings. After the baseline assessment, they were placed in a hierarchy according to severity of illness, as measured by the sum of scores on selected Positive and Negative Syndrome Scale (PANSS) and Psychotic Symptoms Rating Scales (PSYRATS) items and the global severity item of Clinical Global Impressions (Guy, 1976), the latter summarising wide areas of function on a 7-point scale and then randomised, pairwise, to treatment or control groups. The randomisation was administered using www.randomisation.com and kept independently of the researcher (R.K.) who administered all of the assessments. The researcher was informed of the allocation only after the last follow-up assessment. The same assessments were conducted at the baseline (November 2011), at the immediate post-treatment stage (December 2011) and at follow-ups 3 (March 2012) and 6 months (June 2012) later.

The treatment group received eight 45-min sessions of MCT held twice a week, in addition to TAU. The control group continued TAU. During the follow-up phase, all participants continued TAU. The TAU consisted of medication and contact with a designated key worker (psychiatric or practical nurse). During the study, no one was allowed to participate in psychoeducation or social skills training groups because they have partially overlapping target domains and could have interfered with the MCT treatment effect.

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Participants

Figure 1 shows the participant flow during the study. Participants were recruited by one of us (R.K.) from the Niuvanniemi Hospital in Kuopio, Finland, in September 2011 by screening the hospital's patient registry according to the inclusion criteria, which were schizophrenia diagnosed prior to the study by the treating psychiatrists using the ICD-10 criteria (WHO, 1992), Finnish as a

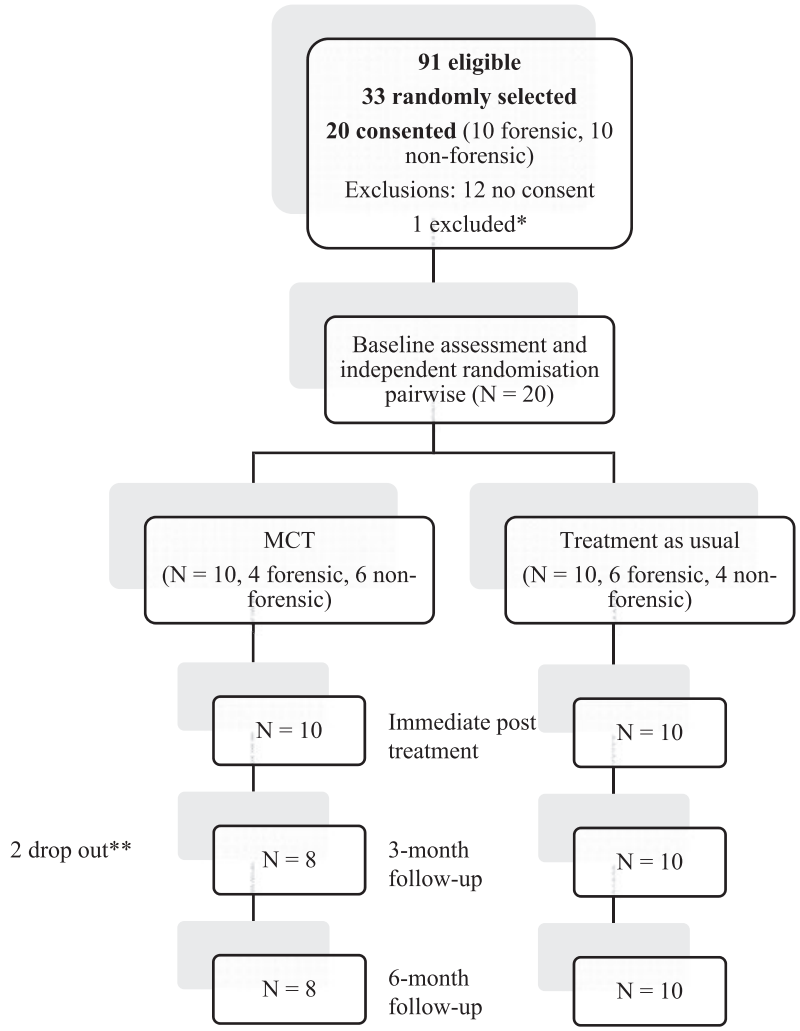

Figure 1: Participant flowchart. MCT = metacognitive training. *Excluded because of inability to consent. **One participant dropped out, and one was excluded because of significant changes in his medication that lead to a straight and marked decline of his mental condition

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native language and having completed a psychoeducation group. We insisted on the latter because we did not want either the MCT participants or the controls to take part in any other group sessions until after the trial and follow-ups were completed, and yet, we considered that it would be unethical to withhold psychoeducation, as it has been shown to be an effective treatment (Bäuml et al., 2006) and is offered as a routine intervention in our hospital. Exclusion criteria were gross neurological disorder, moderate to severe intellectual disability, dementia or the treating psychiatrist's advice that the patient lacked capacity to consent for any reason. Thirty-three participants were randomly selected from 91 eligible patients; 12 of the 33 declined participation, and one was excluded. Twenty adult male in-patients with schizophrenia, 10 forensic and 10 non-forensic, consented to participate and were randomised as described, without stratification for service type; all of the non-forensic men and eight of the forensic ones certainly had a history of violent behaviour. Two forensic patients refused to provide their main offence type.

Measures

Psychotic symptoms were rated after a research interview on the PANSS (Kay et al., 1987), using the items P1 delusions, P6 suspiciousness and G12 lack of judgement and insight. As an index of the overall severity of the illness, we added the score on these three items (PANSS Sum), and as these patients were already in treatment but still symptomatic, we took this to characterise chronic treatment-resistant schizophrenia. The items were selected for clinical relevance to treatment resistance – lack of insight, for example, plays a role in discontinuing pharmacotherapy (Voruganti et al., 2008) – and for potential responsiveness to MCT (Favrod et al., 2010). The PANSS Sum was used as a primary outcome measure. In addition, symptoms were assessed on the delusions scale of the PSYRATS (Haddock et al., 1999). Inter-rater agreement (kappa) between the rating researcher (R.K.) and senior expert clinician trainer (E.R.-T.) was over 0.70 for all measures.

The test of a JTC bias was a computerised version of a probabilistic reasoning task adapted from Moritz et al. (2010a). Participants were asked how much information they needed to gather before making a decision from which of two lakes fish have been caught (the lakes have fish of two different colours in a 20:80 ratio). JTC was classified as requesting only one fish before making a decision.

Information about education, reason for admission/main offences, Global Assessment of Functioning (GAF; Diagnostic and Statistical Manual of Mental Disorders, 4th ed. Text Revision, 2000, determined by a GAF-trained nurse as a part of routine clinical assessment), number of prior hospitalisations and the duration of current admission was collected after completion of the trial.

