EVALUATING THE IMPACT OF METACOGNITIVE REFLECTION AND INSIGHT THERAPY ON SOCIAL FUNCTIONING IN SCHIZOPHRENIA

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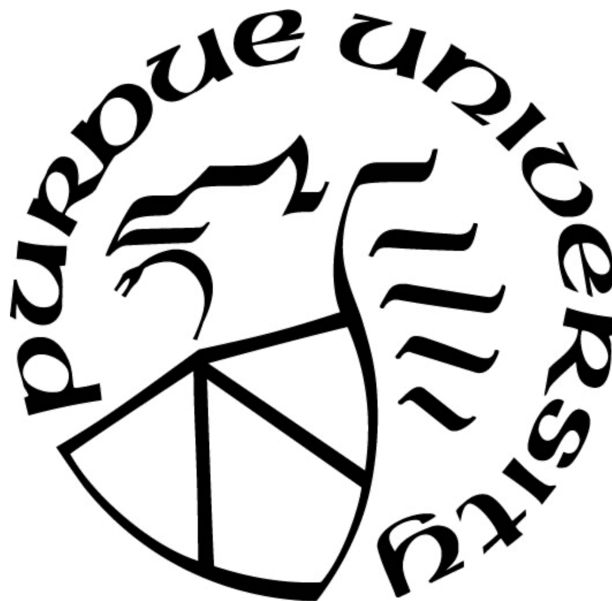

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ABSTRACT

Objective: Social functioning encompasses interactions with people across situations of varying complexity. Given the frequency of observed social impairments in individuals with schizophrenia, there is a need to identify mechanisms that influence social functioning impairments. One proposed mechanism is metacognition, a mental process that enables the integration and interpretation of mental states and experiences. Impaired metacognition can inhibit one's ability to engage and navigate through our social world. In individuals with schizophrenia, both social functioning and metacognitive deficits are profound. This study examined three hypotheses. Following Metacognitive Reflection and Insight Therapy (MERIT), (1) individuals will show improvements in social functioning; (2) individuals will show improvements in metacognitive abilities; and (3) improvements in social functioning will be associated with improved metacognitive abilities.

Method: Using secondary data from a MERIT therapy feasibility study, data collected from the active condition groups (e.g., individuals with schizophrenia, n =16) at pre-and post-assessment were analyzed using paired samples t-tests for primary outcomes and hierarchical linear regressions to assess metacognition as an underlying mechanism of change.

Results: Paired samples t-tests found no significant improvement in social functioning or metacognition. In contrast to the hypothesis, metacognitive abilities significantly declined. When subscales were examined, two subscales (self-reflectivity and awareness of others) significantly decreased. The post-hoc analysis found significant improvements in overall symptoms and disorganization. Lastly, metacognition did not significantly predict post-intervention social functioning.

Conclusions: Measurement modality and the length of intervention may help explain the null findings observed in this study. The improvement in overall and disorganized symptoms could indicate that symptom reductions precede social functioning and metacognition changes. Given that the results from this trial were not aligned with previous studies, further research is needed

to determine the effectiveness of MERIT on social functioning and metacognition in schizophrenia.

Keywords: social functioning, metacognition, Metacognitive Reflection and Insight Therapy (MERIT), schizophrenia

INTRODUCTION

Social functioning encompasses how we interact with people across situations of varying complexity: the details we provide to coworkers about our weekend, how we act when sitting in a busy waiting room, or whether we choose to go to a party or stay at home. Given the frequency of observed social impairments in schizophrenia, there is a need to target plausible mechanisms that influence social functioning deficits (Velthorst et al., 2016). To date, some components of poor social functioning (e.g., social cognition) have been identified; however, social dysfunction's origins remain unclear (Buck et al., 2015; Pinkham et al., 2016). This discrepancy could be responsible for the lack of effectiveness in improving social functioning (Kurtz et al., 2016). One potential underlying mechanism of dysfunction is metacognition. This process allows us to create a deeper understanding of self and others by integrating our past and present experiences with current happenings (Lysaker & Klion, 2017). Individuals with schizophrenia tend to have metacognitive deficits, which may lead to poor social functioning (Lysaker et al., 2011b). Thus, improving metacognition is a critical treatment goal.

Several interventions have been developed to improve metacognitive abilities (e.g., Metacognitive Therapy, Metacognitive Interpersonal Therapy). One intervention that has shown promise in people with schizophrenia is Metacognitive Reflection and Insight Therapy (MERIT; Buck & George, 2016; De Jong et al., 2018; Hillis et al., 2015; Leonhardt et al., 2016, Minor et al., 2021; Van Donkersgoed et al., 2016). MERIT targets metacognition by guiding individuals to understand, integrate, and interpret themselves and others in a more meaningful way (Lysaker & Klion, 2017). As individuals strengthen their metacognitive abilities, their engagement in social interactions may also improve. The primary purpose of this study is to highlight social functioning deficits by identifying social functioning improvements and its relationship to metacognition.

Social Functioning

Social functioning is a complex construct that can be conceptualized in multiple ways. Within schizophrenia, we can conceptualize social functioning by observing the number of social interactions (Reininghaus et al., 2008), the number of social contacts (Gayer-Anderson &

Morgan, 2013; Smyth et al., 2013), and the quality of relationships (Harley et al., 2012). Individuals diagnosed with schizophrenia frequently show significant levels of social dysfunction in each of these areas (see Couture et al., 2006; Palumbo et al., 2015). At varying levels, dysfunction can lead to increased suicidal ideation, lower self-efficacy, poor illness prognosis, and increased chance of hospitalization (Harvey et al., 2007; Lim et al., 2018; Lyu & Zhang, 2014; Pinkham et al., 2003; Renwick et al., 2017). These ramifications have led to the development of several interventions aimed at improving social functioning.

Typically, these interventions focus on improving functioning by enhancing social skills or improving social cognitive abilities. One intervention is Social Skills Training (SST), which teaches individuals specific behavioral and interpersonal skills to utilize in social settings. The foundation of this training is that advances in social functioning are developed through role modeling and practicing interactions. Kurtz and colleagues (2015) found that SST did not significantly improve social functioning compared to another intervention. In a review by Mq and colleagues (2015), they found some improvements from SST; however, the effects were limited and difficult to summarize due to variability in training implementation. Overall, SST has not been found to be more effective in improving social functioning when compared to control groups (see Mq et al., 2015).

A second treatment approach is aimed at correcting commonly found social cognitive deficits. Two types of cognitive-based interventions are Social Cognition and Interaction Training and Social Cognitive Skills Training (SCST; Horan et al., 2008; SCIT; Roberts & Penn, 2009). SCIT focuses on the attributional bias, theory of mind impairments, and emotion recognition through complex modules. It also combines additional components of interpersonal skills and real-world application of learned skills (Roberts & Penn, 2009). Although promising, SCIT did not significantly improve social functioning at post-treatment or three-month follow-up assessments (Roberts et al., 2014). To address the potential limitations of SCIT, SCST employs similar principles and adds new modules for targeting theory of mind, attribution bias, and a new element, social perception (Horan et al., 2011). Although this intervention improves cognitive processes, there is a lack of evidence suggesting these improvements generalize to social functioning gains (Horan & Green, 2019). In a review of social cognitive interventions, in general, Kurtz et al. (2016) found minimal improvements in social impairments.

These findings suggest that there are a number of individuals who do not have sizeable improvements in social functioning from current interventions. SST presumes social abilities rely primarily on implementing behaviors, not accounting for underlying functional impairments. Social cognitive interventions aim to address these deficits from a cognitive basis; however, they do not take into account other illness symptoms that could disrupt social cognitive improvements such as disorganization (see Minor et al., 2015). Furthermore, social cognitive interventions may require a higher level of initial cognitive abilities to achieve maximum treatment effects. One key element that is missed within both types of interventions is the aspect of metacognitive skills. As social cognitive theories focus on the dysfunction and correction within specific domains (i.e., emotion recognition, theory of mind, jumping to conclusions, social perception, attribution errors), metacognition differs by focusing on the integrative mental process as a whole. Individuals with schizophrenia spectrum disorders often experience decreased metacognitive abilities, negatively impacting their social functioning (Lysaker et al., 2011b; Minor & Lysaker, 2014).

Metacognition

Metacognition as a process is a mental sequence of functions that synthesizes information from our environment. This process allows individuals to make sense of the world by bringing awareness and understanding of their own and others' emotions and thoughts (Lysaker & Klion, 2017). In social interactions, we use metacognition to interpret and integrate this information as well as life experiences to engage and respond appropriately (Lysaker & Dimaggio, 2014). Using the earlier example of being in a busy waiting room with other people: metacognitive abilities would assess information such as our experiences in this environment (i.e., past, present), behaviors (i.e., expressive, quiet), and others' thoughts and intentions (i.e., friendly, malicious). The integrative process then uses this information to understand the environment and influences one's response or adaptation. Although this list is extensive, our brains can gather and process this information without an ample amount of conscious effort. However, it is essential to note that metacognitive abilities can vary considerably from person to person.

Metacognitive impairments are uniquely related to schizophrenia as individuals with this disorder commonly have substantial deficits in integrating others' emotions and intentions (Lysaker et al., 2013). As metacognition informs how we engage in social settings, it is also

essential in developing and sustaining social relationships. Several studies have observed associations between metacognitive and social functioning deficits. For example, Lysaker and colleagues (2011a) found that metacognitive deficits (i.e., impaired use of one's own and others' mental states) were correlated to lower occurrences of social interactions with friends and casual contacts. Several years later, Bright and colleagues (2018) found that maladaptive metacognitive thoughts predicted the occurrence of poor social functioning. It was also discovered that individuals with more significant metacognitive deficits tend to reach out to social contacts less frequently (James et al., 2018). The associations between social functioning and metacognition could suggest that metacognition is an underlying mechanism of social dysfunction.

If metacognition is an underlying mechanism, then there is reason to postulate that treating metacognitive abilities may improve social functioning. Although there are several metacognitive interventions for individuals with schizophrenia (i.e., Metacognitive Therapy, Metacognitive Interpersonal Therapy), MERIT is emerging as a promising treatment that can help individuals with varying levels of mental functioning (e.g., education levels or reading abilities). MERIT was explicitly developed for people with schizophrenia and formulated to be adaptive based on the disorder's characteristics (e.g., disorganization). The intervention makes room for the clients to lead the session using real-life examples (e.g., client narratives) and the clinicians to adapt based on the information provided. It also differs by directly targeting metacognition through developing one's sense of self and understanding others.

Metacognitive Reflection and Insight Therapy

MERIT asserts that metacognitive abilities can be improved through therapist and client collaboration as they guide clients to engage in deeper self-reflection related to their narratives. For example, therapists prompt clients to practice targeted metacognitive skills in session as they engage in recalling experiences. MERIT sessions are informal and rely heavily on therapist and client collaboration. During sessions, the therapist-client interactions are conversational similar to typical day social interactions. The difference is that the therapist is tasked with skillfully inserting their thoughts and encouraging the client to integrate metacognitive elements. Through this process, MERIT brings awareness to mental states of self and others, interpreting the intentions of others, and psychological flexibility. All of the aspects would promote healthy social interactions. MERIT promotes the development of metacognition by increasing four

components. These include self-reflectivity (thinking about one's mental states), understanding the other's mind (thinking about others' mental states), decentration (acknowledging that others have independent intentions), and mastery (implementing practical coping skills to manage psychological distress; Lysaker & Dimaggio, 2014).

Several case studies have used MERIT to increase metacognitive abilities and decrease symptoms associated with schizophrenia. Van Donkersgoed and colleagues (2016) delivered MERIT to individuals with severe social impairments and found improvements in metacognition and negative symptoms at the end of treatment. Another case study reported a client's success by their ability to utilize metacognitive skills when managing social challenges by reflecting on their views and the views of others (Buck & George, 2016). MERIT was also effective in improving metacognition in an individual with first-episode psychosis (Leonhardt et al., 2016). Though there are a growing number of studies supporting MERIT's positive influence on metacognition, few studies have discovered effects on social functioning.

Of those studies, growth in metacognitive abilities was uniform; however, gains in social functioning have been inconsistent (De Jong et al., 2018; Minor et al., 2021). In the first randomized controlled trial examining MERIT's therapeutic effectiveness, De Jong and colleagues (2018) found gains in metacognition but no notable changes in social functioning. In this study, social functioning was conceptualized as daily life functioning skills and measured using the Personal and Social Performance Scale (PSP; Nasrallah et al., 2008). In relation to their null findings for social improvements, one potential explanation is that the PSP scale captures functional forms of social growth (e.g., social activities, independent living, inappropriate social behaviors, and social and personal relationships). Although these areas are an essential aspect of social relationships, social functioning can also be captured by this study's primary conceptualization (i.e., social contact, frequency, and quality). Using this conceptualization, a feasibility study comparing two forms of MERIT found advances in metacognitive abilities, yet insignificant, small changes in social functioning were observed (Minor et al., 2021). In sum, MERIT's ability to help individuals incorporate metacognitive skills may assist with being socially relatable, lending itself to improvements in the quality and quantity of social interactions; however, this has yet to be observed.

