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BRIEF PAPER

The Effectiveness of Perceptual Thinking Index (PTI) of Rorschach Comprehensive System in Diagnosing Schizophrenia in India: A Pilot Study

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One of the widely used psycho-diagnostic tests is the Rorschach Inkblot Test (RIBT). The studies on Perceptual Thinking Index (PTI) from the RIBT protocol, developed to diagnose schizophrenia, have been conducted in many countries but, there is dearth of studies in Indian context. Forty-five subjects, 15 each in schizophrenia, Anxiety Spectrum Disorders (ASD) and Normal Control (NC) group were randomly assessed with socio-demographic data sheet, Positive and Negative Syndrome Scale (PANSS), Hamilton Anxiety Rating Scale (HAM-A) and Rorschach Test. Statistical analyses including effect size (ES) estimation revealed that variables of PTI have differentiated schizophrenia from ASD and normal group. Medium to large ES of five out of seven variables between the groups have also revealed effectiveness of the index.

Keywords: Comprehensive System, Rorschach Inkblot Test, Perceptual Thinking Index, Schizophrenia, Anxiety Spectrum Disorder

The Rorschach Inkblot Test (RIBT) is one of the oldest and most utilized psychological tests in US by professionals according to many reviews (Camara, Nathan & Punte 2000; Piotrowski & Keller, 1989). Exner's Comprehensive System (CS) of the RIBT is unique from the other existing systems in three major ways. First, it is more quantitative in nature and reduces subjectivity in interpretation; second, the availability of six indices and third, availability of eight interpretive domains, which give a global depiction of subjects from both normal and psychopathological perspectives.

One of the most studied indices of CS is Perceptual Thinking Index (PTI), which was earlier known as Schizophrenia Index (SCZI). This was designed to deliver maximum psychopathological depiction of the schizophrenic patients.

PTI was built on four criteria given by Weiner (1966) for diagnosing a schizophrenic patient: the presence of a thought disorder, evidence of inaccurate perception of reality, poor emotional control and ineffectiveness in interpersonal relationships. In 1978, Exner included the most related variables of these criteria in CS and formulated SCZI with six criteria in 1978 and further revised in 1989. Subsequent evidence of studies revealing that many non-patients, adults, adolescents, non-schizophrenic psychotics and patients with mood disorder with psychosis responded positively to those criteria (false positive responses) finally led to the development of PTI (Exner, 2000) with five criteria. X- and WSum6 are the two common variables of the two indices and reflect as an indicator of the disorder in the perception of reality (when X-%>29%) and WSum6 (weighted sum of 6 severe special scores, positive when WSum6>12 for R<17or WSum6>16 for R>16) indicates the presence of serious thought disorders in schizophrenia.

Hilsenworth et al. (2007) have demonstrated significant and positive correlation between each variable with the total PTI score (item-scale correlation) suggesting all criteria are interrelated and serve the same purpose. They had found 0.79, 0.77, 0.57, 0.57 and 0.59 correlation coefficients respectively for the five criteria and stated that they were above the cut off (0.30) of acceptable coefficient values as per

psychometric standards proposed by Nunnally and Bernstein (1994).They had also reported significant, positive relationship of PTI scores with the earlier SCZI scores. In a cross-cultural study, Ritsher (2004) has reported effectiveness of PTI in diagnosing Russian psychotic adults. Jorgensen et al. (2000) found PTI could identify psychotic patients who were diagnosed by interview process.

Need for the Study

The first use of Rorschach method in India is traced back to 1947 when Prasad and Asthana examined the meaning of different scores and analyzed responses (Bhargava and Saxena, 1995). Since then many studies have been conducted in India on schizophrenia and other psychiatric and non-psychiatric populations, but they mainly used Klopfer or Beck systems. But application of the CS in India is still rare. Manickam and Dubey (2005) recommended this system since it has an electronic version also for quick interpretation and is suggested for more utilization by young scholars, clinicians and professionals.