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The intervention

Metacognitive therapy is a treatment in the CBT family of therapies but differs from standard CBT in that the therapist does not challenge the symptoms directly but targets cognitive biases, thus altering the 'metacognitive infrastructure' of symptoms (Moritz and Woodward, 2007a). The aim of MCT is to share research-based knowledge with patients to improve their awareness of problems in such cognitive processes, to elucidate the negative consequences and offer ways to manage these biases. These include elements of psychoeducation, social reasoning and cognitive rehabilitation to help problem-solving abilities.

The programme may be administered in one or two cycles. The material is presented in a manual (Moritz et al., 2010c) for two parallel cycles, each consisting of eight modules of theory and practice (see Table A, online version only). In addition, material includes homework sheets and red and yellow cards to aid memory. Sessions are twice a week, and each lasts 45 to 60 minutes.

The intervention was delivered according to the manual by four psychologists working in pairs after 2 hours of training for the programme. MCT participants were allocated into one of two groups, each with five patients. Each group was given an account of MCT theory and practice, and provided with red cards showing essential guidelines for delayed decision making and yellow cards on which participants are encouraged to write a note of people they could contact, and how to do so, in the event of needing help. Participants were given homework in between sessions. Missed sessions were not repeated with patients who were absent.

Analyses

Hierarchical linear modelling with Mplus version 7 (Muthén and Muthén, 2013) was used to test for differences in change between the MCT and control groups. Dummy-coded variables were used to analyse the effect of repeated measures: the change in relation to time. The missing values were assumed to be randomly missing. Estimation was based on a full information approach with robust standard errors in the presence of non-normal distribution. The Wald test was used to test effects in the model. The Mann–Whitney *U*-test was used to compare the differences between the groups regarding demographic variables. The chi-square test was used for categorical variables. Regarding JTC, controlled effect sizes (Cohen's *d*) were calculated by dividing the mean change scores in the MCT and control groups by the pooled standard deviations (SD) at the different time points (0.2 = small; 0.5 = medium; 0.8 = large; Cohen, 1988).

Results

Table 1 shows that there were no significant differences between the groups in demographic variables or in baseline clinical measures, although the SDs of all

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Table 1: Demographic and baseline clinical information for study participants

Characteristic	Group MCT (n = 10)		Control group (n = 10)	
	Mean (SD)	Range	Mean (SD)	Range
Age (years)	42.0 (10.4)	28–56	45.1 (14.3)	19–67
Education (years)[a]	10.3 (1.6)	8.0–12.5	10.7 (2.1)	8.3–15.0
GAF[a]	18.4 (6.5)	11–31	16.3 (4.6)	10–25
Duration of illness (years)	16.4 (10.3)	3–37	16.5 (9.2)	5–32
Number of hospitalisations[a]	14.6 (13.2)	1–37	11.6 (8.1)	3–26
Duration of current admission (years)[a]	8.9 (4.7)	3.3–16.1	7.2 (8.2)	0.9–21.6
Diagnosis, n				
Paranoid schizophrenia	6		9	
Hebephrenic schizophrenia	1		0	
Undifferentiated schizophrenia	3		1	
Number of patients with				
co-morbid substance abuse	6		5	
co-morbid personality disorder	4		2	
Status, n				
Forensic	4		6	
Non-forensic	6		4	
Reason for admission[a]				
violence[b]	6		4	
homicide	1		1	
attempted homicide	0		1	
aggravated assault	1		1	
other	1		2	
PANSS Sum (P1 + P6 + G12)	9.60 (3.02)		9.80 (3.12)	
PANSS P1 Delusions	2.30 (1.42)		2.10 (1.52)	

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Table 1: (Continued)

Characteristic	Group MCT (n = 10)		Control group (n = 10)	
	Mean (SD)	Range	Mean (SD)	Range
PANSS P6 Suspiciousness	2.90 (1.45)		3.10 (1.20)	
PANSS G12 Lack of judgement and insight	4.40 (1.27)		4.60 (1.08)	
PSYRATS Total	7.30 (5.52)		7.60 (5.80)	
PSYRATS Amount of preoccupation	0.40 (0.84)		0.70 (1.34)	
PSYRATS Duration of preoccupation	0.80 (1.69)		0.70 (1.34)	
PSYRATS Conviction	2.00 (1.83)		2.00 (1.76)	
PSYRATS Amount of distress	0.60 (1.08)		0.70 (1.47)	
PSYRATS Intensity of distress	0.50 (0.97)		0.50 (1.27)	
PSYRATS Disruption to life	3.00 (0.00)		3.00 (0.00)	
CGI	4.20 (1.03)		4.40 (0.84)	
PANSS + PSYRATS + CGI	18.60 (9.76)		18.20 (8.92)	

Note: MCT = metacognitive training; SD = standard deviation; GAF = Global Assessment of Functioning; PANSS = Positive and Negative Syndrome Scale; PSYRATS = Psychotic Symptoms Rating Scales; CGI = Clinical Global Impressions. None of the differences were statistically significant. The Mann Whitney *U*-test was used for quantitative variables. The Chi-square test was used for categorical variables.

[a]Values missing from one participant (n = 9) in both groups.

[b]The reason for admission for the non-forensic patients.

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outcome measures were large. All patients completed the trial; eight MCT patients and all controls completed the follow-up (see Figure 1). The number of unattended MCT group sessions was low (M = 0.70, SD = 0.82).

Table 2 shows the tests of change in PANSS and PSYRATS over time. The model defines a parameter for average starting level of the control group, three parameters indicating average change of control group across successive measurements (one for each time interval), a parameter indicating the difference of treatment group from the control group at average starting level and three parameters indicating difference of treatment group from the control group in average change across successive measurements. There was a significant difference between the groups in the PANSS Sum and the PANSS suspiciousness score, favouring the MCT receiving men. The PANSS suspiciousness score influenced the PANSS Sum. In fact, in the control group, both of these scores increased from baseline to 3 months, although they showed some decrease by 6 months, which was almost exactly the opposite pattern to that seen among the MCT men. Thus, the benefit of MCT was greatest 3 months after the intervention. Although its effect had somewhat diminished by the 6-month follow-up point, the MCT men still had significantly lower symptom scores. There were no other significant group differences in change over the whole period of study, although there were some single time interval differences (see also Table 2). There was a significant difference in change between immediate post-assessment and 3-month follow-up in PSYRATS duration of preoccupation with delusions scores, in favour of the MCT group, but because in other time intervals the difference between groups was so small, the overall pattern of change for the whole study period was not significant. There was no change in PANSS P1 delusions or PSYRATS disruption to life items at any point in either group.