The majority of evidence supporting MERIT is through case studies. Although case studies and trials showed metacognitive improvements after receiving MERIT, additional evaluation is

warranted, especially for MERIT's impact on social functioning. To date, there are two RCT's that examine MERIT's impact on both metacognition and social functioning (De Jong et al., 2018; Minor et al., 2021). A highlight of MERIT is that it acknowledges that individuals with schizophrenia may have a fragmented sense of themselves and others, which can negatively impact their social lives. MERIT could be an effective treatment as it targets fragmented understanding by improving metacognitive abilities, which are needed for social functioning.

Purpose of the Present Study

The current study's primary aim was to evaluate social functioning and metacognition changes and their relationship after receiving MERIT. To this author's knowledge, this study was the first open trial to examine if improved social functioning is related to increased metacognitive abilities after receiving 24 sessions of MERIT. Our primary goals are to investigate changes in social functioning and metacognition. The secondary outcome will examine if changes in metacognitive abilities are predictive of changes in social functioning.

Based on the literature, this study will test three hypotheses. First, it is hypothesized that after receiving MERIT, individuals would show improvements in social functioning. This hypothesis is based on previous research supporting the connection between metacognition and social functioning (Bright et al., 2018; Briki et al., 2014; James et al., 2016; Lysaker et al., 2011a). Secondly, it is expected that those individuals would also show significant gains in metacognitive abilities. Those anticipated gains are based on the premise that MERIT improved metacognition for individuals with schizophrenia (Buck & George, 2016; De Jong et al., 2018; Van Donkersgoed et al., 2016; Hillis et al., 2015; Leonhardt et al., 2016). Lastly, increased metacognitive abilities will predict improved social functioning at the end of treatment, based on the established relationship between metacognition and social functioning (Lysaker & Dimaggio, 2014).

METHOD

Participants and Design

The participants and data included in this study were secondary analyses from a randomized controlled trial developed to examine the utility of the Electronically Activated

Recorder to gather real-world interactions to incorporate in MERIT sessions (see Minor et al., 2021). Participants (*n* = 16) were recruited from local mental health facilities and study registries. Inclusion criteria were: (A) primary diagnosis of schizophrenia, schizoaffective disorder, delusional disorder, psychotic disorder NOS, bipolar disorder I or II with psychotic features assessed by the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 2006); (B) no change in outpatient status in past 30 days; (C) ages 18-60 at the time of consent; (D) English fluency; and (E) present metacognitive dysfunction. Exclusion criteria included: (A) inability to provide informed consent; (B) documented or observed evidence of intellectual disability; and (C) current diagnosis of alcohol or drug dependence based on records or the Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 2006). All participants completed 24 weeks of MERIT. Participants met with a therapist each week for approximately 60 minutes allocated for therapy.

Therapist

Six doctoral-level clinical psychologists were recruited to administer the psychosocial intervention. Therapists had weekly supervision held by Drs. Lysaker and Minor, in which therapists would receive feedback on applied methods used during each therapy session. All therapists had received at least one semester of MERIT training with Dr. Lysaker.

Metacognitive Reflection and Insight Therapy (MERIT)

MERIT is not delivered as a step by step manual; instead, it is formatted to have eight components (1) focus on the client's preferred agenda; (2) therapist collaboration and sharing of thoughts with the client; (3) the therapist solicits the client to form a baseline narrative (e.g., event, story); (4) client identifies their psychological problem(s); (5) discuss the interpersonal processes via the therapeutic alliance during sessions thus far; (6) reflect and evaluate metacognitive progress; (7) therapist elicits the client to reflect on themselves and others; and (8) integration this information into a new narrative and their everyday life (Lysaker & Klion, 2017).

The components were delivered based on the individual's current level of metacognitive abilities displayed in each session. During sessions, the therapist elicited self-discovery by inviting the client to recall personal narratives. Within the self-reported events, the therapist

identified signs of metacognitive abilities based on the presence of the four metacognitive components. Statement examples representative of lower metacognitive functioning include: self-reflectivity ("Someone put thoughts in my head."), understanding the other's mind ("My brother said he loved me because robots control his mind."), decentration ("Everyone is unhappy because I am unhappy."), and mastery ("They told me I have schizophrenia, but it does not impact my life at all."). Statement examples representative of higher levels of metacognition include: self-reflectivity ("I recognized I had the wrong opinion when…"), understanding the other's mind ("My sister would put her earphones on so she would not get upset hearing my parents argue."), decentration ("I could see things about my mom's boyfriend that she couldn't because she loved him.") and mastery ("My friend snapped at me yesterday as soon as I said hello, but it was because she was under much stress, not because I did anything wrong.").

MEASURES

Primary Outcome: Social Functioning

Global Functioning: Social Scale

The Global Functioning: Social Scale (GF: social; Cornblatt et al., 2007) was used to access the quality and quantity of peer conflict and relationships, age-appropriate intimate relationships, and participation with family members. Scores on this assessment range from one to ten, one being extreme social isolation and ten as superior social/interpersonal functioning. GF: social was adapted from two reputable measures, the General Assessment of Functioning and (GAF; Hall, 1995) and the Social Occupational Functioning Assessment Scale (SOFAS; Skodol et al., 1988). The GF: social has high interrater reliability and construct validity for people with psychotic disorders (Cornblatt et al., 2007).

Secondary Outcome: Metacognition

Indiana Psychiatric Illness Interview

The Indiana Psychiatric Illness Interview (IPII; Lysaker et al., 2002) is a semi-structured interview used to examine one's understanding of their experiences living with a mental illness. The interviews generally last between 30 to 60 minutes. The individual's response to each

section is recorded via audiotape and transcribed. The five areas include: (1) telling the story of their lives; (2) if they think they have a mental illness; (3) has this mental illness affected their lives, and in what ways; (4) how they control and are controlled by their mental illness; (5) how their condition affects them and is affected by others; and (6) what do they anticipate in the future. The audio recording is then taken and analyzed for their metacognitive capacity ratings.

Metacognition Awareness Scale -Abbreviated

Metacognition Awareness Scale -Abbreviated (MAS-A; Lysaker et al., 2005; Semerari et al., 2003) was used to assess metacognitive capacity from IPII interviews. It consists of four subscales scores and a total score, the sum of those subscales. The first subscale, self-reflectivity, is a nine-point scale that measures the ability to form realistic and integrated ideas about oneself. The second subscale, understanding the other's mind, is a seven-point scale that assesses the ability to form realistic and complex ideas about others. The third subscale, decentration, is a three-point scale that addresses one's ability to recognize that others have independent thoughts and views on the world. The last subscale, mastery, is a nine-point scale that assesses one's capacity to use metacognition to manage social dilemmas and perceived distress purposefully. For all four subscales, higher scores reflect the capacity to perform increasingly complex metacognitive acts. This measure demonstrated inter-rater reliability (intraclass correlation= .86, $p < .05$) and internal consistency for the total score (coefficient alpha=.80, $p < .01$; Hamm et al., 2012; Lysaker et al., 2007).

Post-Hoc Measures

Quality of Life- Interpersonal Relationships: Social Functioning

The Quality of Life Scale (QOLS; Heinrichs et al., 1984) is a 21-item scale, scored on a seven-point rating system (i.e., 0-6) following a semi-structured interview. This scale contains four categories; however, for the current study, we utilized one of the category scores associated with social functioning, "Interpersonal Relations." The Interpersonal Relations scale consists of eight items that measure the frequency of one's social contacts with friends and family, as well as casual acquaintances. Higher scores are reflective of less impaired social functioning.

Previous studies have reported on the reliability and validity of this scale (Cramer et al., 2000; Heinrichs et al., 1984).

Metacognitive Beliefs Questionnaire-30: Metacognition

The Metacognitive Beliefs Questionnaire-30 (MCQ-30; Wells & Cartwright-Hatton, 2004) is a 30-item self-report questionnaire. It measures five dimensions of metacognition: cognitive confidence, positive beliefs about worry, cognitive self-consciousness, negative beliefs about the uncontrollability of thoughts and danger, and beliefs about the need to control one's thoughts. This measure was found to have good internal consistency, convergent validity, and internal consistency (Bright et al., 2018; see Wells & Cartwright-Hatton, 2004).

Positive and Negative Syndrome Scale: Symptoms

The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) is a 30-item scale, scored on a seven-point rating system (i.e., 1-7). We utilized the total scores of all five categories to measure negative, positive, cognitive, depressive, and hostility-related symptoms. Higher scores were reflective of greater severity of symptoms. Previous studies have demonstrated internal consistency (Kay et al., 1987), inter-rater reliability (Lysaker et al., 2010), and predictive validity (Bell et al., 1992).

Procedure

This study is a secondary analysis of data collected from a larger randomized controlled trial (RCT) testing the feasibility of two forms of MERIT on those with schizophrenia. Participants were offered two-way transportation to therapy and assessment sessions. There were three assessment sessions (pre, mid, post); participants received $10/hour for each assessment session. Participants learned about the study during the consent process and were informed that they would receive psychosocial therapy to improve metacognitive abilities. As part of the RCT, participants were given a digital tape recorder, the Electronically Activated Recorder for the iPod Touch (EAR; Minor et al., 2018; Mehl, 2007). The EAR device is a momentary ecological assessment programmed to record approximately 5% of a participant's day. Participants wore the device for two days each week following assessment and therapy sessions. The participants were

randomly assigned to two EAR groups: one group incorporated the recordings into therapy, while the other did not. The effects of using the EAR data in therapy are not being evaluated in this study; therefore, participants from both EAR groups were included. Thus, this study consists of all participants who completed 24 therapy sessions and pre-and post-assessment sessions.

Analysis

Analyses were conducted in three steps using IBM SPSS Statistics. First, a paired samples *t*-test was utilized to determine if social functioning (dependent variable [DV]) improved from pre- to post-MERIT assessments. Secondly, a paired samples *t*-test was used to determine if metacognition (dependent variable [DV]) improved from pre- to post-MERIT. A paired samples *t*- test was also utilized to determine if symptoms (dependent variable [DV]) improved from pre- to post-MERIT. Next, hierarchical linear regressions were applied to establish if metacognition predicted better social functioning pre- to post-MERIT. In step one, baseline metacognition and social functioning were entered as predictors, and social functioning post-therapy was entered as the outcome. In step two, metacognition post-therapy was added to the model to determine if post-MERIT metacognition predicts social functioning while controlling for pre-MERIT performance in both variables.

Power Analysis

Power analyses were conducted for each hypothesis and its corresponding statistical analysis using G*Power 3.192 (Faul et al., 2009). The effect size for this analysis was based on findings from a previous study that yielded a moderate effect for metacognition (Bargenquast & Schweitzer, 2011). For hypotheses one and two (*t*-tests: means: the difference between two dependent means, one-tailed, α=.05, β= 0.80, d= 0.8), a minimum total sample size of 12 participants is sufficiently powered to detect a large effect for the paired samples *t*-test analyses. This study is underpowered for moderate effects with the G*Power 3.192 (Faul et al., 2009) analysis determining a minimum total sample size of 27 participants would be sufficiently powered to detect a moderate effect (d= 0.5).

Limited studies examined our third hypothesis, so a G*Power 3.192 (Faul et al., 2009) analysis was conducted to analyze moderate and large effects. It was determined by the G*Power

analysis (f-tests: multiple linear regression: fixed model, R^2 increase, α=.05, β= 0.80 predictors= 2) to detect a large effect size (f^2 = 0.35) a minimum of 31 participants would allow sufficient power for the hierarchical regression analyses. The same G*Power analysis detected a moderate effect size (f^2 = 0.15), a minimum of 68 participants would allow sufficient power for the hierarchical regression analyses.

Thus, power is a limitation of this study, as we are underpowered for the third aim and only powered to detect large effects for the first two aims. However, our goal with this study is to evaluate pilot data to determine if there is an initial signal for whether MERIT can lead to changes in social functioning by improving metacognition. Hence, our sample size is appropriate for preliminary data.

RESULTS

Demographic and Clinical Data Comparisons

In total, 16 participants were included in this study. These participants were originally separated into two groups (Tailored MERIT [*n* = 9], Standard MERIT [*n* = 7]); no significant differences were observed between groups in baseline demographics or clinical data. Therefore, both groups were merged for this study (see appendix A). The majority of the participants self-identified as Black (68.8%), all participants were between 24 to 60 years old (*M* = 44.69, *SD* = 10.58), the majority had never married (62.5%), and most had completed high school or its equivalent (see Table 1).