Dwivedi, Mishra & Dubey (1995) examined and compared the efficiency of SIS-II and CS indices, but hardly any other study attempted to explore the effectiveness of specific indices like PTI on schizophrenia and other comparisons of psychiatric and normal controls. The present study attempted to examine whether variables of PTI can discriminate schizophrenia from a non-psychotic psychiatric condition, like Anxiety Spectrum Disorder since it is phenomenologically independent from psychotic disorders, and compare the findings with the normal group.

Though a good number of studies demonstrate effectiveness of PTI in diagnosing schizophrenia, but cultural factors also determine response patterns on Rorschach. Many studies in past (for example, Ames &August, 1966; Krall et al. 1983 on African-American groups) revealed different norms for location, determinants and content categories than Western norms and reasoned out possible underlying factors like defensive attitude, awareness of the test etc. In India, Pershad and Parekh (2001) reported few different response patterns in their norms of the studied Psychiatric conditions. Need for Indian norms of Rorschach has been emphasized by Chaudhury et al. (2006), Singh, Singh and Singh (2004).In this context, the current pilot study attempts to understand the effectiveness of PTI in India.

Methodology

Sample: This was a hospital based, cross sectional, between group study using random sampling method to collect its clinical sample from inpatient and outpatient wards from Hospital for Mental health(HMH), Ahmedabad, Gujarat. ICD-10 criteria were used to confirm the diagnoses of 15 patients of schizophrenia and 15 Anxiety Spectrum Disorders (ASD). From schizophrenia group, 13 patients met the criteria of paranoid and two undifferentiated schizophrenia. In ASD group, 10 patients met the criteria of Obsessive Compulsive Disorder (OCD), three patients met criteria of Generalized Anxiety Disorder (GAD) and rest two had panic disorder.

The major exclusion criteria were substance dependence, mental retardation, history of treatment by ECT, any comorbid medical and psychiatric conditions and history of any organic condition. The inclusion age range was 18-50 (to rule out age related changes in visual acuity), minimum education of 5th standard and minimum six months of illness history. First 20 schizophrenic patients, admitted in the hospital's acute ward in the months of August - September, 2016 and first 20 anxiety patients, who had visited hospitals' OPD in the same months, were randomly selected for the study. Finally, 15 patients in each group were selected as per inclusion and exclusion criteria.

Normal comparison group was contacted through staffs of hospital and their relatives. All subjects participated in the study voluntarily following sanctioning the consent form. The study was approved by the research ethical committee of the hospital.

Measures and Procedure:Following the consent form and socio-demographic data sheet, the Hamilton Rating Scale (HAM-A, Hamilton, 1959), and Positive and Negative Syndrome Scale (PANSS, Kay et al. 1987 were administered to confirm the diagnoses and quantify the severity of their illness. General

HealthQuestionnaire-28 (GHQ-28,Goldberg, 1978) was administered to rule out presence of any significant medical or psychological disturbance in the normal group. After an interval of 10 minutes Rorschach test was administered as per CS (Exner, 2003) protocol. Initially, 20 subjects in each group were collected. Protocols had less than 14 numbers of responses and Lamda value of more than 1 were rejected for analysis. For the schizophrenia group, the average time span for data accumulation was total 130 minutes, for ASD group 110 minutes and 105 minutes for NC group.

Hypothesis: There will be significant differences in PTI index among the respondents of the three groups, namely, schizophrenia, ASD and normal control.

Results

Socio Demographic Data: The mean age of the schizophrenia, ASD and NC are 31.40 (±8.60), 34.20 (±10.13) and 29.13 (±9.98), respectively. Sixty percent of the subjects of the three groups belonged to the middle SES. 60%and 80% of the schizophrenia and anxiety patients, respectively, were from urban background and 93% of each group belonged to the nuclear family type. Regarding clinical data, both the groups had similar duration of illness, mean of which for schizophrenia is 6.23 and anxiety group is 5.89 years.

The mean HAM-A score of anxiety patients was 25.26 (±6.19). In schizophrenia, for PANSS, mean positive syndrome score was 19.73 (±6.8), mean negative syndrome score was 19.06 (± 4.19) and general psychopathology was 37.93 (±7.02). Mean GHQ score of the NC group was 4.26 (±1.28) which was lower than its cut off (6) suggest they were free from any physical or psychiatric symptoms.