There were no significant differences between the MCT men and the controls on JTC change scores or frequencies at any point (pre-to-post: $p = 0.36$, $d = 0.59$; pre-to-3 months: $p = 0.81$, $d = -0.15$; pre-to-6 months: $p = 1.00$, $d = 0.00$), although this was probably mainly due to low rates of completion of this paradigm (baseline: MCT 7: controls 4; immediately post-treatment MCT 3: controls 4; 3-month follow-up MCT 6: controls 2; 6-month follow-up MCT 5: control 2). There was only a non-significant tendency for reduction in JTC between baseline and the immediate post-treatment assessment among MCT men, but this was not sustained.

Discussion

To our knowledge, this was the first RCT of MCT for dangerous patients with chronic psychotic symptoms. It proved feasible in that over half of eligible and selected patients agreed to participate in a randomised trial of this intervention and completed it, and it was rare for a group to be missed. Two dropped out during follow-up; however, they were both in the MCT group, one choosing to and

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Table 2: Parameter estimates for the MCT and control groups for interaction of time and group

	PANSS Sum	P6	G12	PSYRATS Total	Amount of preoccupation	Duration of preoccupation	Conviction	Amount of distress	Intensity of distress
Control									
Baseline	9.80***	3.10***	4.60***	7.60**	0.70	0.70	2.00***	0.70	0.50
Baseline–Post	0.00	0.10	–0.30	0.90	–0.10	0.10	0.10	0.50	0.30
Post–3 months	0.40	0.30*	0.10	2.68	0.30	1.00*	0.20	0.70	0.50
3 months–6 months	–0.50*	–0.30*	–0.20	–3.06*	–0.40	–0.80	–0.20	–1.20*	–0.50
MCT									
Baseline	–0.20	–0.20	–0.20	–0.30	–0.30	0.10	0.00	–0.10	0.00
Baseline–Post	–0.30	–0.20	0.10	–0.60	0.30	0.00	0.30	–0.70	–0.50
Post–3 months	–0.76*	–0.66*	–0.10	–2.78	–0.17	–1.20*	–0.44	–0.57	–0.51
3 months–6 months	0.63*	0.43*	0.20	2.69*	0.28	0.68	0.08	0.95	0.75
Wald test	19.35***	10.82*	2.22	4.87	1.94	4.90	3.92	6.93	5.32

Note:
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Two-tailed p-values. MCT = metacognitive training; PANSS = Positive and Negative Syndrome Scale; P6 = Suspiciousness item; G12 = Lack of judgement and insight item; PSYRATS = Psychotic Symptoms Rating Scales.
First four rows indicate parameter estimates for the control group at the baseline (the baseline mean at first row) and the magnitude of chance in the mentioned time intervals (the difference from the previous point in time). The statistical significances at the first row indicate that, at the baseline, the mean values of the control group differ from zero. The four rows regarding the MCT group show the difference of the MCT group from the control group at the baseline and in the change (in the mentioned time intervals). The Wald test indicates whether the two groups differ from each other in the overall change throughout the study (in all of the three time intervals).

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one who needed a medication change. Overall, though, the patients' attendance may be seen as an important result in itself, as, in the MCT group, they were having to confront the cognitive biases inherent in their illness and did so. Further, we found that staff training was achieved quickly because of the detailed manual, an important cost advantage. In spite of the small sample size, we found a significant advantage for MCT on suspiciousness, and trends toward some other symptom improvement, so MCT appears promising in these difficult circumstances. Decreasing interpersonal suspiciousness may, in turn, improve treatment adherence and social relationships.

An important and unexpected finding was that there was an apparent increase in a number of symptoms. An increase in PANSS scores during an MCT study with forensic patients has previously been reported (Naughton et al., 2012). Such an increase does not necessarily indicate deterioration. Among possible explanations are that the researcher may become more familiar to the participants, helping them to be more open about their symptoms, and another is that patients who were previously in denial become more in touch with the reality of their illness and more able to reveal its aspects. These explanations, particularly the latter, seem unlikely here, however, as the apparent symptom increase was greater in the control group than in the treatment group.

The most positive effects of MCT were seen 3 months after the intervention, and they had diminished by the 6-month follow-up. Previous studies have indicated that the efficacy of CBT is slightly better at 3- to 12-month follow-up compared with immediately post-treatment (Zimmermann et al., 2005). For maximum gains, it may be advisable to follow the longer course and perhaps repeat the intervention.

The hypothesis that group MCT would in part exert its effects through improvements in reasoning was only partly supported, as only a non-significant short-term trend for improvement was seen. Again, a longer period of treatment or repeated treatment could be the solution.

There are several limitations to our study. The sample was very small and heterogeneous; most differences did not reach statistical significance, and thus, some effects – positive or adverse – may have been missed. Multiple comparisons increased the likelihood of a Type I error, but changes other than the increase in some symptoms were as predicted, so this seems unlikely. Furthermore, the sample reflects the reality of running a trial in most single secure hospital units – patients' are heterogeneous in their characteristics and numbers small. The intake by randomisation included some patients with few symptoms and others very ill. Our results can, therefore, be regarded as only preliminary, but the fact that the trial could be carried out with such patients in this setting at all paves the way for a larger, more definitive study, perhaps with a longer intervention.

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Supporting information

Additional supporting information may be found in the online version of this article at the publisher's web site.

III

A PILOT STUDY OF GROUP ADMINISTERED METACOGNITIVE TRAINING (MCT) FOR SCHIZOPHRENIA PATIENTS IN A HIGH-SECURITY FORENSIC SETTING: SUBJECTIVE TRAINING SUCCESS AND HEALTH-RELATED QUALITY OF LIFE

by

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A Pilot Study of Group Administered Metacognitive Training (MCT) for Schizophrenia Patients in a High-Security Forensic Setting: Subjective Training Success and Health-Related Quality of Life

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Metacognitive group training (MCT) for psychosis has showed promising effects on positive symptoms of schizophrenia, even in forensic settings. Its effect on health-related quality of life (HRQOL) or patient perspective of it has not been studied before in violent inpatients. This pilot study investigated the patient perspective of the MCT, assessed the intervention's effects on HRQOL compared with the control group, and compared the patients' HRQOL with that of the general population. Twenty male violent inpatients with schizophrenia participated and were randomized to the eight-session MCT or to treatment as usual. The participants' HRQOL was assessed at baseline, at posttreatment, and 3 and 6 months later. Also, participants appraised the MCT immediately after treatment. The training satisfaction was high and compliance was good.

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On average, the patients' HRQOL was significantly worse than in the general population and MCT did not have any effect on it, positive or adverse. Special efforts to improve patients' HRQOL should be made.