Table 1. Sociodemographic Characteristics of Participants at Baseline

	M	*SD*
Age	44.69	10.58
	n	%
Gender		
Male	8	50
Female	8	50
Race		
Black/African American	11	68.8
White/European American	5	31.3
Ethnicity		
Not Hispanic or Latinx	14	87.5
Unknown	2	12.5
Education		
< High School	5	31.3
High School or Greater	11	68.8
Marital Status		
Never Married	10	62.5
Married	1	6.3
Divorced	5	31.3

Hypothesis 1: Social Functioning Will Improve Following MERIT

Social functioning at pre-and post-intervention was compared to test the hypothesis that social functioning would improve following six months of MERIT. Contrary to our hypothesis, no significant improvement in social functioning was observed, $t(15) = -0.46$, $p = .652$. Given that our hypothesis was not supported, a post-hoc analysis was conducted using an additional measure of social functioning (i.e., the QOL-IR). Again, there were no significant differences found in overall social functioning, $t(15) = 0.22$, $p = .826$, or on individual items (see Table 2). Thus, our hypothesis that social functioning would improve following MERIT was not supported.

Table 2. Pre-Post Differences in Social Functioning and Metacognition

	Pretest		Posttest			
	M	*SD*	*M*	*SD*	*t*(15)	*p*
GF: Social	5.56	0.63	5.69	1.30	-.46	.652
QOL-IR	2.71	.92	2.69	1.42	.08	.935
Involved Network	3.25	1.00	3.13	1.78	.36	.728
Initiation	2.50	1.21	2.75	1.73	-.75	.468
Withdrawal	3.00	.97	3.25	1.57	-.67	.510
Sociosexual Relations	2.19	1.68	2.13	2.25	.14	.894
House Relations*	4.08	1.61	3.62	1.56	.90	.387
Intimate Relations	2.69	2.21	2.31	1.74	.76	.456
Acquaintances	1.81	1.33	1.94	1.88	-.23	.822
Social Activity	2.63	1.26	2.75	1.77	-.31	.763
MAS-A	12.66	2.90	11.06	2.92	2.29	**.037**
Self-Reflectivity	5.22	1.39	4.16	.87	3.09	**.008**
Awareness of Others	3.34	.66	2.81	.89	3.17	**.006**
Decentration	.59	.55	.66	.44	-.40	.697
Mastery	3.50	1.30	3.44	1.36	.13	.895
MCQ-30	75.38	16.11	73.63	16.77	.69	.507
CC	15.81	3.73	15.06	3.21	1.03	.319
PB	14.25	4.68	13.69	4.83	.69	.504
CSC	15.00	3.31	14.88	3.91	.19	.853
NB	13.31	3.98	13.56	3.67	-.24	.812
NTC	17.00	3.50	16.44	3.71	.86	.402
PANSS	60.13	12.64	55.84	13.73	2.14	**.049**
Negative	15.50	5.79	15.09	5.89	.42	.680
Positive	12.63	3.58	12.31	3.40	.69	.502
Disorganization	14.75	4.75	12.38	4.50	2.74	**.015**
Depression	10.19	3.23	9.06	4.65	1.75	.101
Hostility	7.06	3.23	7.00	2.76	.08	.940

Note. GF: Social = Global Functioning Scale- Social; QOL-IR = Quality Of Life: Interpersonal Relations; MAS-A = Metacognitive Awareness Scale- Abbreviated, MCQ-30 = Metacognitive Beliefs Questionnaire and subscales: CC = Lack of Cognitive Confidence, PB = Positive Beliefs about Worry, CSC = Cognitive Self-Consciousness, NB = Negative Beliefs about Uncontrollability and Danger, NTC = Need to Control Thoughts, PANSS = Positive and Negative Symptom Scale. House Relations*= *t*(12)

Hypothesis 2: Metacognitive Abilities Will Improve Following MERIT

To test whether metacognition improved following MERIT, we compared pre- and post-intervention metacognition scores. Inconsistent with our hypothesis, we found that overall metacognitive abilities had decreased post-MERIT, $t(15) = 2.29$, $p = .037$. When subscales were examined, we observed that self-reflectivity, $t(15) = 3.09$, $p = .008$, and awareness of others, $t(15) = 3.17$, $p = .006$, significantly decreased, whereas decentration, $t(15) = -.40$, $p = .697$, and mastery, $t(15) = .13$, $p = .895$, did not significantly change. Given that findings were inconsistent with our hypothesis, we conducted a post-hoc analysis using a second measure of metacognition (i.e., the MCQ-30). No significant improvements in metacognitive beliefs were demonstrated, $t(15) =.69$, $p = .507$, when comparing pre- to post- MERIT performance. There was no support for our hypothesis that metacognition would improve following MERIT.

Post-Hoc Hypothesis: Symptoms Will Improve Following MERIT

Given that our initial hypotheses were not supported, symptoms were examined to determine if improvements occurred in another area potentially related to metacognition and social functioning. Overall significant symptom reductions were observed, $t(15) = 2.14$, $p = .049$. Within overall symptoms, there were five subscales examined. Of those, disorganized symptoms significantly improved $t(15) = 2.74$, $p = .015$. Other subscales did not show significant improvements (see Table 2). Consistent with the post-hoc hypothesis, overall symptoms and disorganized symptoms improved following six months of MERIT.

Hypothesis 3: Metacognitive Abilities Will Predict Improved Social Functioning

Hierarchical multiple regressions were run to determine whether metacognitive changes predicted social functioning after receiving six months of MERIT. Social functioning post-MERIT was the outcome, and baseline social functioning and metacognition were entered at step 1 of the model. Inconsistent with the hypothesis, metacognition did not significantly predict post-intervention social functioning, $F(2, 13) = 2.987$, $p = .086$. The adjusted r^2 was .209, indicating that a small amount of variance could be explained by the predictor variables. Baseline social functioning (B= 1.059, $p = .067$) and metacognition (B= .044, $p = .711$) did not significantly contribute to the model. In step two, metacognition at the post-intervention time point was

entered; it did not significantly predict post-intervention social functioning, $F(3, 12) = 2.040$, $p = .531$). The adjusted r^2 was .172, again indicating that this model could explain a small variance and baseline social functioning (B= 1.177, $p = .062$) and metacognition (B= -.014, $p = .926$; R^2 change = .023, $p = .531$, see Table 3 for more information) did not significantly contribute. A second model was run with alternative social functioning (i.e., QOL-IR) and metacognition (MCQ-30) measures. The pattern of findings was similar to those in the original model (i.e., significant variance was not accounted for; see Table 4).

Table 3. Hierarchal Linear Regression Results for Social Functioning and Metacognition

Variable	*B*	95% CI for *B*		*SE B*	β	R^2	ΔR^2
		LL	UL				
Step 1						.32	.32
Constant	-.75	-6.51	5.00	2.66			
Baseline GF: social	-1.06	-.09	2.20	.53	.51		
Baseline MAS-A	.04	-.21	.29	.12	.10		
Step 2						.34	.02
Constant	-1.62	-8.24	5.00	3.04			
Baseline GF: social	1.18	-.07	2.42	.57	.57		
Baseline MAS-A	-.01	-.34	.31	.15	-.03		
Post MAS-A	.09	-.20	.37	.13	.19		

Note. CI = confidence interval; *LL* = lower limit *UL* = upper limit; . GF: social = Global Functioning: Social, MAS- A = Metacognitive Awareness Scale- Abbreviated
*$p < .05$

Table 4. Hierarchal Linear Regression Results for Social Functioning and Metacognition

Variable	*B*	95% CI for *B*		*SE B*	β	R^2	ΔR^2
		LL	UL				
Step 1						.33	.33
Constant	6.47	-21.81	34.74	13.09			
Baseline QOL-IR	**1.05***	.15	1.95	.42	**.60***		
Baseline MCQ-30	-.10	-.44	.24	.16	-.16		
Step 2						.33	.00
Constant	5.02	-26.65	36.69	14.53			
Baseline QOL-IR	**1.09***	.09	2.10	.46	**.63***		
Baseline MCQ-30	-.17	-.81	.47	.29	-.26		
Post MCQ-30	.08	-.51	.66	.27	.12		

Note. CI = confidence interval; LL = lower limit UL = upper limit; QOL-IR = Quality Of Life: Interpersonal Relations; MCQ-30 = Metacognitive Beliefs Questionnaire and subscales
*$p < .05$

DISCUSSION

The purpose of this study was to gain a better understanding of social dysfunction in individuals with schizophrenia by determining if a metacognitive intervention could lead to improvements in this construct. Social dysfunction is a hallmark feature of the disorder and can severely impact illness prognosis and disrupt one's ability to function independently. Some essential steps towards improving social functioning are identifying underlying mechanisms, understanding areas of improvement (e.g., social networks, frequency of contact, and quality of relationships), and identifying interventions that are catalysts for change. In this study, the primary aim was to observe changes in social functioning and metacognition after individuals received six months of MERIT. There were four key findings. First, social functioning did not improve; it remained stable across pre-post time points. Secondly, metacognitive abilities worsened and unexpectedly reached a level of significance on two of four measures of metacognition. Next, significant improvements in overall symptoms and disorganization were observed. Lastly, metacognitive changes did not predict improvement in social functioning.

A central finding in this study is that anticipated improvements in social functioning were not observed following MERIT. One conceivable explanation is that the global measures of social functioning used here rely on external changes such as social network expansion and increased interactions. For example, social functioning in this study was assessed by examining the size of one's social network and their frequency of engagement in age-appropriate relationships (e.g., friendships, romantic partners, and amount of peer conflict). In other words, this study was only able to detect significant changes or growth in one's physical, social environment. However, changes in these areas may require improvements in internal (e.g., social skills) abilities prior to achieving notable external changes. It often takes additional time for improvements in social skills to translate to real-world outcomes such as increased friendships or to build a romantic relationship. Two prospective solutions include using an approach that focuses on changes in internal outcomes instead of external outcomes or implementing a longer study timeframe when using external (e.g., global) measures.

Improvements in social skills are likely to occur before global changes. For this reason, measures of social skills that can detect sizeable changes more quickly should be used in future studies. Social skills are essential building blocks to having successful interactions. Without the

appropriate use of skills, building and sustaining any interpersonal relationships would be challenging. One commonly used measure of social skills is the Social Skills Performance Scale (SSPA; Patterson et al., 2001). This scale is sensitive to detecting more immediate changes because it assesses foundational skills such as applying conversational language and non-verbal cues during laboratory role-plays. Performance-based measures like the SSPA are uniquely capable of capturing intricate social changes by utilizing ratings from displayed skills during role-plays. Capturing social functioning through skills as opposed to changes in one's environment, which rely on skills and those abilities translating to social interactions, are valuable in short timeframe studies. Once internal skills (e.g., verbal and non-verbal cues) progress, individuals would have more effective interactions. In turn, this would aid in sustaining old and developing new social connections. Thus, using a measure such as the SSPA might have been a more effective way to assess if changes in social functioning occurred.

Since global measures were used in the present study, an extended study timeframe might have been more likely to uncover changes in social functioning. This study was conducted over a period of 24 weeks, which means that study completers had less than 24 weeks to make changes in complex areas such as increasing their social network size and quality or diversity of their relationships. It is important to consider that these changes in external areas may be a struggle even for normal functioning adults to improve on rapidly. People with schizophrenia are at a greater disadvantage due to fewer social opportunities. Those opportunities are hindered by apparent smaller social networks and a lack of social diversity (e.g., often limited to immediate family members; Gayer-Anderson & Morgan, 2013; see Palumbo et al., 2015). Therefore, individuals with schizophrenia may struggle more to improve in global areas such as making new friends and dating, which are two of the three components in the study's primary measure. Those challenges coupled with being more prone to social isolation (Kirkpatrick et al., 2006) further limit rapid growth in social opportunities. That is to say, individuals with schizophrenia may need significantly more time to overcome these obstacles, learn new skills, and implement skills in meaningful ways. Although observing social functioning improvements at a global level may not be realistic in a 24-week timeframe, it is still possible that gains in social skills occurred.

Another potential reason social gains were not achieved could be the lack of positive movement in metacognitive abilities. Based on past research, it was expected that metacognition would improve for individuals receiving MERIT. Considering that MERIT is a long-term

therapy developed to fit the needs of schizophrenia, it is possible that gains are not prevalent with a shorter length of therapy. In a randomized controlled trial where metacognitive abilities improved, those improvements were found after 40 weeks of MERIT; and there were no significant gains in social functioning (De Jong et al., 2018). Those results could imply that metacognition and social functioning may require more time than the present study allowed. In sum, determined by case studies and randomized controlled trials at a more extended dosage, MERIT has been found to be effective in improving metacognition and some positive change in social functioning. Therefore, it is plausible that the shorter timeframe used in this study hindered changes in metacognition.