TR: Total number of responses, XA%: Form appropriate extended Areas, WDA%: Form appropriate common areas, X+%: Conventional form, X-%: Distorted form, WSum6: Weighted Sum of six special scores, M-: Distorted human movement responses.

Results of the Kruskal Wallis test-Five variables out of the studied seven variables of

Table 1: Mean (SD), Mean Rank and Chi-Square Values of Kruskal Wallis Test and Effect Sizes for PTI variables across the three groups

	Schizophrenia Mean (±SD) & Mean Rank	Anxiety spectrum Disorders Mean(±SD) & Mean Rank	Normal Control Mean(±SD) & Mean Rank	Chi-Square Values	Effect Size (r) Schiz-NC	Effect Size (r) Schiz-ASD	Effect Size (r) ASD-NC
TR	19.26 (± 4.62) 16.23	24.60 (±10.11) 23.27	25.66 (±5.50) 29.50	7.70*	0.78	0.30	0.26
XA%	0.71 (±0.18) 19.23	0.76 (±0.13) 21.90	0.83 (±0.15) 27.87	3.41	0.45	0.15	0.32
WDA%	0.74 (±0.18) 16.70	0.81(±0.20) 21.70	0.95(±0.16) 30.60	8.67***	0.71	0.30	0.51
X+%	0.41 (±0.15) 19.17	0.39 (±0.15) 17.80	0.62 (±0.22) 32.03	10.73**	0.68	0.06	0.77
X-%	0.27 (0.13) 30.70	0.18 (± 0.14) 22.43	0.13(±0.12) 15.87	9.67***	0.80	0.43	0.34
WSum6	17.73 (±7.50) 34.33	2.66 (±1.70) 19.67	0.53 (±.40) 15.00	21.40***	0.99	0.83	0.36
M-	0.20 (±0.56) 20.97	0.13 (±0.35) 20.67	0.80 (±1.20) 27.37	4.72	0.43	0.01	0.46

*P<.05; **p<0.01; ***p<0.005; level of significance

PTI have shown significant difference among the three groups.

Table 1 reveals that mean values of X-% and WSum6 (indicative of psychopathology) are significantly higher in schizophrenia than ASD and NC group at p<0.005 and p<0.001 levels respectively. Mean values of TR, WDA% and X+% (indicative of normal perceptual processes) are significantly lower in schizophrenia than ASD and NC group at p<0.05, p<0.005 and p<0.01levels respectively.

Effect Size (ES) Analysis: This was done by using the formula of Rosenthal (1991). Field (2005) suggested the formula is analogous to the parametric Cohen's d.

The analysis was intended to quantify the extent of the differences between the groups on PTI variables. The small, medium and large ES values are referred from Cohen's (1988) standard classification of ES. The above mentioned five out of seven variables of PTI have shown consistently large values between Schizophrenia and NC group, where the range is X+ (0.68) to WSum6 (0.99). ES values are found to be small to large when compared between schizophrenia and ASD group, small ES (0.06) was found for X+ and large ES (0.83) was seen for WSum6 variable. Between ASD and NC group, small ES was found for TR (0.26) and large was X+% (0.77).

Discussion

This pilot study aimed to understand the effectiveness of PTI as one of the CS's indices, in differentiating schizophrenia from non-psychotic psychiatric condition and normal controls in Indian population. Results suggest that the special scores (WSum6) variables of PTI remain as the major variable in differentiating schizophrenia from the other groups. The current findings are consistent with many earlier foreign researches who have found other PTI related variables and special scores (WSum6) higher in schizophrenia group (e.g., Archer & Gordon, 1988; Hilsenroth, Fowler, & Padawer, 1998). Even critics of the test also agree that these variables are well related to schizophrenia (e.g., Wood, et al., 1996a).