KEYWORDS forensic, metacognitive, patient perspective, schizophrenia, quality of life

INTRODUCTION

A high prevalence of psychiatric comorbidity among offender patients (European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2013; Hodgins, 2002; Timmerman & Emmelkamp, 2001) make their treatment challenging and predispose patients to chronic illness. In the treatment of schizophrenia, high dropout rates and noncompliance have prevailed even though newer antipsychotic drugs have been introduced (Voruganti, Baker, & Awad, 2008), especially among patients with a forensic history (Owen, Rutherford, Jones, Tennant, & Smallman, 1997). The treatment and rehabilitation of these patients needs to address numerous problems with multidisciplinary approaches (Robertson, Barnao, & Ward, 2011). Reducing symptoms and helping patients to cope with the symptoms are the goals for many psychosocial interventions. In many cases the programs directly target the content of psychotic symptoms that can cause resistance, avoidance, and denial in many patients.

Metacognitive group training (MCT) for psychosis has been developed from basic research concerning cognitive biases in schizophrenia (Moritz & Woodward, 2007a). It is based on the CBT model of psychosis, but it does not challenge the symptoms directly. Instead, it alters the "metacognitive infrastructure" underlying symptoms (Moritz & Woodward, 2007a) and thus it avoids the trap of denial. MCT has been shown to have promising effects on positive symptoms of schizophrenia (for a review see Moritz et al., 2014a) and the effects have been sustained for up to three years (Favrod et al., 2014; Moritz et al., 2013, 2014b). Recently, our research group discovered a significant reduction of paranoia in the MCT group compared with the control group in chronic forensic and violent nonforensic inpatients, and the effect was sustained for up to six months (Kuokkanen, Lappalainen, Repo-Tiihonen, & Tiihonen, 2014). Naughton et al. (2012) have reported practical benefits of MCT in terms of improvements in decision making and global functioning in psychotic patients in a forensic setting. In addition, those participating in MCT have demonstrated significantly greater improvement in their social quality of life when they have been compared with a control condition (Briki et al., 2014; Moritz et al., 2011a). In a study by Moritz et al. (2014b), MCT demonstrated improvements in quality of life and self-esteem

after three years compared with the control group. Patients have given MCT greater subjective training success appraisals than they have to active control intervention (Aghotor, Pfueller, Moritz, Weisbrod, & Roesch-Ely, 2010; Moritz et al., 2013; Moritz, Veckenstedt, Randjbar, Vitzthum, & Woodward, 2011b; Moritz & Woodward, 2007b). Neither the effect of MCT on health-related quality of life (HRQOL) nor the patients' appraisal of the program has been studied in a forensic setting.

Prior research on offender patients has heavily concentrated on risk assessment. In the current literature there is a lack of research on the application of evidence-based interventions with mentally ill offenders, meaning there is little guidance for clinicians in how to best treat these patients (Robertson et al., 2011). In this field, patient perspective and health-related quality of life (HRQOL), for instance, have remained in the periphery. Patients with chronic schizophrenia often discontinue psychological treatment, with the most common reason being that the patients did not perceive the treatment as suitable for themselves (Tarrier, Yusupoff, McCarthy, Kinney, & Wittkowski, 1998). If the patients appraise the intervention positively, it may increase compliance, so it becomes important to evaluate the subjective training success of these interventions.

Our previously published paper describes the effects of MCT on symptomatology and reasoning (Kuokkanen et al., 2014). To widen the scope of intervention studies from illness-centered outcomes to patient-focused outcomes, in the present pilot study, our aim was to investigate how participants assess the usefulness, interest, and effect of the MCT intervention and to determine if the intervention had positive or adverse effects on the participants' HRQOL in comparison to that of the control group. In addition, we wanted to compare the patients' HRQOL with an age- and gender-matched population group. We also investigated the development of selected HRQOL dimensions in the whole patient sample, irrespective of the treatment received. We hypothesized that the patients would give positive appraisal of the intervention, but we set no hypothesis for HRQOL because both positive and negative effects and development were seen to be possible. A more negative HRQOL was expected to be present among the patient group than among the population group.

METHOD

The study was approved by the Kuopio University Hospital Committee on Research Ethics. The participants gave their informed consent.

Design

This randomized controlled trial (RCT) was conducted as a single (rater) blind study in a high-security hospital setting. This pilot study is a part of a wider RCT and some data from these participants have been reported previously in an article by Kuokkanen et al. (2014). The same assessments were performed for all participants at the baseline during November 2011, at the immediate posttreatment in December 2011, at the three-month follow-up in March 2012, and at the six-month follow-up in June 2012. After the baseline assessment, participants were aligned hierarchically according to the severity of illness and randomized, pairwise, to treatment or control groups. The severity of illness was measured by the sum of scores on the global severity item of Clinical Global Impressions (Guy, 1976)—which summarizes many areas of functioning—on the Psychotic Symptom Rating Scales (PSYRATS), and on selected Positive and Negative Syndrome Scale (PANSS) items. The randomization was performed using http://stattrek.com/statistics/random-number-generator.aspx.

The treatment group underwent eight 45-minute MCT sessions, in addition to treatment as usual (TAU). The four-week group treatment included meetings twice a week. The control group proceeded with TAU. After the trial, all participants continued with TAU until the final follow-up assessment. The TAU included medication and appointments with a psychiatric or practical nurse. None of the participants were allowed to participate in psychoeducation or social skills training groups during the study due to partially overlapping target domains with MCT.

Participants

Figure 1 shows the participant flow. The participants were recruited from the Niuvanniemi Hospital in Kuopio, Finland, in September 2011. The patient registry was screened according to the inclusion criteria: male sex, age over 18, a diagnosis of schizophrenia according to the ICD-10 criteria (World Health Organization, 1992), Finnish as a native language, and completion of a psychoeducation group. The latter was included because group psychoeducation is offered routinely in the hospital and none of the participants were allowed to participate in these groups during the study. The exclusion criteria were the following: inability to consent for any reason, moderate to severe intellectual disability, dementia, or a gross neurological disorder. Ninety-one eligible patients were found and out of 33 randomly selected patients, 12 declined to participate, and 1 was excluded due to inability to consent. There were 20 patients that consented to participate and the randomization was administered as described. The assignment was not stratified for service type because 8 of the forensic patients and all of the nonforensic patients positively had a history of violent behavior. Two forensic patients declined to give this information. The age-standardized general male population data