Contrary to this study's hypothesis, metacognitive abilities did not improve; in fact, self-reflectivity and awareness of others significantly declined. This finding was not expected as several case studies and a randomized control trial improvements in metacognition following MERIT (Buck & George, 2016; De Jong et al., 2018; Hillis et al., 2014; Leonhardt et al., 2016). One conceivable explanation for this study's null findings is that participants were administered the IPII at three time points relatively close in duration. This may have resulted in participants providing less information or assuming that interviewers may have already presented study information during earlier administrations. Conceivably, participants were retelling their story to the same examiners or repeating it multiple times. This may have led to them leaving out details on subsequent interviews. In other words, there is a probability that participants may present their story in a shorthand version with the assumption that the examiner already has this information. However, based on how the MAS-A is scored, less detailed stories and content may lower metacognitive scores. Thus, the IPII may not be appropriate for administration in short timeframes—such as those used in this study.

In fact, there are differences in study timeframes when comparing this study to previous research. For example, our study was 16 weeks shorter than De Jong and colleagues (2018), which would equate to up to 40% fewer therapeutic sessions. Circumstances in which MERIT has improved metacognition in 24 sessions have been limited to case studies and in individuals experiencing first-episode psychosis (Hillis et al., 2014; Vohs et al., 2017). Individuals further into their diagnosis may be less suitable for 24 sessions and may need an ample number of sessions before substantial changes in metacognition occur. In line with this explanation, it is also important to note that De Jong et al.'s (2018) study did not find improvements immediately

at the end of the intervention; instead, they found improvements occurred at a six-month follow-up assessment. This may indicate that MERIT requires at least ten months to demonstrate effectiveness. A similar effect was observed in a case study in which metacognitive improvements were non-linear throughout the 24 sessions of MERIT (Leonhardt et al., 2016). That is to say, there was an irregular pattern of increases in abilities followed by declines. This supports that metacognitive progress can vary throughout time. It may be the case that, during MERIT, one's metacognition could reduce or stay stagnant until a certain threshold (e.g., 40 weeks of sessions minimum) or timeframe (e.g., more than ten months). There is also the possibility that metacognitive growth depends on intervention implementation and environmental interactions. This non-linear pattern is similar in cognitive therapies, where there can also be an irregular pattern of gains throughout treatment (Gould et al., 2001; Laws et al., 2018). Though results were unexpected, these null findings led to additional questions about other target areas that could precede metacognition.

Though social functioning and metacognitive improvements were not discovered, clinically significant improvements in overall symptoms and disorganization were observed. The most considerable change occurred within disorganization; presumably, the overall symptom improvement was driven by that subscale. Independent of MERIT, dysfunction in metacognitive abilities have been linked to disorganization in several cases (Hamm et al., 2012; Hamm & Firmin 2016; Minor & Lysaker, 2014; Minor et al., 2015). One critical connection between the two is that disorganization can moderate and disrupt metacognition (Minor et al., 2015). Disorganization is typically conceptualized as impaired cognition that can lead to inattention and difficulty understanding abstract concepts (e.g., not taking the literal meaning of phrases). Understanding abstract concepts are of particular importance for social functioning and are needed to interpret interactions. For example, the ability to interpret beyond the literal meaning of common phrases (e.g., do not put all your eggs in one basket) and comprehend sarcasm is key to successful social interactions. Disorganization can also negatively impact conversation flow, causing odd word choice and impoverished word searching, especially in active or residual schizophrenia (Rathnaiah et al., 2020). In turn, disorganization can lead to misunderstanding an interaction. This makes it more difficult for individuals to integrate their thoughts, feelings, and connections between events or, in other words, to utilize metacognitive skills.

MERIT encourages therapists to utilize disorganized content as building blocks to expand on during therapy. In a session, the therapist promotes the awareness of disjointed narratives and inserts their own perspective to connect the dots. The therapist insertion could be considered a form of role modeling the appropriate use of metacognition and deepening the patient's metacognitive skills. Gradually as one progresses, the individual will need less prompting and therapist insertion. Thus, improving one's ability to synthesize their experiences may result in reduced disorganization as therapy continues to build metacognitive skills (Hamm and Firmin, 2016). Several MERIT studies have found that in addition to reductions in disorganization, other areas such as negative symptoms have also improved (Donkersgoed et al., 2016; Hillis et al., 2015). However, those studies had longer intervention periods than the present study. The fact that other areas of improvement were not found in this study with a shorter timeframe potentially suggests an order in which symptom improvement occurs. The findings in this study coincide with previous research that changes in disorganization can be improved by MERIT and supports the notion that reduced disorganization may precede other areas of symptom reductions.

Our third hypothesis postulated that metacognition would be a catalyst of social functioning change. This prediction was conditional on finding independent improvements in social functioning and metacognition, which did not occur. Theoretically, deficits in metacognitive abilities would impede social functioning because it would hinder one's ability to understand and integrate various processes (e.g., reflecting on the mental states of themselves and others) needed for interactions. High metacognitive capacity leads to better social functioning, and social functioning hinges on utilizing metacognition (James et al., 2016). However, no observed relationship was found between these constructs following six months of MERIT. Nevertheless, these findings should spark further investigation of the pathway in which metacognition relates to social functioning. Perhaps, future studies using longer study timeframes would allow for the development of social functioning and metacognition changes to occur while simultaneously investigating the order in which changes occur.

Limitations

A strength of this study is its novelty in exploring social functioning and metacognition's relationship within the realm of schizophrenia. Despite the notable strengths, some limitations also exist. One limitation is that the data was collected from a more extensive study intended to

compare two forms of MERIT. The study's time frame was developed and best suited to compare the feasibility of these two versions; however, the limited time frame may have hindered therapeutic effectiveness. Another limitation is that this study was significantly underpowered due to the small sample size. This restricts the generalizability of this study's results. Although a limitation, the study's sample is acceptable for a pilot study; however, the results should be interpreted cautiously. Finally, social functioning was gathered from global measures only. Thus, we are limited to assessing social growth by synthesizing overall functioning, potentially missing localized daily functioning changes or social skill-building. This makes it difficult to determine if all aspects of social functioning indeed remained impoverished.

Future Directions

The findings from this study were unanticipated, leaving many unanswered areas that warrant future research. One essential function of future research could be to determine the appropriate dosage of MERIT that is most effective at achieving changes in metacognition and social functioning. Studies should also continue to further establish to what extent social functioning and metacognition are related. This could be evaluated by examining correlations between specific components of social functioning and metacognition. For example, how correlated is social appropriateness with mastery or one's overall conversation success with understanding other's minds. If there are stronger correlations between certain elements, it could inform target treatment areas, potentially allowing treatment to be more personalized. This could also be impactful in determining if metacognitive abilities are underlying mechanisms of social functioning and, if so, which components have a more significant role.

Future studies should also target social functioning changes by employing social ability measures such as the SSPA. This enables studies to gain better insight into how individual interactions may change and improve the ability to detect intricate social nuances. In addition, studies should aim to incorporate other modalities such as day reconstruction surveys and real-world ecological measures. Doing so would provide more reliable data on how daily social interactions changed in context, content, frequency, and the amount of time spent socializing. As social functioning deficits can be debilitating and persistent, evaluating improvement in these areas and catalysts of change are imperative. Treating social functioning deficits could improve the quality of life and illness prognosis for many individuals with schizophrenia. Deficits in

social functioning do not only impact individuals living with schizophrenia but also society at large through their interactions with family members, friends, and their communities. Thus, strengthening our understanding of this vital area is needed.

In conclusion, this study's results did not align with previous research supporting that social functioning and metacognition improve following MERIT. However, these findings are invaluable to future researchers and have practical implications. Of particular interest, we found significant improvements in overall symptoms and disorganization. These results may suggest that disorganized symptoms precede other areas of symptom improvements and metacognitive abilities. If reduction in disorganization is a starting point of clinical level reductions in other areas, MERIT would be of particular value. If this claim was supported, it could highlight the importance of clinicians utilizing techniques to improve disorganized thought during a session. Future studies should continue exploring the relationship between metacognition, social functioning, and symptom reduction. Improving social functioning and metacognition in individuals living with schizophrenia remains of critical importance.

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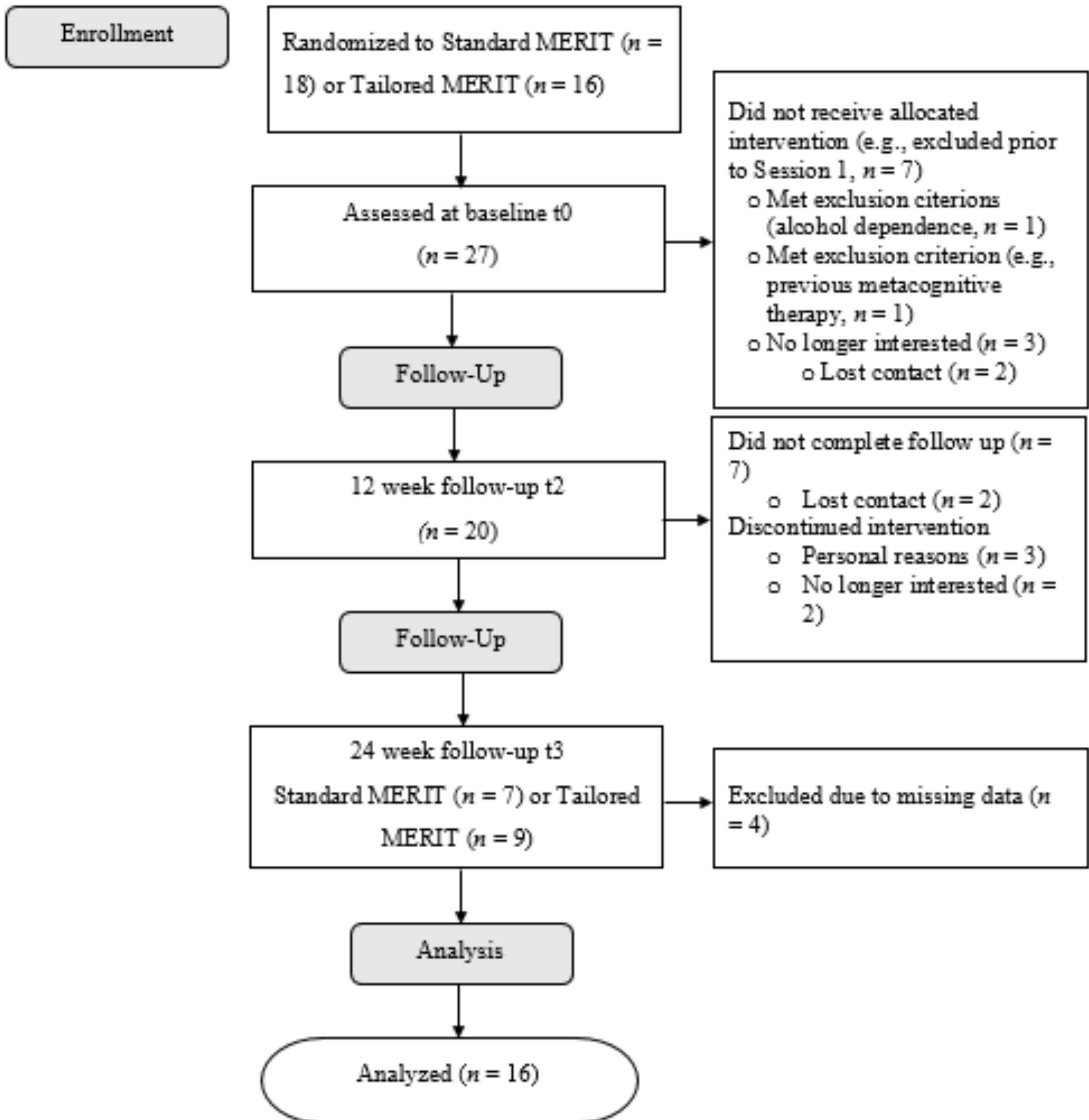
APPENDIX A. ENROLLMENT



APPENDIX B. MEASURES

Appendix B. 1 Global Functioning: Social Scale

Initial GLOBAL FUNCTIONING: SOCIAL SCALE (GF: Social)

CURRENT ______	LOWEST PAST YEAR ______	HIGHEST PAST YEAR ______

☐ Check here if this is a retrospective rating

Please rate the patient's most impaired level of social functioning for the specified time period by selecting the lowest level which describes his/her functioning within that time frame. For current, rate most impaired level of functioning in the **past month**. Rate actual functioning regardless of etiology of social problems.