Psychotic features are conceptualized as misinterpretation of naturally occurring stimulus or attaching an additional irrational meaning to those stimuli in the environment. A cognitive triad, which is the combination of three interpretive domains, the CS manual tries to understand this through explaining how inappropriate translation (Mediational deficit) and pathological conceptualization (Ideational deficit) of the natural environmental input (Information Processing) are responsible for psychopathology. The findings are consistent with the information processing deficit (Wagner et al.1998) model of these patients.

Mihura, Meyer, Damirascu and Bombel's (2013) exhaustive systematic review and meta-analysis of validity of 65 core Rorschach variables from the 2,467 articles, revealed excellent support (r≥0.33,p<0.001) for the major five variables of PTI; X+%, X-%, XA%, WDA% and M. PTI and S-CON were the two indices among six which also came under the excellent support category.

Conclusion

Despite the limited sample size, the findings are quite reinforcing to continue further studies with greater sample size in different geographical locations across India. In case of supportive findings, PTI as an index of CS, can be thought to utilize effectively to diagnose schizophrenia in India.

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CASE STUDY

Thinking about thinking: Innovative Methods to Improve Mentalization in a Client with Borderline Personality Disorder

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Developmental psychopathology models of borderline personality disorder (BPD) have linked early attachment vulnerabilities with reduced capacities for mentalization and consequent disturbances in psychological and interpersonal functioning. Addressing impairments in the ability to understand the mental states (e.g. emotions, needs, thoughts, intentions) of one self and others, is an emerging focus in therapy for BPD. This case report illustrates the process of 32 sessions of individual therapy with a 26-year-old woman diagnosed with BPD. 'Concrete mentalization' and 'pseudo-mentalization' were some of the prominent styles of thinking observed in the client. Techniques to address her hypersensitivity to perceived rejection and her difficulties in understanding the intentions of others were introduced as an adjunct to Dialectical Behaviour Therapy. Innovative methods such as story-telling, comic strips and roleplays were used to enhance mentalization and were associated with increased client engagement and gains in therapy. The challenges experienced and therapist reflections on the therapy process are discussed in this paper.

Keywords: Borderline Personality Disorder, mentalization, psychotherapy.

Impairments across emotional, cognitive, behavioural and interpersonal domains are characteristic of Borderline Personality Disorder (BPD) (Sansilow et al., 2002; Sharp & Vanwoerden, 2015; Skodol et al., 2005; Zanarini, Frankenburg, Hennen, Reich, & Silk, 2005).

These difficulties in affect regulation, impulsivity as well as problems in the interpersonal interaction seem to manifest even in the early developmental phases. Several models describe the development of BPD symptoms based on early experiences during formative years; including attachment frameworks (Ainsworth, 1978; Bowlby, 1973), the biosocial theory (Linehan, 1993), and psychodynamic approaches (Adler, 1985; Kernberg, 1975, Mahler & Kaplan, 1977). The mentalization based approach, proposed by Fonagy & Luyten (2009), places disruptions in the acquisition of mentalization, as critical processes in the pathway towards adult psychopathology. Mentalization, the ability to understand the cognitive and affective aspects of the mental states of both the self and others, is acquired in the crucible of early attachment, and facilitates effective navigation of our social world. In a seminal article, Fonagy (1991) discussed difficulties in "thinking about thinking'' and in forming a realistic and reasonable picture of feelings, beliefs, desires and intentions, among persons with borderline personality disorders. These problems result in impairments in the capacity for self-awareness, the regulation and transformation of one's own emotions and in interpersonal interactions, which might be characterized by interpersonal antagonism, suspiciousness and impulsivity (Minzenberg, Poole & Vinogradov, 2006).