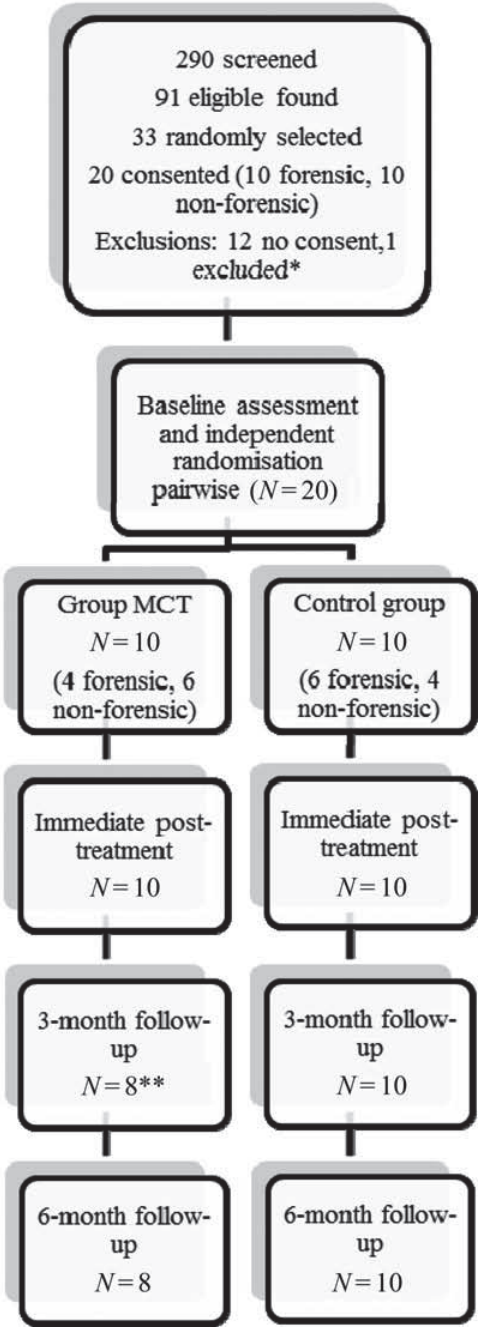


FIGURE 1 Participant flowchart. MCT = metacognitive training. *One participant was excluded because of inability to consent. **One participant dropped out. In addition, one participant had to be excluded because he had significant changes in his medication that led to a prominent decline of his mental health.

(n = 1,615) came from the representative Health 2011 study (Koskinen, Lundqvist, & Ristiluoma, 2012).

Measures

Selected items from the Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein, & Opler, 1987)—P1 delusions, P6 suspiciousness, G12 lack of judgment and insight—were used to determine the presence of delusions, suspiciousness, and lack of insight. The selection of these items was based on their clinical relevance—because lack of insight has an important role in pharmacological noncompliance (Voruganti et al., 2008)—and for responsiveness to MCT (Favrod, Maire, Bardy, Pernier, & Bonsack, 2010). Other PANSS items were excluded because we wanted to avoid making the assessments overly tiresome to the patients. The delusions scale of the Psychotic Symptoms Rating Scales (PSYRATS; Haddock, McCarron, Tarrier, & Faragher, 1999) was also used in the assessment of the symptoms.

The HRQOL was assessed by using the 15D, which is a generic, comprehensive, standardized, self-administered measure (Sintonen, 2001). The 15D can be used as a profile and as a single index score measure. It is used to assess 15 different dimensions of health state: mobility, vision, hearing, breathing, sleeping, eating, speech, excretion, usual activities, mental function, discomfort and symptoms, depression, distress, vitality, and sexual activity. The single index score (15D score), representing the overall HRQOL on a scale of 0–1 (1 = full health, 0 = being dead) and the dimension level values, reflecting the goodness of the levels relative to no problems on the dimension and to being dead, are calculated from the health state descriptive system by using a set of population-based preference weights (Sintonen, 2001). The 15D score, depression, and distress, were selected for the examination of the impact of MCT. These dimensions were selected because they are the most straightforward measures of quality of life related to mental health in this questionnaire.

Distinct aspects of subjective training success of MCT were determined with a questionnaire that patients completed after the group treatment. Patients were asked eight questions on a four-point Likert scale (0 = not at all, 1 = slightly, 2 = quite a lot, 3 = a lot):

1. How willingly did you participate in this group?
2. Did you understand the contents of the program?
3. How fun did you think the content was?
4. How much did you like working in a group?
5. How positively did this group affect your everyday life?
6. How important do you think this group is for your treatment and rehabilitation?
7. Would you recommend this treatment to others?
8. Did you acquire any knowledge or skills that could be beneficial to you?

In addition, the patients had an opportunity to give examples of knowledge or skills they had acquired.

After the study had been completed, the following items were also collected: data on education, Global Assessment of Functioning (*Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., Text Revision, American Psychiatric Association, 2000), and history of illness (number of hospitalizations and duration of current admission).

Intervention

MCT is a mixture of psychoeducation, social reasoning, and cognitive rehabilitation. The aim in training is to offer knowledge to improve the awareness of problems, or biases, in cognitive processes, to consider the possible negative consequences of these biases, and to develop ways to manage them. MCT offers corrective experiences as well as support and it helps to improve patients' problem-solving abilities.

The material consists of the manual (Moritz & Woodward, 2010), PDF presentations for two parallel cycles (each including eight modules of theory and practice), homework sheets, and red and yellow cards for memory aid. The program can be administered in one or two cycles. All of the PDF slides containing the theory are instructed to be presented, but the number of practice tasks used is more flexible and can be altered according to the participants.

The MCT group sessions were administered in accordance with the manual by four psychologists working in pairs. They were experienced in administering group treatment but they had no prior experience with the MCT. They received two hours of training for the program. MCT participants were divided into two intervention groups, with five patients in each group. Both groups were presented with all the theory and with the same preselected practices. Participants were also given red cards on which essential guidelines for delayed decision making were described, and yellow cards on which individuals' different emergency contact numbers could be written down. The themes covered were, in week 1 (W1), session 1 (S1): Attribution—blaming and taking credit; W1/S2: Jumping to conclusions; W2/S3: Changing beliefs; W2/S4: Empathy; W3/S5: Memory; W3/S6: Empathy; W4/S7: Jumping to conclusions; W4/S8: Self-esteem and mood. The participants were also given topic-related homework. If a patient was absent, the missed sessions were not repeated.

Analyses

The differences in change between the MCT and the control groups and the change in the whole patient sample ($n = 20$) were analyzed using hierarchical linear modeling with Mplus version 7 (Muthén & Muthén, 2012). To analyze the effect of the repeated measures (i.e., the change in relation to

time), dummy coded variables were used. The missing values were assumed to be missing on a random basis. Estimation was based on a full information approach with robust standard errors with existing nonnormal distribution. The Wald test was used for testing the effects in the model, that is, does the average value of the control group change in relation to time and is there a difference in the change between the control group and the treatment group. The model testing the between-group effect defined the average starting value (β10), the average change of the control group across successive measurements (one parameter for each time interval: β20, β30, and β40), the difference of the treatment group from the control group at the starting level (β11), and the difference in average change across successive measurements (β21, β31 and β41). The Mann-Whitney *U* test was used to compare the differences between the groups concerning demographic variables and HRQOL measures between the patients and the population group. The chi-square test was used for categorical variables. To illustrate the magnitude of the treatment effect, when appropriate, controlled effect sizes (Cohen's *d*) were calculated by dividing the mean scores in the MCT and control groups by the pooled standard deviations at the different time points (0.2 = small; 0.5 = medium; 0.8 = large; Cohen, 1988).