Note: The emphasis is on social contact/interactions with people other than family members, unless these are the only interpersonal contacts a person has (e.g., the lower end of the scale). Also note that ratings of intimate relationships are secondary to the rating of primary friendships and should take into account the age of the individual. For example, older individuals may be expected to have intimate relationships involving steady dating, cohabitation, or marriage whereas younger individuals may be expected to have only romantic interests (i.e., flirtations or crushes) or close friendships.

SUPERIOR SOCIAL/INTERPERSONAL FUNCTIONING	
Criteria: **10**	**Superior functioning in a wide range of social and interpersonal activities.** Frequently seeks out others and has multiple satisfying interpersonal relationships, including multiple close and casual friends. Is sought out by others because of his or her many positive qualities. Age appropriate involvement in intimate relationships.
ABOVE AVERAGE SOCIAL/INTERPERSONAL FUNCTIONING	
Criteria: **9**	**Good functioning in all social areas, and interpersonally effective.** Interested and involved in a wide range of social and interpersonal activities, including both close and casual friends. Age appropriate involvement in intimate relationships. No more than everyday interpersonal problems or concerns (e.g., an occasional argument with spouse, girlfriend/boyfriend, friends, co-workers, or classmates). Able to resolve such conflicts appropriately.
GOOD SOCIAL/INTERPERSONAL FUNCTIONING	
Criteria: **8**	**Some transient mild impairment in social functioning.** Mild social impairment is present, but transient and expectable reactions to psychosocial stressors (e.g., after minor arguments with spouse, girlfriend/boyfriend, friends, co-workers, or classmates). Has some meaningful interpersonal relationships with peers (casual and close friends), and/or age appropriate intimate relationships. Infrequent interpersonal conflict with peers.
MILD PROBLEMS IN SOCIAL/INTERPERSONAL FUNCTIONING	
Criteria: **7**	**Some persistent mild difficulty in social functioning.** Mild impairment present that is NOT just expectable reaction to psychosocial stressors (e.g., mild conflicts with peers, co-workers or classmates; difficulty resolving conflicts appropriately). Has some meaningful interpersonal relationships with peers (casual and/or close friends). Some difficulty developing or maintaining age appropriate intimate relationships (e.g., multiple short-term relationships).
MODERATE IMPAIRMENT IN SOCIAL/INTERPERSONAL FUNCTIONING	
Criteria: **6**	**Moderate impairment in social functioning.** Moderate impairment present (e.g., few close friends; significant but intermittent conflicts with peers, co-workers or classmates). Moderate difficulty developing age appropriate intimate relationships (e.g., infrequent dating). Occasionally seeks out others, but will respond if invited by others to participate in an activity.

SERIOUS IMPAIRMENT IN SOCIAL/INTERPERSONAL FUNCTIONING

Criteria:	
5	**Serious impairment in social functioning.** No close friends or intimate partner, but has some casual social contacts (e.g., acquaintances, school/work friends only). Rarely seeks out others. Occasional combative or verbally argumentative behavior with peers. Beginning to withdraw from family members (e.g., doesn't initiate conversation with family, but will respond if addressed).

MAJOR IMPAIRMENT IN SOCIAL AND INTERPERSONAL FUNCTIONING

Criteria:	
4	**Major impairment in social functioning.** Serious impairment in relationships with friends or peers (e.g., very few or no friends, frequent conflicts with friends, or frequently avoids friends). Frequent combative or verbally argumentative behavior with peers. Infrequent contact with family members (e.g., sometimes does not respond to family or avoids family members).

MARGINAL ABILITY TO FUNCTION SOCIALLY

Criteria:	
3	**Marginal ability to function socially or maintain interpersonal relationships.** Frequently alone and socially isolated. Serious impairment in relationships with all peers, including acquaintances. Few interactions with family members (e.g., often alone in room). Serious impairment in communication with others (e.g., avoids participating in most social activities).

INABILITY TO FUNCTION SOCIALLY

Criteria:	
2	**Unable to function socially or to maintain any interpersonal relationships.** Typically alone and socially isolated. Rarely leaves home. Rarely answers the phone or the door. Rarely participates in interactions with others at home or in other settings (e.g., work, school).

EXTREME SOCIAL ISOLATION

Criteria:	
1	**Extreme social isolation.** No social or family member contact at all. Doesn't leave home. Refuses to answer the phone or door.

NOTE: This scale has been partially derived from the Social and Occupational Functioning Assessment Scale (SOFAS) from DSM-IV and the GAF as it appears in the SOPS. Item content has been changed to focus specifically on social and interpersonal functioning.

Citation: Auther, A.M., Smith, C.W. & Cornblatt, B.A. (2006). *Global Functioning: Social Scale (GF: Social).* Glen Oaks, NY: Zucker Hillside Hospital.

Confidence SFS: **Please rate your confidence in the accuracy of this rating:**

Not at all **Somewhat** **Good** **Excellent**

If confidence is low, please note reasons below:

____

Appendix B. 2 Indiana Psychiatric Illness Interview

This interview should encourage participants to tell their stories as they will, with the interviewer asking the questions listed below. Comments may be necessary to cue the person that the interviewer is listening. These should be as reflective as possible, not introducing content that the participant has not mentioned. Do not ask the individual to fill in chronological gaps or probe about information that he/she did not mention in his /her initial telling of the story. Questions as listed below do not have to be asked in order and the interviewer should accommodate the client's narrative. The overarching value should be to provide a setting in which the client's narrative as it currently exists is able to emerge. The interview may be introduced as simply as: "The purpose of this interview is for me to understand as carefully as possible **your** *story of yourself including what has gone wrong and what has not gone wrong."*

Section I: General Free Narrative:

- I'd like you to tell me the story of your life, in as much detail as you can, from as early as you can remember up to now. If it helps you to organize your story, you can divide it into chapters or sections. Any questions?

Section II: Illness narrative

- *Do you think you have a mental illness (MI) and if so what do you think it is?*
- *Experience of MI in the past?*
- *What caused these problems?*
- *How do you feel about having this MI?*
- *What is going to happen to your MI in the future?*

Section III: What's changed vs. what's stayed the same

Since your MI, what about you has changed and what has stayed the same?

- *Vocational function:* Same/Different:
- *Social function (family/romantic, friends/acquaintances):* Same/ Different:
- *Personality:* Same/ Different:
- *Cognition/emotion*: Same/ Different:

Section IV: Degree of influence of illness construct

- *To what extent and in what ways does your MI control your life?*
- *To what extent and how well are you able to control your MI?*
- *How have others been affected by your mental illness?*
- *How have others affected your mental illness?*

Section V: The future, hopefulness and satisfaction?

- *What do you see ahead of yourself in the future?*

Appendix B. 3 Metacognition Assessment Scale Abbreviated- Anchors

Self-Reflectivity (S)

S0	Patients are not aware that they have mental experiences.
S1	Patients are aware that they have mental experiences and that their thoughts are representational in nature
S2	Patients are aware that they are autonomous beings and that their thoughts are their own
S3	Patients can name and distinguish between the different cognitive operations which comprise mental activity (e.g. remembering, imagining, wishing, deciding, and anticipating).
S4	Patients can name and distinguish between significantly different valenced emotions.
S5	Patients can recognize that the ideas they have about themselves and the world are subjective, have changed, or are changeable and/or are fallible.
S6	Patients can recognize that what they expect, think, and want may not match what is possible in reality.
S7	Patients can form representations of themselves within at least one specific situation, or narrative episode, in which they can describe how different mental activities such as thoughts and feelings influence one another.
S8	Patients are able to recognize a psychological pattern over time, through connecting at least two narrative episodes, describing how the narrative episodes involve similar themes and relationships between different mental activities such as thoughts and feelings.
S9	Patients are able to recognize psychological patterns across their life, synthesizing multiple narrative episodes into a coherent and complex narrative which integrates different modes of cognitive and/or emotional functioning.

Awareness of the Other's Mind (O)

O0	Patients cannot recognize that the other experiences mental functions.
O1	Patients can recognize that the other experiences mental functions.
O2	Patients can recognize that the other has autonomous mental functions.

O3	Patients can recognize and distinguish between another person's different cognitive operations (e.g. remembering, imagining, wishing, deciding, and anticipating).
O4	Patients are able to distinguish many different emotional states experienced by another person.
O5	Patients can make plausible inferences about the mental state of another person, recognizing the meaning of verbal and non-verbal communications.
O6	Patients can give a complete description of another person's mental states in a specific moment, or narrative episode, distinguishing between and integrating different mental activities including thoughts, intentions. and feelings.
O7	Patients can form an integrated idea of another person's mental states across multiple narrative episodes into a coherent narration.

Decentration (D)

D0	Patients cannot recognize that they are not necessarily the center of other people's mental activities.
D1	Patients can recognize that they are not necessarily the center of other people's mental activities (their thoughts, feelings, and emotions) and/or that some of the actions of other people stem from goals and reasons etc. which are not related to the participant.
D2	Patients can recognize that others can perceive and/or interpret events in a validly different way than how the participant perceives and/or interprets events.
D3	Patients can recognize that the events that occur in regular life are often the result of complex emotional, cognitive, social, and environmental factors which vary according to the individual people involved. These factors include person-centered factors, such as individual development and life history, as well as the larger political and social context. Patients are further able to perceive the larger world as involving unique individuals who have unique relationships with one another which involve no central organizing theme.

Mastery (M)

M0	Patients cannot formulate any plausible or implausible psychological challenges.
M1	Patients can identify general distress affecting discuss behavior and psychological processes but cannot plausibly present a psychological challenge.
M2	Patients are able to plausibly describe a psychological challenge.
M3	Patients are able to respond to psychological challenges through gross avoidance or passive activities, such as following others' directions or other actions that grossly reduce distress.
M4	Patients are able to respond to psychological challenges by generally actively avoiding very specific things or by seeking support from others.
M5	Patients are able to respond to psychological challenges by voluntarily engaging in or inhibiting a specific behavior.
M6	Patients are able to respond to psychological challenges by changing how they think about the problem or themselves him/herself.
M7	Patients are able to respond to psychological challenges by utilizing unique metacognitive knowledge about him or herself in light of the specific challenge.
M8	Patients are able to respond to psychological challenges by utilizing unique metacognitive knowledge both about themselves and a specific other person in the context of a specific challenge.
M9	Patients are able to respond to psychological challenges by utilizing unique metacognitive knowledge about themselves, specific others, others in the general, and the human condition. The participant can take into account human limitations and acknowledge that some pain cannot be avoided and is part of life.

Appendix B. 4 Quality of Life- Interpersonal Relationships

Heinrichs Quality of Life Scale

INSTRUCTIONS: *Put the number of the most appropriate response on the "CODE" line below each question. Please do not skip any responses. Refer to past month during the interview.*

1: INTIMATE RELATIONSHIPS WITH HOUSEHOLD MEMBERS

This item is to rate close relationships with significant mutual caring and immediate family or members of the subject's current household.

Suggested questions:

- Are you especially close with any of the people you currently live with or you immediate family?
- Can you discuss personal matters with them?
- How much have you talked with them?
- What are these relationships like?
- What sorts of things have you done together?
- When at home, have you s pent much time around your family or were you generally alone?

CODE..

0= virtually no intimacy
1=
2= Only sparse and intermittent intimate interactions
3=
4= Some consistent intimate interactions but reduced in extent or intensity; or intimacy only present erratically
5=
6= Adequate involvement in intimate relations with household members or immediate family

9= Score here if lives alone and NO immediate family nearby.

2: INTIMATE RELATIONS

This item is to rate close relationships with significant mutual caring and sharing people other than immediate family or household members. Exclude relationships with mental health workers.

Suggested questions:

- Do you have friends with whom you are especially close other than your immediate family or the people you live with?
- Can you discuss personal matters with them?
- How many friends do you have?
- What have these relationships been like?
- Can they discuss personal matters with you?

CODE...

0= Virtually absent
1=
2= Only sparse and intermittent relations
3=
4= Some consistent intimate relations but reduced in number or intensity; or intimacy only present erratically
5=
6= Adequate involvement in intimate relations with more than one other person

3: ACTIVE ACQUAINTANCES

This item is to rate relationships with people based on liking one another and sharing common activities or interests but without the intimate emotional investment of the above item. Exclude relationships with mental health workers and household members.

Suggested questions:

- Apart from close personal friends, are there people you know with whom you have enjoyed doing things?
- How many?
- How often have you gotten together?
- What things have you done together?
- Have you been with people as a part of clubs or organized activity?
- Have you had extra social contact with co-workers, such as going to lunch together?

CODE...

0= Virtually absent
1=
2= Few active acquaintances but reduced contact and limited shared activity
3=
4= Some ongoing active acquaintances but reduced contact and limited shared activity
5=
6= Adequate involvement with active acquaintances

4: LEVEL OF SOCIAL ACTIVITY

This item is to rate involvement in activities with other people for enjoyment. Exclude activity that is primarily instrumental for other goals, for example, work and school. Exclude psychotherapy.