Research has explored mentalization deficits among persons with borderline pathology, using a range of task-based measures and self-reports. Studies indicated difficulties in the accurate recognition of emotions from facial expressions (Fenske et al, 2015; Domes et

al, 2008), lower levels of cognitive empathy (Harari, Shamay-Tsoory, Ravid & Levkovitz, 2010), a tendency to infer more than the facts available (hypermentalization) (Sharp et al, 2013), personalizing bias and self-reported difficulties in mentalization across various domains (Vijayaraghavan, Bhola, Thirthalli & Mehta, 2016). Some conflicting results point to the lack of significant differences in the accuracy of emotional recognition between persons with BPD and healthy controls (Minzenberg, Poole & Vinogradov, 2006; Domes et al, 2008). Overall, most studies have concluded that individuals having BPD are likely to misperceive intentions, feelings and thoughts of others and react without clearly understanding their own minds.

Clinical trials have indicated the efficacy of a psychodynamically based manualized mentalization-based therapy (MBT) (Bateman & Fonagy, 2006; Bateman & Fonagy, 2009) for BPD that places mentalizing at the center of the therapeutic process. This approach involves both individual and group formats and extends for about 18 months.

This case report demonstrates the use of innovative methods aimed at improving mentalization in a client with BPD, as an adjunct to dialectical behaviour therapy, during three months of inpatient intervention.

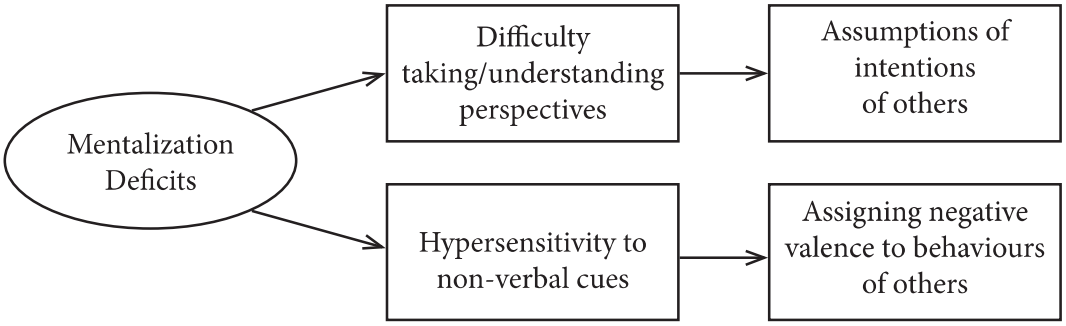
Case Report

Case Summary: SP was a 26-year-old married woman with a history of unstable intimate relationships, mood dysregulation episodes and low frustration tolerance. She reported chronic feelings of emptiness, impulsivity along with risk-taking behaviours and multiple occurrences of non-suicidal self-injurious behaviour (e.g. cutting). Disruptions in her relationship with a woman, which began through online interactions, resulted in an exacerbation of these problems. There was a family history of depression in the mother, significant marital discord between the parents and uninvolved parenting by the father. She had a personal history of average performance through school, with previously undiagnosed childhood Attention Deficit Hyperactivity Disorder (ADHD). At the time of admission, her mental status examination revealed worries about the future, guilt and ruminations about past events. Her subjective mood was low, though she appeared euthymic.

Psychological Assessments: The provisional diagnoses at admission included Post Traumatic Stress Disorder vs. Complicated Grief and Attention Deficit Hyperactivity Disorder on Axis I and a comorbid diagnosis of Emotionally Unstable Personality Disorder (borderline type) on Axis II. Psychological assessments were conducted for a comprehensive understanding of her personality, interpersonal relationships, attachment style, emotion regulation and mood. The assessments included Rorschach Inkblot Test (Klopfer & Davidson, 1962), Thematic Apperception Test (Murray, & Harvard University, 1943), Sentence Completion Test (Sacks, & Levy, 1950), Difficulties in Emotional Regulation Scale (Gratz & Roemer, 2004), Beck's Depression Inventory (Beck, 1961) and Attachment Style Questionnaire (Feeney, Noller, & Hanrahan, 1994). The findings indicated that the client had a very poor understanding of self as well as an inaccurate evaluation of her own abilities. Poor ego strength was reflected in low frustration tolerance, emotional instability and a largely external locus of control. Assessments also revealed that she had difficulties in identifying as well as managing her emotions and engaging in goal-directed behaviours. An anxious attachment style was manifested in her often overwhelming needs for affection and dependency, coupled with fears of abandonment. She was excessively concerned about others' perceptions and negative evaluations and tended to feel misunderstood and rejected. She was ambivalent about her sexual orientation and distressed about difficult interactions with her spouse and parents. Depressive symptoms were reported in the moderate range on the Beck's Depression Inventory.