RESULTS

There were no significant differences in demographic or baseline clinical characteristics between the MCT and control group (Table 1), even though the standard deviations of the outcome measures were large. The characteristics demonstrate the heterogeneity and chronicity of the sample. No significant differences between forensic and nonforensic patients were found in any demographic or clinical measures, a finding that further implicates the similarity of these two patient groups. All patients finished the treatment, with two patients dropping out after the postassessment in the MCT group, but all controls completed the follow-up (see Figure 1). The number of unattended group sessions can be considered to be low ($M = 0.70$, $SD = 0.82$).

In the MCT group and in the control group, 3 out of 10 patients were being treated with an antipsychotic medication other than clozapine. In the MCT group, 7 out of 10 patients had stable medication during the whole study. One patient from the MCT group had to be excluded from the follow-ups due to significant changes in his medication. In addition, two patients in the MCT group had some changes in their medication between pre- and postassessments: one patient had an increase in antipsychotic medication and one patient's antipsychotic medication was changed to another one. In the control group, 6 out of 10 patients had a stable medication

TABLE 1 Demographic and Baseline Clinical Information for Study Participants

	Group MCT ($n = 10$)		Control group ($n = 10$)	
Characteristic	Mean (*SD*)	Range	Mean (*SD*)	Range
Age (years)	42.0 (10.4)	28–56	45.1 (14.3)	19–67
Education (years)*	10.3 (1.6)	8.0–12.5	10.7 (2.1)	8.3–15.0
GAF*	18.4 (6.5)	11–31	16.3 (4.6)	10–25
Duration of illness (years)	16.4 (10.3)	3–37	16.5 (9.2)	5–32
Number of hospitalizations*	14.6 (13.2)	1–37	11.6 (8.1)	3–26
Duration of current admission (years)*	8.9 (4.7)	3.3–16.1	7.2 (8.2)	0.9–21.6
Diagnosis, *n*				
Paranoid schizophrenia	6		9	
Hebephrenic schizophrenia	1		0	
Undifferentiated schizophrenia	3		1	
Number of patients with:				
Comorbid substance abuse	6		5	
Comorbid personality disorder	4		2	
Status, *n*				
Forensic	4		6	
Nonforensic	6		4	
Treated with clozapine	7		7	
Stable antipsychotic medication	7		6	
PANSS P1 Delusions	2.30 (1.42)		2.10 (1.52)	
PANSS P6 Suspiciousness	2.90 (1.45)		3.10 (1.20)	
PANSS G12 Lack of judgment & insight	4.40 (1.27)		4.60 (1.08)	
PSYRATS total	7.30 (5.52)		7.60 (5.80)	
CGI	4.20 (1.03)		4.40 (0.84)	
15D Index score	0.88 (0.10)		0.89 (0.07)	
15D Depression	0.86 (0.17)		0.88 (0.12)	
15D Distress	0.81 (0.18)		0.81 (0.22)	

Note. MCT = metacognitive training; *SD* = standard deviation; GAF = Global Assessment of Functioning; PANSS = Positive and Negative Syndrome Scale; PSYRATS = Psychotic Symptoms Rating Scales; CGI = Clinical Global Impressions; 15D = 15D health state descriptive system. None of the differences were statistically significant. The Mann-Whitney *U* test was used for quantitative variables and the chi-square test for categorical variables.

*Values missing from one participant ($n = 9$) in both groups.

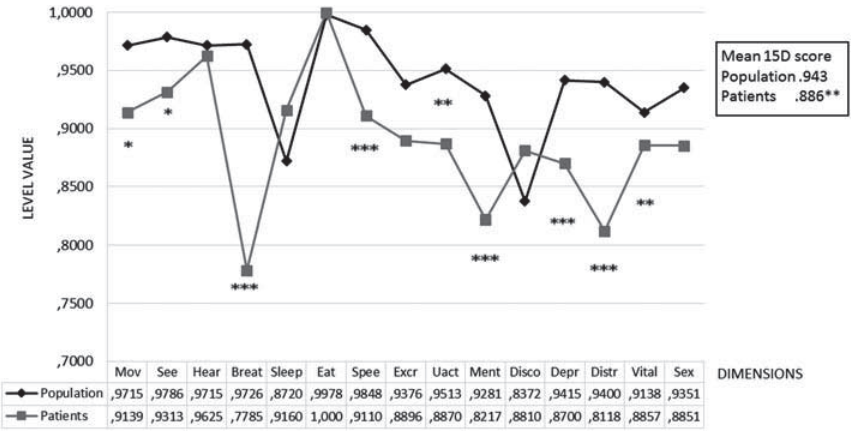
and 4 patients had changes in their medication: 1 patient had his antidepressant medication increased between pre- and postassessment, 1 had his antipsychotic medication increased after preassessment and after the three-month follow-up, 1 patient started a medication for epilepsy after a three-month follow-up, and 1 patient had an increase in an antidepressant medication and another antidepressant was added after the three-month follow-up.

MCT received high scores on every aspect of training satisfaction (on a scale of 0–3). All patients were willing to participate in the treatment ($M = 2.80$, $SD = 0.42$). The contents were experienced as relatively comprehensible ($M = 2.10$, $SD = 0.57$) and the patients assessed the treatment program as fun ($M = 2.40$, $SD = 0.84$). The patients also liked the

group-administered approach ($M = 2.50$, $SD = 0.53$). They reported that the group treatment had some positive effects on their daily lives ($M = 2.00$, $SD = 0.82$). The patients experienced the group treatment as an important part of their treatment program ($M = 2.50$, $SD = 0.53$) and they would also recommend it to other patients ($M = 2.90$, $SD = 0.32$). Lastly, the patients reported that they had acquired some new beneficial skills ($M = 2.22$, $SD = 0.67$). An example of the skills acquired: "I learned to handle my thoughts in a different way, with the help of the examples."