Suggested questions:

- How often have you done things for enjoyment that involve other people?
- What sort of things?
- Have you participated in clubs or other social groups?

CODE..

0= Virtually absent
1=
2= Occasional social activity but lack of regular pattern of such activity, or limited only to activity with immediate family or members of household
3=
4= Some regular social activity but reduced in frequency or diversity
5=
6= Adequate level of regular social activity

5: INVOLVED SOCIAL NETWORK

this item is to rate the extent to which other people concern themselves with the person, who care about his/her fortunes or know about his/her activities. Exclude mental health workers.

Suggested questions:

- Are there people who have been concerned about your happiness and well being?
- How many?
- How did they show it?
- If some Important and exciting thing happened to you, who would you contact or inform?
- Are there people who often provided you emotional support or help in day-to-day matters such as food, transportation, or practical advice?

CODE..

0= Virtually absent
1=
2= Minimal in number or degree of involvement, and/or limited to immediate family
3=
4= Presence of some involved social network but reduced in number or degree of involvement
5=
6= Adequate involved social network in both extent and in degree of involvement

6: SOCIAL INITIATIVES

this item is to rate the degree to which the person is active in directing his/her social interactions – what, how much, and with whom.

Suggested questions:

- Have you often asked people to do something with you, or have you usually waited for others to ask you?
- When you have had an idea for a good time, have you sometimes missed out because it's hard to ask others to participate?
- Have you contacted people by phone?
- Have you tended to seek people out?
- Have you usually done things alone or with other people?

CODE...

0= Social activity almost completely dependant on initiatives of others
1=
2= Occasional social initiative, but social life significantly impoverished due to his/her pattern of social passivity, or initiative limited to immediate family
3=
4= Evidence of some reduction of social initiative, but only minimal adverse consequences of his/her activity
5=
6= Adequate social initiative

7. SOCIAL WITHDRAWAL

This is to rate the degree to which the person actively avoids social interaction due to his/her discomfort or disinterest.

Suggested questions:

- Have you felt uncomfortable with people?
- Have you turned down offers to do things with other people? Would you if you were asked?
- Have you done this even when you have had nothing to do?
- How has this interfered with your life?
- Have you dealt with people only when it's necessary to accomplish something you want?
- Have you stayed to yourself at home?
- Have you preferred to be alone?

CODE...

0= Active avoidance of virtually all social contact
1=
2= Tolerates that social contact required for meeting other needs, but very little social contact for its own sake, or lack of withdrawal only with immediate family
3=
4= Some satisfying and enjoyable engagement, but reduced due to avoidance
5=
6= No evidence of significant social withdrawal

8. SOCIOSEXUAL RELATIONS

This item is to rate the capacity for mature intimate relations with members of the opposite sex and satisfying sexual activity. The wording assumes heterosexual preference. In clear cases of homosexual preference, reword accordingly and rate these same capacities.

Suggested questions IF SINGLE:

- Have your social activities involved women (men)?
- Have you avoided them or found it too uncomfortable to deal with them?
- Have you dated?
- Did you have one or more girlfriends (boyfriends)?
- Have the relationships been satisfying?
- How emotionally involved were you?
- Are/were you in love?
- Were you sexually active?
- Was it satisfying?
- Did you show physical signs of affection, such as hugging or kissing?

Suggested questions IF MARRIED OR LIVING WITH SOMEONE:

- Were you happy in your relationship with your partner?
- Have you done many things together?
- Did you discuss personal thoughts and feelings?
- Did you fight much?
- Has you sex life been satisfying?
- Did you show physical signs of affection such as hugging or kissing?
- Did you feel close to her (him)?

CODE...

0= No interest in opposite sex, or active avoidance
1=
2= Some limited contact with opposite sex but superficial with avoidance of intimacy; or sexual activity as just physical release without emotional involvement; or relationships marked by severe and chronic disruption, dissatisfaction or affective chaos
3=
4= Relationships with some intimacy and emotional investment, predominantly satisfying, and perhaps some sexual expression or physical signs of affection
5=
6= Usually has satisfying relationships, emotionally rich and intimate and appropriate sexual expression and physical signs of expression

Appendix B.5 Metacognitive Beliefs Questionnaire-30

Metacognitive Beliefs Questionnaire-Brief (MCQ-30)

Please circle the number which best describes you, where
1= do not agree, 4=agree very much.

1. I do not trust my memory.

1	2	3	4
Do not agree			Agree very much

2. I have a poor memory.

1	2	3	4
Do not agree			Agree very much

3. I have little confidence in my memory for actions.

1	2	3	4
Do not agree			Agree very much

4. I have little confidence in my memory for places.

1	2	3	4
Do not agree			Agree very much

5. I have little confidence in my memory for words and names.

1	2	3	4
Do not agree			Agree very much

6. My memory can mislead me at times.

1	2	3	4
Do not agree			Agree very much

7. Worrying helps me to get things sorted out in my mind.

1	2	3	4
Do not agree			Agree very much

8. Worrying helps me cope.

1	2	3	4
Do not agree			Agree very much

9. I need to worry in order to work well.

1	2	3	4
Do not agree			Agree very much

10. Worrying helps me to solve problems.

1	2	3	4
Do not agree			Agree very much

11. I need to worry in order to remain organized.

1	2	3	4
Do not agree			Agree very much

12. Worrying helps me to avoid problems in the future.

1	2	3	4
Do not agree			Agree very much

13. I am constantly aware of my thinking.

1	2	3	4
Do not agree			Agree very much

14. I pay close attention to the way my mind works.

1	2	3	4
Do not agree			Agree very much

15. I think a lot about my thoughts.

1	2	3	4
Do not agree			Agree very much

16. I constantly examine my thoughts.

1	2	3	4
Do not agree			Agree very much

17. I monitor my thoughts.

1	2	3	4
Do not agree			Agree very much

18. I am aware of the way my mind works when I am thinking through a problem.

1	2	3	4
Do not agree			Agree very much

19. My worrying thoughts persist, no matter how I try to stop them.

1	2	3	4
Do not agree			Agree very much

20. When I start worrying I cannot stop.

1	2	3	4
Do not agree			Agree very much

21. I could make myself sick with worrying.

1	2	3	4
Do not agree			Agree very much

22. I cannot ignore my worrying thoughts.

1	2	3	4
Do not agree			Agree very much

23. My worrying could make me go mad.

1	2	3	4
Do not agree			Agree very much

24. My worrying is dangerous for me.

1	2	3	4
Do not agree			Agree very much

25. If I could not control my thoughts, I would not be able to function.

1	2	3	4
Do not agree			Agree very much

26. Not being able to control my thoughts is a sign of weakness.

1	2	3	4
Do not agree			Agree very much

27. I should be in control of my thoughts all of the time.

1	2	3	4
Do not agree			Agree very much

28. It is bad to think certain thoughts.

1	2	3	4
Do not agree			Agree very much

29. If I did not control a worrying thought and then it happened, it would be my fault.

1	2	3	4
Do not agree			Agree very much

30. I will be punished for not controlling certain thoughts.

1	2	3	4
Do not agree			Agree very much

Appendix B.6 Positive and Negative Symptom Rating Scale

POSITIVE SCALE (P)

P1. DELUSIONS - Beliefs which are unfounded, unrealistic and idiosyncratic.

Basis for rating - Thought content expressed in the interview and its influence on social relations and behaviour.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Presence of one or two delusions which are vague, uncrystallised and not tenaciously held. Delusions do not interfere with thinking, social relations or behaviour.
4. **Moderate** - Presence of either a kaleidoscopic array of poorly formed, unstable delusions or a few well-formed delusions that occasionally interfere with thinking, social relations or behaviour.
5. **Moderate Severe** - Presence of numerous well-formed delusions that are tenaciously held and occasionally interfere with thinking, social relations and behaviour.
6. **Severe** - Presence of a stable set of delusions which are crystallised, possibly systematised, tenaciously held and clearly interfere with thinking, social relations and behaviour.
7. **Extreme** - Presence of a stable set of delusions which are either highly systematised or very numerous, and which dominate major facets of the patient's life. This frequently results in inappropriate and irresponsible action, which may even jeopardise the safety of the patient or others.

P2. CONCEPTUAL DISORGANISATION **-** Disorganised process of thinking characterised by disruption of goal-directed sequencing, e.g. circumstantiality, loose associations, tangentiality, gross illogicality or thought block.

Basis for rating - Cognitive-verbal processes observed during the course of interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Thinking is circumstantial, tangential or paralogical. There is some difficulty in directing thoughts towards a goal, and some loosening of associations may be evidenced under pressure.
4. **Moderate** - Able to focus thoughts when communications are brief and structured, but becomes loose or irrelevant when dealing with more complex communications or when under minimal pressure.
5. **Moderate Severe** - Generally has difficulty in organising thoughts, as evidenced by frequent irrelevancies, disconnectedness or loosening of associations even when not under pressure.
6. **Severe** - Thinking is seriously derailed and internally inconsistent, resulting in gross irrelevancies and disruption of thought processes, which occur almost constantly.
7. **Extreme** - Thoughts are disrupted to the point where the patient is incoherent. There is marked loosening of associations, which result in total failure of communication, e.g. "word salad" or mutism.

P3. HALLUCINATORY BEHAVIOUR **-** Verbal report or behaviour indicating perceptions which are not generated by external stimuli. These may occur in the auditory, visual, olfactory or somatic realms.

Basis for rating - Verbal report and physical manifestations during the course of interview as well as reports of behaviour by primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - One or two clearly formed but infrequent hallucinations, or else a number of vague abnormal perceptions which do not result in distortions of thinking or behaviour.
4. **Moderate** - Hallucinations occur frequently but not continuously, and the patient's thinking and behaviour are only affected to a minor extent.
5. **Moderate Severe** - Hallucinations occur frequently, may involve more than one sensory modality, and tend to distort thinking and/or disrupt behaviour. Patient may have a delusional interpretation of these experiences and respond to them emotionally and, on occasion, verbally as well.
6. **Severe** - Hallucinations are present almost continuously, causing major disruption of thinking and behaviour. Patient treats these as real perceptions, and functioning is impeded by frequent emotional and verbal responses to them.
7. **Extreme** - Patient is almost totally preoccupied with hallucinations, which virtually dominate thinking and behaviour. Hallucinations are provided a rigid delusional interpretation and provoke verbal and behavioural responses, including obedience to command hallucinations.

P4. **EXCITEMENT -** Hyperactivity as reflected in accelerated motor behaviour, heightened responsivity to stimuli, hypervigilance or excessive mood lability.

Basis for rating - Behavioural manifestations during the course of interview as well as reports of behaviour by primary care workers or family.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Tends to be slightly agitated, hypervigilant or mildly overaroused throughout the interview, but without distinct episodes of excitement or marked mood lability. Speech may be slightly pressured.
4 **Moderate** - Agitation or overarousal is clearly evident throughout the interview, affecting speech and general mobility, or episodic outbursts occur sporadically.
5 **Moderate Severe** - Significant hyperactivity or frequent outbursts of motor activity are observed, making it difficult for the patient to sit still for longer than several minutes at any given time.
6 **Severe** - Marked excitement dominates the interview, delimits attention, and to some extent affects personal functions such as eating or sleeping.
7 **Extreme** - marked excitement seriously interferes in eating and sleeping and makes interpersonal interactions virtually impossible. Acceleration of speech and motor activity may result in incoherence and exhaustion.

P5. **GRANDIOSITY -** Exaggerated self-opinion and unrealistic convictions of superiority, including delusions of extraordinary abilities, wealth, knowledge, fame, power and moral righteousness.

Basis for rating - Thought content expressed in the interview and its influence on behaviour.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Some expansiveness or boastfulness is evident, but without clear-cut grandiose delusions.
4 **Moderate** - Feels distinctly and unrealistically superior to others. Some poorly formed delusions about special status or abilities may be present but are not acted upon.
5 **Moderate Severe** - Clear-cut delusions concerning remarkable abilities, status or power are expressed and influence attitude but not behaviour.
6 **Severe** - Clear-cut delusions of remarkable superiority involving more than one parameter (wealth, knowledge, fame, etc) are expressed, notably influence interactions and may be acted upon.
7 **Extreme** - Thinking, interactions and behaviour are dominated by multiple delusions of amazing ability, wealth, knowledge, fame, power and/or moral stature, which may take on a bizarre quality.

P6. **SUSPICIOUSNESS/PERSECUTION -** Unrealistic or exaggerated ideas of persecution, as reflected in guardedness, ad distrustful attitude, suspicious hypervigilance or frank delusions that others mean harm.