No statistically significant group differences occurred in the overall HRQOL (15D score: Wald test value = 0.91, $p = .82$), Depression (Wald test = 1.10, $p = .78$), and Distress (Wald test = 6.92, $p = .07$) in relation to time over the whole period of the study (from baseline to the six-month follow-up). Only one statistically significant difference in a single time interval occurred: a significant change between immediate postassessment and the three-month follow-up in subjective distress, in favor of the control group. The distress decreased in the control group ($\beta 30 = 0.10$ [positive value indicating improvement], $p < .05$ [statistical significance indicating significant change from the previous time interval within control group]) while it increased in the MCT group ($\beta 31 = -0.13$ [the difference from the control group in average change], $p < .01$ [statistical significance indicating significant difference from the control group in average change]). Because the differences in change between the groups in other time intervals were small, the overall pattern of change in relation to time (during the whole course of the study) did not reach statistical significance and indicated only a trend (control group: $\beta 10 = 0.81$ [mean value of the starting level], $p < .001$ [statistical significance indicating that the value differs from zero], $\beta 20 = -0.04$ [average change], $p > .05$, and $\beta 40 = 0.01$, $p > .05$; MCT group: $\beta 11 = 0.00$ [difference from the control groups mean starting level], $p > .05$, $\beta 21 = 0.07$, $p > .05$, and $\beta 41 = 0.06$, $p > .05$). The pattern of change, however, was different between groups. The groups started at the same mean level (Cohen's $d = -0.01$, 95% CI [−0.10, 0.07]), but in the postassessment, distress increased in the control group and it decreased in the MCT group ($d = 0.28$, 95% CI [0.20, 0.39]). At the three-month follow-up, the pattern was inverse ($d = -0.34$, 95% CI [−0.45, −0.27]) and at six months there was no longer any difference between the groups ($d = 0.02$, 95% CI [−0.09, 0.14]).

Because there were no differences in the change in depression and distress dimensions of HRQOL and in the 15D score between the MCT group and the control group, the two groups were also examined as a single group regarding the change in the selected HRQOL items in successive measurements. There was no statistically significant change in perceived distress (Wald test = 6.28, $p = .10$), in depression (Wald test = 5.80, $p = .12$), or in the 15D score (Wald test = 2.30, $p = .51$) in relation to time over the whole period of the study when all of the patients were treated as one group. Thus,



	Mov	See	Hear	Breat	Sleep	Eat	Spee	Excr	Uact	Ment	Disco	Depr	Distr	Vital	Sex
Population	,9715	,9786	,9715	,9726	,8720	,9978	,9848	,9376	,9513	,9281	,8372	,9415	,9400	,9138	,9351
Patients	,9139	,9313	,9625	,7785	,9160	1,000	,9110	,8896	,8870	,8217	,8810	,8700	,8118	,8857	,8851

FIGURE 2 Mean values of 15D dimensions and single index scores for the population and patient groups. The Mann-Whitney *U* test was used and it compares the mean ranks between the groups. $^{*}p < .05$: $^{**}p < .01$; $^{***}p < .001$ (2-sided). Move = mobility; see = vision; hear = hearing; breath = breathing; sleep = sleeping; eat = eating; spee = speech; excre = excretion; uact = usual activities; ment = mental function; disco = discomfort and symptoms; depr = depression; distr = distress; vital = vitality; sex = sexual activity.

the comparisons in HRQOL between the patients and the general population were made only at the baseline.

Figure 2 shows that the patient groups' mean HRQOL was significantly worse than that of the population group's quality of life in 9 dimensions out of 15: mobility (patient $M = 0.91$, $SD = 0.13$; population $M = 0.97$, $SD = 0.10$, $p < .05$), vision (patient $M = 0.93$, $SD = 0.14$; population $M = 0.98$, $SD = 0.08$, $p < 0.05$), breathing (patient $M = 0.78$, $SD = 0.30$; population $M = 0.97$, $SD = 0.10$, $p < .001$), speech (patient $M = 0.91$, $SD = 0.14$; population $M = 0.98$, $SD = 0.07$, $p < .001$), usual activities (patient $M = 0.89$, $SD = 0.17$; population $M = 0.95$, $SD = 0.13$, $p < .01$), mental function (patient $M = 0.82$, $SD = 0.18$; population $M = 0.93$, $SD = 0.15$, $p < .001$), depression (patient $M = 0.87$, $SD = 0.14$; population $M = 0.94$, $SD = 0.13$, $p < .001$), distress (patient $M = 0.81$, $SD = 0.19$; population $M = 0.94$, $SD = 0.13$, $p < .001$), and vitality (patient $M = 0.89$, $SD = 0.12$; population $M = 0.91$, $SD = 0.14$, $p < .01$). In addition, the mean 15D score was significantly lower in the patient group (patient $M = 0.89$, $SD = 0.08$; population $M = 0.94$, $SD = 0.07$, $p < .01$).

DISCUSSION

In this article we focus on the well-being of the individual and the subjective perspective of the service user and examine an area that has remained in the

shadow of risk assessment studies among the forensic population. To our knowledge, this was the first study to investigate the patients' view regarding the training success of metacognitive group training and its possible impact on HRQOL in violent patients with chronic psychotic symptoms.

We found that facing the difficulties inherent in the patients' illness did not worsen the patients' perceived overall state of health. There's always a risk of causing patients discomfort during interventions and a possible momentary increase in subjective distress was seen in the MCT group participants at the three-month follow-up when they were compared to the control group participants. However, the distress decreased again at six months and at the end of the study there was no difference from the control group. The possible adverse effect, distress, was only temporary. It was considered unlikely that the changes in subjective distress were due to changes in the medication in the MCT group. Likewise, a possible adverse effect of group psychoeducation in the forensic population was suggested to be a slight increase in irritability three months after the intervention despite the positive impact on knowledge about illness, insight into the illness, and self-esteem (Aho-Mustonen et al., 2010). Interestingly, in our previously published study on the same population as in the current study, three months after the MCT intervention, positive symptoms of schizophrenia, especially paranoia, decreased in the MCT group when it was compared to the control group (Kuokkanen et al., 2014). Furthermore, the amount and intensity of distress caused by symptoms did not increase in the MCT group during this period of time. These findings suggest that the increase in subjective distress three months after the intervention was not due to symptoms of schizophrenia. It is possible that when the patient's actual health state changed for better in terms of positive symptoms of schizophrenia, the perception and evaluation of his situation changed. Hasson-Ohayon, Kravetz, Roe, David, and Weiser (2006), for example, have found general insight as well as insight into psychotic symptoms to be related to lower levels of the emotional well-being domain of quality of life. One of the aims of MCT is to improve the awareness of cognitive biases and provoke reevaluation of problem solving. This, of course, can be stressful for the patients regardless of how fun and pleasurable the way of evoking this thinking process may be. In turn, the decrease in distress at six months may be due to adaptation. The patients may reconceptualize the concept of distress, their values and internal criteria may change—or there is a real change in the distress dimension of their health state.

The patients' HRQOL was significantly worse on nine of the studied dimensions, both somatic and mental, than that in the general population, even though they have round-the-clock medical care. Our results are in line with those of Saarni et al. (2010), who demonstrated in a general population-based study that schizophrenia is associated with a statistically significant decrease in the 15D score. Another issue relates to how possible it is to

significantly improve patients' HRQOL, especially in involuntary treatment in such a closed environment, which itself generates stress and uneasiness in patients. In a 10-year follow-up on a health-related quality of life in schizophrenia and schizoaffective patients, Ritsner, Lisker, and Arbitman (2012) found out that the majority of the patients were dissatisfied with their HRQOL and that their general and domain-specific quality of life remained unchanged over time. However, in their study on psychoeducation, Aho-Mustonen et al. (2010) suggest that the extra attention the patients in the control group received through assessment interviews and opportunities to discuss in a neutral and nonjudgmental atmosphere could be the reason for the positive changes observed in HRQOL, even though the changes were not statistically significant. This positive effect was not seen in the psychoeducation group in which the patients engaged in the psychological work required by treatment. This issue of changes in HRQOL needs to be studied more carefully, especially if the solution to improve the patients' HRQOL is as simple as providing nonjudgmental extra attention.

Violent patients who possibly suffer from a personality disorder can easily evoke negative emotions among carers, thereby encouraging the use of coercive methods in treatment and leading to noncompliance and dropouts. Because (a) there were no dropouts from the MCT intervention, (b) the number of missed sessions was low, and (c) the subjective appraisals were positive for all aspects of training success, the intervention can be seen as highly accepted among the patients and compliance as very good. This is a very promising result in itself. Everyone was willing to participate in the group and would recommend the program to other patients. The examples patients gave from the skills acquired described the perspective and insight they had gained into their lives and their own thoughts.

Since the introduction of self-rated measures, there has been an ongoing debate on the validity and reliability of patient-reported outcomes and their use among people with a psychiatric illness. In a review of patient-reported outcomes in psychosis, which includes treatment satisfaction and subjective quality of life among other issues, Reininghaus and Priebe (2012) state that it seems improbable that the bias due to psychiatric symptoms and cognitive deficits is of clinical significance. Of course, an individual's responses may vary if the person's values, internal standards, or semantic understanding of the concepts undergo change, a phenomenon referred as a response shift (Schwartz & Sprangers, 1999). Self-report measures, however, are appropriate when the interest of the researcher or clinician is to figure out how patients feel or perceive matters and when the patient has no fear of negative consequences from the answers. In this study we were interested in how the patients perceive their state of health and to determine if MCT can, in fact, make any changes in this perception.

There are several shortcomings in our study. The sample was very small and heterogeneous, so positive as well as negative effects may have been

missed. Some of the patients had changes in their medication, which could have confounded the results. In addition, multiple comparisons increased the risk of type I error. The differences in HRQOL were as could be generally predicted, so this error seems unlikely. Mood and distress were not assessed with objective measures and the study relied on subjective appraisal of single-item measures. Depression has been found to be associated with low subjective well-being among patients with treatment-resistant schizophrenia (Kim, Lee, Kim, & Han, 2013). A specific measure assessing mood was lacking, so we did not control for the effects of mood on quality of life. We did not incorporate any methods to evaluate response shift or ask about reasons for distress and thus we cannot know exactly what factors caused or mediated the temporary increase in subjective distress. On the other hand, patients adapt to progressive illnesses and to the possible adverse effects of treatment over time. This adaption is mediated by a response shift as well, which may weaken or overstate treatment results (Schwartz & Sprangers, 1999). In light of these limitations, our results should be seen as preliminary, but the patients' view of the intervention and the absence of alarming adverse effects on HRQOL encourages the argument for a larger and more conclusive study.

MCT has shown promising effects in ameliorating positive symptoms of schizophrenia, especially paranoia, among these very challenging patients (Kuokkanen et al., 2014). Furthermore, it seems to be a safe method with reasonable time investment even when a longer 16-session intervention is adopted. In addition, it is also a well-accepted method among patients, and even these seriously ill patients seem willing to adhere to it. Taken together, MCT could be feasible and recommendable, especially to paranoid patients.

In light of our current and previous studies (Aho-Mustonen et al., 2010; Kuokkanen et al., 2014), the crucial time frame regarding both beneficial and possible adverse effects of psychosocial and therapeutic interventions in this population seems to be three months after the intervention, not immediately after. Health care professionals should keep in mind that even when the actual intervention is finished, the process of change related to it continues and in case of any adverse emotional reactions, all necessary support should be offered. This time frame suggests that the information provided by the intervention needs time to become clear in the patients' mind and that engaging in psychological work and changing one's thinking does not happen overnight. Thus, it is essential to evaluate interventions long enough after the actual intervention is finished and we should not abandon psychosocial treatment methods as useless if the effect is not immediately seen. Although we cannot deter patients from other treatment methods during this time (on the contrary, combining different methods is usually more effective and advisable), it should be kept in mind that what actually induced the change

is not necessarily the last intervention that was offered. We also must adjust our expectations regarding effective treatment and recovery. Acknowledging this time frame could diminish frustration among care providers. It is also advisable to include modules that focus on managing distress in treatment programs. In MCT, there is already a module focusing on mood and, in fact, no adverse effect on depression was observed in this study.

The HRQOL of chronically ill patients and the subjective complaints and views of an individual's health should not go unnoticed or unaddressed, even when the insight of a patient is considered to be deficient. Interventions targeted at managing symptoms and distress caused by symptoms do not necessarily improve patients' experiences of HRQOL. Other efforts should be made to maintain and to improve the patients' HRQOL under these difficult circumstances. In addition, subjective measures should be incorporated into the assessment of treatment and recovery.

Even though patients are in involuntary treatment, they are not incompetent to participate in the assessment of their treatment and treatment methods. The patient perspective gives added value to the development of effective therapeutic treatments as well as to the selection of treatment choices and it is extremely important in involuntary treatment in closed environments. It may be necessary to look beyond a patient's offense and illness, and address needs such as HRQOL and subjective appraisal in order to achieve therapeutic alliance and to meet the patient as a whole individual. Taking the patient perspective into account represents an important shift toward a treatment setting where the patient becomes a subjective participant rather than a mere managed object. In the future, a more conclusive study is recommended to investigate in more detail the intervention's effects on the quality of life and the mediating factors. In addition, studies could examine which aspects in treatment are effective in patient-focused outcomes and which are effective in illness-centred outcomes. Studies on MCT could address whether it has any effects on aggression and aggressive behavior among patients with paranoia; even though it does not address offending per se, it may affect paranoia. Also of interest in future studies on forensic and violent nonforensic inpatients would be quality of life areas, other than health ones.

CONCLUSION

The acceptance of and compliance with MCT intervention were good and there was only a possible temporary increase in the distress dimension of HRQOL. Thus, MCT seems to be a feasible and safe method, even in a forensic setting. The patients' HRQOL was poor, so special efforts to improve their HRQOL should be made.

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