Basis for rating – Thought content expressed in the interview and its influence on behaviour.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Presents a guarded or even openly distrustful attitude, but thoughts, interactions and behaviour are minimally affected.
4 **Moderate** - Distrustfulness is clearly evident and intrudes on the interview and/or behaviour, but there is no evidence of persecutory delusions. Alternatively, there may be indication of loosely formed persecutory delusions, but these do not seem to affect the patient's attitude or interpersonal relations.
5 **Moderate Severe** - Patient shows marked distrustfulness, leading to major disruption of interpersonal relations, or else there are clear-cut persecutory delusions that have limited impact on interpersonal relations and behaviour.
6 **Severe** - Clear-cut pervasive delusions of persecution which may be systematised and significantly interfere in interpersonal relations.
7 **Extreme** - A network of systematised persecutory delusions dominates the patient's thinking, social relations and behaviour.

P7. **HOSTILITY -** Verbal and nonverbal expressions of anger and resentment, including sarcasm, passive-aggressive behaviour, verbal abuse and assualtiveness.

Basis for rating – Interpersonal behaviour observed during the interview and reports by primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Indirect or restrained communication of anger, such as sarcasm, disrespect, hostile expressions and occasional irritability.
4. **Moderate** - Presents an overtly hostile attitude, showing frequent irritability and direct expression of anger or resentment.
5. **Moderate Severe** - Patient is highly irritable and occasionally verbally abusive or threatening.
6. **Severe** - Uncooperativeness and verbal abuse or threats notably influence the interview and seriously impact upon social relations. Patient may be violent and destructive but is not physically assualtive towards others.
7. **Extreme** - Marked anger results in extreme uncooperativeness, precluding other interactions, or in episode(s) of physical assault towards others.

NEGATIVE SCALE (N)

N1. **BLUNTED AFFECT -** Diminished emotional responsiveness as characterised by a reduction in facial expression, modulation of feelings and communicative gestures.

Basis for rating - Observation of physical manifestations of affective tone and emotional responsiveness during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Changes in facial expression and communicative gestures seem to be stilted, forced, artificial or lacking in modulation.
4. **Moderate** - Reduced range of facial expression and few expressive gestures result in a dull appearance
5. **Moderate Severe** - Affect is generally 'flat' with only occasional changes in facial expression and a paucity of communicative gestures.
6. **Severe** - Marked flatness and deficiency of emotions exhibited most of the time. There may be unmodulated extreme affective discharges, such as excitement, rage or inappropriate uncontrolled laughter.
7. **Extreme** – Changes in facial expression and evidence of communicative gestures are virtually absent. Patient seems constantly to show a barren or 'wooden' expression.

N2. **EMOTIONAL WITHDRAWAL -** Lack of interest in, involvement with, and affective commitment to life's events.

Basis for rating - Reports of functioning from primary care workers or family and observation of interpersonal behaviour during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Usually lack initiative and occasionally may show deficient interest in surrounding events.
4. **Moderate** - Patient is generally distanced emotionally from the milieu and its challenges but, with encouragement, can be engaged.
5. **Moderate Severe** - Patient is clearly detached emotionally from persons and events in the milieu, resisting all efforts at engagement. Patient appears distant, docile and purposeless but can be involved in communication at least briefly and tends to personal needs, sometimes with assistance.
6. **Severe** - Marked deficiency of interest and emotional commitment results in limited conversation with others and frequent neglect of personal functions, for which the patient requires supervision.
7. **Extreme** – Patient is almost totally withdrawn, uncommunicative and neglectful of personal needs as a result of profound lack of interest and emotional commitment.

N3. **POOR RAPPORT -** Lack of interpersonal empathy, openness in conversation and sense of closeness, interest or involvement with the interviewer. This is evidenced by interpersonal distancing and reduced verbal and nonverbal communication.

Basis for rating - Interpersonal behaviour during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Conversation is characterised by a stilted, strained or artificial tone. It may lack emotional depth or tend to remain on an impersonal, intellectual plane.
4. **Moderate** - Patient typically is aloof, with interpersonal distance quite evident. Patient may answer questions mechanically, act bored, or express disinterest.
5. **Moderate Severe** - Disinvolvement is obvious and clearly impedes the productivity of the interview. Patient may tend to avoid eye or face contact.
6. **Severe** - Patient is highly indifferent, with marked interpersonal distance. Answers are perfunctory, and there is little nonverbal evidence of involvement. Eye and face contact are frequently avoided.
7. **Extreme** - Patient is totally uninvolved with the interviewer. Patient appears to be completely indifferent and consistently avoids verbal and nonverbal interactions during the interview.

N4. **PASSIVE/APATHETIC SOCIAL WITHDRAWAL -** Diminished interest and initiative in social interactions due to passivity, apathy, anergy or avolition. This leads to reduced interpersonal involvements and neglect of activities of daily living.

Basis for rating – Reports on social behaviour from primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Shows occasional interest in social activities but poor initiative. Usually engages with others only when approached first by them.
4. **Moderate** – Passively goes along with most social activities but in a disinterested or mechanical way. Tends to recede into the background.
5. **Moderate Severe** - Passively participates in only a minority of activities and shows virtually no interest or initiative. Generally spends little time with others.
6. **Severe** - Tends to be apathetic and isolated, participating very rarely in social activities and occasionally neglecting personal needs. Has very few spontaneous social contacts.
7. **Extreme** – Profoundly apathetic, socially isolated and personally neglectful.

N5. **DIFFICULTY IN ABSTRACT THINKING -** Impairment in the use of the abstract-symbolic mode of thinking, as evidenced by difficulty in classification, forming generalisations and proceeding beyond concrete or egocentric thinking in problem-solving tasks.

Basis for rating - Responses to questions on similarities and proverb interpretation, and use of concrete vs. abstract mode during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Tends to give literal or personalised interpretations to the more difficult proverbs and may have some problems with concepts that are fairly abstract or remotely related.
4. **Moderate** - Often utilises a concrete mode. Has difficulty with most proverbs and some categories. Tends to be distracted by functional aspects and salient features.
5. **Moderate Severe** - Deals primarily in a concrete mode, exhibiting difficulty with most proverbs and many categories.
6. **Severe** - Unable to grasp the abstract meaning of any proverbs or figurative expressions and can formulate classifications for only the most simple of similarities. Thinking is either vacuous or locked into functional aspects, salient features and idiosyncratic interpretations.
7. **Extreme** - Can use only concrete modes of thinking. Shows no comprehension of proverbs, common metaphors or similes, and simple categories. Even salient and functional attributes do not serve as a basis for classification. This rating may apply to those who cannot interact even minimally with the examiner due to marked cognitive impairment.

N6. **LACK OF SPONTANEITY AND FLOW OF CONVERSATION -** Reduction in the normal flow of communication associated with apathy, avolition, defensiveness or cognitive deficit. This is manifested by diminished fluidity and productivity of the verbal interactional process.

Basis for rating - Cognitive-verbal processes observed during the course of interview.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** – Conversation shows little initiative. Patient's answers tend to be brief and unembellished, requiring direct and leading questions by the interviewer.
4 **Moderate** – Conversation lacks free flow and appears uneven or halting. Leading questions are frequently needed to elicit adequate responses and proceed with conversation.
5 **Moderate Severe** - Patient shows a marked lack of spontaneity and openness, replying to the interviewer's questions with only one or two brief sentences.
6 **Severe** - Patient's responses are limited mainly to a few words or short phrases intended to avoid or curtail communication. (e.g. "I don't know", "I'm not at liberty to say"). Conversation is seriously impaired as a result and the interview is highly unproductive.
7 **Extreme** - Verbal output is restricted to, at most, an occasional utterance, making conversation not possible.

N7. **STEREOTYPED THINKING -** Decreased fluidity, spontaneity and flexibility of thinking, as evidenced in rigid, repetitious or barren thought content.

Basis for rating - Cognitive-verbal processes observed during the interview.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Some rigidity shown in attitude or beliefs. Patient may refuse to consider alternative positions or have difficulty in shifting from one idea to another.
4 **Moderate** - Conversation revolves around a recurrent theme, resulting in difficulty in shifting to a new topic.
5 **Moderate Severe** - Thinking is rigid and repetitious to the point that, despite the interviewer's efforts, conversation is limited to only two or three dominating topics.
6 **Severe** – Uncontrolled repetition of demands, statements, ideas or questions which severely impairs conversation.
7 **Extreme** - Thinking, behaviour and conversation are dominated by constant repetition of fixed ideas or limited phrases, leading to gross rigidity, inappropriateness and restrictiveness of patient's communication.

GENERAL PSYCHOPATHOLOGY SCALE (G)

G1. **SOMATIC CONCERN -** Physical complaints or beliefs about bodily illness or malfunctions. This may range from a vague sense of ill being to clear-cut delusions of catastrophic physical disease.

Basis for rating - Thought content expressed in the interview.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Distinctly concerned about health or bodily malfunction, but there is no delusional conviction and overconcern can be allayed by reassurance.
4 **Moderate** - Complains about poor health or bodily malfunction, but there is no delusional conviction, and overconcern can be allayed by reassurance.
5 **Moderate Severe** - Patient expresses numerous or frequent complaints about physical illness or bodily malfunction, or else patient reveals one or two clear-cut delusions involving these themes but is not preoccupied by them.
6 **Severe** - Patient is preoccupied by one or a few clear-cut delusions about physical disease or organic malfunction, but affect is not fully immersed in these themes, and thoughts can be diverted by the interviewer with some effort.
7 **Extreme** – Numerous and frequently reported somatic delusions, or only a few somatic delusions of a catastrophic nature, which totally dominate the patient's affect or thinking.

G2. **ANXIETY -** Subjective experience of nervousness, worry, apprehension or restlessness, ranging from excessive concern about the present or future to feelings of panic.

Basis for rating - Verbal report during the course of interview and corresponding physical manifestations.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Expresses some worry, overconcern or subjective restlessness, but no somatic and behavioural consequences are reported or evidenced.
4 **Moderate** - Patient reports distinct symptoms of nervousness, which are reflected in mild physical manifestations such as fine hand tremor and excessive perspiration.
5 **Moderate Severe** - Patient reports serious problems of anxiety which have significant physical and behavioural consequences, such as marked tension, poor concentration, palpitations or impaired sleep.
6 **Severe** - Subjective state of almost constant fear associated with phobias, marked restlessness or numerous somatic manifestations.
7 **Extreme** - Patient's life is seriously disrupted by anxiety, which is present almost constantly and at times reaches panic proportion or is manifested in actual panic attacks.

G3. **GUILT FEELINGS** - Sense of remorse or self-blame for real or imagined misdeeds in the past.

Basis for rating - Verbal report of guilt feelings during the course of interview and the influence on attitudes and thoughts.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** – Questioning elicits a vague sense of guilt or self-blame for a minor incident, but the patient clearly is not overly concerned.
4 **Moderate** - Patient expresses distinct concern over his responsibility for a real incident in his life but is not pre-occupied with it and attitude and behaviour are essentially unaffected.
5 **Moderate Severe** - Patient expresses a strong sense of guilt associated with self-deprecation or the belief that he deserves punishment. The guilt feelings may have a delusional basis, may be volunteered spontaneously, may be a source of preoccupation and/or depressed mood, and cannot be allayed readily by the interviewer.
6 **Severe** - Strong ideas of guilt take on a delusional quality and lead to an attitude of hopelessness or worthlessness. The patient believes he should receive harsh sanctions as such punishment.
7 **Extreme** - Patient's life is dominated by unshakable delusions of guilt, for which he feels deserving of drastic punishment, such as life imprisonment, torture, or death. There may be associated suicidal thoughts or attribution of others' problems to one's own past misdeeds.

G4. **TENSION -**Overt physical manifestations of fear, anxiety, and agitation, such as stiffness, tremor, profuse sweating and restlessness.

Basis for rating - Verbal report attesting to anxiety and thereupon the severity of physical manifestations of tension observed during the interview.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Posture and movements indicate slight apprehensiveness, such as minor rigidity, occasional restlessness, shifting of position, or fine rapid hand tremor.
4 **Moderate** - A clearly nervous appearance emerges from various manifestations, such as fidgety behaviour, obvious hand tremor, excessive perspiration, or nervous mannerisms.
5 **Moderate Severe** - Pronounced tension is evidenced by numerous manifestations, such as nervous shaking, profuse sweating and restlessness, but can conduct in the interview is not significantly affected.
6 **Severe** - Pronounced tension to the point that interpersonal interactions are disrupted. The patient, for example, may be constantly fidgeting, unable to sit still for long, or show hyperventilation.
7 **Extreme** - Marked tension is manifested by signs of panic or gross motor acceleration, such as rapid restless pacing and inability to remain seated for longer than a minute, which makes sustained conversation not possible.

G5. MANNERISMS AND POSTURING – Unnatural movements or posture as characterised be an awkward, stilted, disorganised, or bizarre appearance.

Basis for rating - Observation of physical manifestations during the course of interview as well as reports from primary care workers or family.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Slight awkwardness in movements or minor rigidity of posture
4 **Moderate** – Movements are notably awkward or disjointed, or an unnatural posture is maintained for brief periods.
5 **Moderate Severe** - Occasional bizarre rituals or contorted posture are observed, or an abnormal position is sustained for extended periods.
6 **Severe** - Frequent repetition of bizarre rituals, mannerisms or stereotyped movements, or a contorted posture is sustained for extended periods.
7 **Extreme** - Functioning is seriously impaired by virtually constant involvement in ritualistic, manneristic, or stereotyped movements or by an unnatural fixed posture which is sustained most of the time.

G6. DEPRESSION - Feelings of sadness, discouragement, helplessness and pessimism.

Basis for rating - Verbal report of depressed mood during the course of interview and its observed influence on attitude and behaviour.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Expresses some sadness of discouragement only on questioning, but there is no evidence of depression in general attitude or demeanor.
4 **Moderate** - Distinct feelings of sadness or hopelessness, which may be spontaneously divulged, but depressed mood has no major impact on behaviour or social functioning and the patient usually can be cheered up.
5 **Moderate Severe** - Distinctly depressed mood is associated with obvious sadness, pessimism, loss of social interest, psychomotor retardation and some interference in appetite and sleep. The patient cannot be easily cheered up.
6 **Severe** - Markedly depressed mood is associated with sustained feelings of misery, occasional crying, hopelessness and worthlessness. In addition, there is major interference in appetite and or sleep as well as in normal motor and social functions, with possible signs of self-neglect.
7 **Extreme** - Depressive feelings seriously interfere in most major functions. The manifestations include frequent crying, pronounced somatic symptoms, impaired concentration, psychomotor retardation, social disinterest, self neglect, possible depressive or nihilistic delusions and/or possible suicidal thoughts or action.

G7. MOTOR RETARDATION – Reduction in motor activity as reflected in slowing or lessening or movements and speech, diminished responsiveness of stimuli, and reduced body tone.

Basis for rating - Manifestations during the course of interview as well as reports by primary care workers as well as family.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Slight but noticeable diminution in rate of movements and speech. Patient may be somewhat underproductive in conversation and gestures.
4 **Moderate** - Patient is clearly slow in movements, and speech may be characterised by poor productivity including long response latency, extended pauses or slow pace.
5 **Moderate Severe** – A marked reduction in motor activity renders communication highly unproductive or delimits functioning in social and occupational situations. Patient can usually be found sitting or lying down.
6 **Severe** - Movements are extremely slow, resulting in a minimum of activity and speech. Essentially the day is spent sitting idly or lying down.
7 **Extreme** - Patient is almost completely immobile and virtually unresponsive to external stimuli.

G8. **UNCOOPERATIVENESS –** Active refusal to comply with the will of significant others, including the interviewer, hospital staff or family, which may be associated with distrust, defensiveness, stubbornness, negativism, rejection of authority, hostility or belligerence.

Basis for rating – Interpersonal behaviour observed during the course of the interview as well as reports by primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Complies with an attitude of resentment, impatience, or sarcasm. May inoffensively object to sensitive probing during the interview.
4. **Moderate** - Occasional outright refusal to comply with normal social demands, such as making own bed, attending scheduled programmes, etc. The patient may project a hostile, defensive or negative attitude but usually can be worked with.
5. **Moderate Severe** - Patient frequently is incompliant with the demands of his milieu and may be characterised by other as an "outcast" or having "a serious attitude problem". Uncooperativeness is reflected in obvious defensiveness or irritability with the interviewer and possible unwillingness to address many questions.
6. **Severe** - Patient is highly uncooperative, negativistic and possibly also belligerent. Refuses to comply with the most social demands and may be unwilling to initiate or conclude the full interview.
7. **Extreme** - Active resistance seriously impact on virtually all major areas of functioning. Patient may refuse to join in any social activities, tend to personal hygiene, converse with family or staff and participate even briefly in an interview.

G9. **UNUSUAL THOUGHT CONTENT** - Thinking characterised by strange, fantastic or bizarre ideas, ranging from those which are remote or atypical to those which are distorted, illogical and patently absurd.

Basis for rating – Thought content expressed during the course of interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Thought content is somewhat peculiar, or idiosyncratic, or familiar ideas are framed in an odd context.
4. **Moderate** - Ideas are frequently distorted and occasionally seem quite bizarre.
5. **Moderate Severe** - Patient expresses many strange and fantastic thoughts, (e.g. Being the adopted son of a king, being an escapee from death row), or some which are patently absurd (e.g. Having hundreds of children, receiving radio messages from outer space from a tooth filling).
6. **Severe** - Patient expresses many illogical or absurd ideas or some which have a distinctly bizarre quality (e.g. having three heads, being a visitor from another planet).
7. **Extreme** - Thinking is replete with absurd, bizarre and grotesque ideas.

G10. **DISORIENTATION** - Lack of awareness of one's relationship to the milieu, including persons, place and time, which may be due to confusion or withdrawal.

Basis for rating – Responses to interview questions on orientation.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - General orientation is adequate but there is some difficulty with specifics. For example, patient knows his location but not the street address, knows hospital staff names but not their functions, knows the month but confuses the day of the week with an adjacent day, or errs in the date by more than two days. There may be narrowing of interest evidenced by familiarity with the immediate but not extended milieu, such as ability to identify staff but not the mayor, governor, or president.
4. **Moderate** - Only partial success in recognising persons, places and time. For example, patient knows he is in a hospital but not its name, knows the name of the city but not the borough or district, knows the name of his primary therapist but not many other direct care workers, knows the year or season but not sure of the month.
5. **Moderate Severe** - Considerable failure in recognising persons, place and time. Patient has only a vague notion of where he is and seems unfamiliar with most people in his milieu. He may identify the year correctly or nearly but not know the current month, day of week or even the season.
6. **Severe** - Marked failure in recognising persons, place and time. For example, patient has no knowledge of his whereabouts, confuses the date by more than one year, can name only one or two individuals in his current life.
7. **Extreme** - Patient appears completely disorientated with regard to persons, place and time. There is gross confusion or total ignorance about one's location, the current year and even the most familiar people, such as parents, spouse, friends and primary therapist.

G11. POOR ATTENTION - Failure in focused alertness manifested by poor concentration, distractibility from internal and external stimuli, and difficulty in harnessing, sustaining or shifting focus to new stimuli.

Basis for rating – Manifestations during the course of interview.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Limited concentration evidenced by occasional vulnerability to distraction and faltering attention toward the end of the interview.
4 **Moderate** - Conversation is affected by the tendency to be easily distracted, difficulty in long sustaining concentration on a given topic, or problems in shifting attention to new topics.
5 **Moderate Severe** - Conversation is seriously hampered by poor concentration, distractibility, and difficulty in shifting focus appropriately..
6 **Severe** - Patient's attention can be harnessed for only brief moments or with great effort, due to marked distraction by internal or external stimuli.
7 **Extreme** - Attention is so disrupted that even brief conversation is not possible.

G12. LACK OF JUDGEMENT AND INSIGHT - Impaired awareness or understanding of one's own psychiatric condition and life situation. This is evidenced by failure to recognise past or present psychiatric illness or symptoms, denial of need for psychiatric hospitalisation or treatment, decisions characterised by poor anticipation or consequences, and unrealistic short-term and long-range planning.

Basis for rating – Thought content expressed during the interview.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Recognises having a psychiatric disorder but clearly underestimates its seriousness, the implications for treatment, or the importance of taking measures to avoid relapse. Future planning may be poorly conceived.
4 **Moderate** - Patient shows only a vague or shallow recognition of illness. There may be fluctuations in acknowledgement of being ill or little awareness of major symptoms which are present, such as delusions, disorganised thinking, suspiciousness and social withdrawal. The patient may rationalise the need for treatment in terms of its relieving lesser symptoms, such as anxiety, tension and sleep difficulty.
5 **Moderate Severe** - Acknowledges past but not present psychiatric disorder. If challenged, the patient may concede the presence of some unrelated or insignificant symptoms, which tend to be explained away by gross misinterpretation or delusional thinking. The need for psychiatric treatment similarly goes unrecognised.
6 **Severe** - Patient denies ever having had a psychiatric disorder. He disavows the presence of any psychiatric symptoms in the past or present and, though compliant, denies the need for treatment and hospitalisation.
7 **Extreme** - Emphatic denial of past and present psychiatric illness. Current hospitalisation and treatment are given a delusional interpretation (e.g. as punishment fro misdeeds, as persecution by tormentors, etc), and the patient thus refuse to cooperate with therapists, medication or other aspects of treatment.

G13. DISTURBANCE OF VOLITION – Disturbance in the wilful initiation, sustenance and control of one's thoughts, behaviour, movements and speech.

Basis for rating - Thought content and behaviour manifested in the course of interview.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - There is evidence of some indecisiveness in conversation and thinking, which may impede verbal and cognitive processes to a minor extent.
4 **Moderate** - Patient is often ambivalent and shows clear difficulty in reaching decisions. Conversation may be marred by alteration in thinking, and in consequence, verbal and cognitive functioning are clearly impaired.
5 **Moderate Severe** - Disturbance of volition interferes in thinking as well as behaviour. Patient shows pronounced indecision that impedes the initiation and continuation of social and motor activities, and which also may be evidence in halting speech.
6 **Severe** - Disturbance of volition interferes in the execution of simple automatic motor functions, such as dressing or grooming, and markedly affects speech.
7 **Extreme** – Almost complete failure of volition is manifested by gross inhibition of movement and speech resulting in immobility and/or mutism.

G14. **POOR IMPULSE CONTROL** - Disordered regulation and control of action on inner urges, resulting in sudden, unmodulated, arbitrary or misdirected discharge of tension and emotions without concern about consequences.

Basis for rating – Behaviour during the course of interview and reported by primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Patient tends to be easily angered and frustrated when facing stress or denied gratification but rarely acts on impulse.
4. **Moderate** - Patient gets angered and verbally abusive with minimal provocation. May be occasionally threatening, destructive, or have one or two episodes involving physical confrontation or a minor brawl.
5. **Moderate Severe** - Patient exhibits repeated impulsive episodes involving verbal abuse, destruction of property, or physical threats. There may be one or two episodes involving serious assault, for which the patient requires isolation, physical restraint, or p.r.n. sedation.
6. **Severe** - Patient frequently is impulsive aggressive, threatening, demanding, and destructive, without any apparent consideration of consequences. Shows assualtive behaviour and may also be sexually offensive and possibly respond behaviourally to hallucinatory commands.
7. **Extreme** - Patient exhibits homicidal, sexual assaults, repeated brutality, or self-destructive behaviour. Requires constant direct supervision or external constraints because of inability to control dangerous impulses.

G15. **PREOCCUPATION -** Absorption with internally generated thoughts and feelings and with autistic experiences to the detriment of reality orientation and adaptive behaviour.

Basis for rating - Interpersonal behaviour observed during the course of interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Excessive involvement with personal needs or problems, such that conversation veers back to egocentric themes and there is diminished concerned exhibited toward others.
4. **Moderate** - Patient occasionally appears self-absorbed, as if daydreaming or involved with internal experiences, which interferes with communication to a minor extent.
5. **Moderate Severe** - Patient often appears to be engaged in autistic experiences, as evidenced by behaviours that significantly intrude on social and communicational functions, such as the presence of a vacant stare, muttering or talking to oneself, or involvement with stereotyped motor patterns.
6. **Severe** - Marked preoccupation with autistic experiences, which seriously delimits concentration, ability to converse, and orientation to the milieu. The patient frequently may be observed smiling, laughing, muttering, talking, or shouting to himself.
7. **Extreme** - Gross absorption with autistic experiences, which profoundly affects all major realms of behaviour. The patient constantly may be responding verbally or behaviourally to hallucinations and show little awareness of other people or the external milieu.

G16. **ACTIVE SOCIAL AVOIDANCE** - Diminished social involvement associated with unwarranted fear, hostility, or distrust.

Basis for rating - Reports of social functioning primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Patient seems ill at ease in the presence of others of others and prefers to spend time alone, although he participates in social functions when required.
4. **Moderate** - Patient begrudgingly attends all or most social activities but may needs to be persuaded or may terminate prematurely on account of anxiety, suspiciousness, or hostility.
5. **Moderate Severe** - Patient fearfully or angrily keeps away from many social interactions despite others' efforts to engage him. Tends to spend unstructured time alone.
6. **Severe** - Patient participates in very few social activities because of fear, hostility, or distrust. When approached, the patient shows a strong tendency to break off interactions, and generally he tends to isolate himself from others.
7. **Extreme** - Patient cannot be engaged in social activities because of pronounced fears, hostility, or persecutory delusions. To the extent possible, he avoids all interactions and remains isolated from others.