Therapy Process & Techniques: The client was referred for psychotherapy and participated in a total of 32 sessions during her admission

Figure 1: Identifying Mentalization Deficits in the Client with Borderline Personality Disorder



at the hospital. There was a change of therapist from the 15th session onwards due to scheduling difficulties. The initial focus of therapy was on distress tolerance and emotional regulation, for which she was encouraged to maintain a Daily Thought Record (Beck, Rush, Shaw & Emery, 1979) as well as a descriptive diary. The Daily Thought Record tracked her thoughts, emotions and behaviours throughout the day. However, throughout the initial phase of therapy, it was found that most of the emotional dysregulation stemmed from ongoing difficulties in interactions with her parents as well as with friends during online exchanges. These difficulties were experienced as most salient by the client and dominated the discussions during the sessions. Her descriptions suggested that mentalization deficits were contributing to the disruptions in interpersonal encounters and rigid and repetitive patterns of relationships.

The client was extremely sensitive to social rejection and social threats and this was most evident in her close relationships. She was vigilant and perceptive about non-verbal emotional cues but, found it difficult to gauge the intentions and dispositions of others. She tended to make assumptions about others' mental states, which went beyond observable data. It was also noticed that the client was more likely to assign negative valence while appraising emotionally neutral stimuli. She also had difficulty understanding how others' actions affected her state of mind and how this, in turn, affected her reactions. This failure to understand and appreciate internal states is an indicator of 'concrete mentalization' (Bateman & Fonagy, 2006). 'Pseudo-mentalization' (Bateman & Fonagy, 2006), on the other hand, is the tendency express absolute certainty without appreciating the 'opaqueness' of another's mind. It is also possible that the client's symptoms of attention deficit hyperactivity disorder contributed to her impulsive actions and her mentalization deficits.

Her difficulties in mentalization were more evident in situations of emotional arousal where she found it extremely difficult to understand that two people may see or interpret the same thing differently depending on their vantage point. For example, the client would interpret her mother turning away from her, while lying on the bed, to be a sign of rejection. She would become upset and extremely angry at her mother. This in turn would influence her interactions with her mother, ultimately leading to an explosive argument.

In multiple instances, she felt that friends who did not respond to her phone calls were being deliberately unavailable, rejecting and hurtful. During assessment of these events during the session, she would be convinced about others' negative intentions, without considering any other possible explanation for their non-response; for example, being busy or away from the phone at the time. Her perception of the situation would remain unchanged even if the friend did call back after a few hours. Overall, the content and style of her narratives and explanation of events were suggestive of both 'concrete mentalization' and 'pseudo-

mentalization'.

Supervisory discussions suggested the need to understand these difficulties in "thinking about thinking" (Fonagy, 1991) more comprehensively, and to address them in future sessions.

In the first session, following the decision to alter the focus of therapy, the therapist shared this conceptualization of her interpersonal difficulties in terms of deficits in mentalization. Instances from her Daily Thought Record were used to demonstrate her hypersensitivity to non-verbal cues of rejection and threat as well as her tendency to make assumptions about the mental states of others. She was asked to use this record to identify other situations where similar processes were evident.

While the client participated in this process, verbal discussions of these recent interpersonal situations would lead to emotional escalations. It was then difficult to keep mentalization as a focus and nothing productive could be achieved in these initial sessions. Other methods to enhance the understanding of mental states, which might be less emotionally overwhelming, were considered. Given her interest in art and her previous training in animation, a visual medium was chosen to help her understand thoughts and feelings in social situations better.

Using comic strips in therapy

In the subsequent sessions, various situations, both general as well as ones from her life, were used to create scenarios for drawing comic strips. She was encouraged to come up with alternate responses from the protagonist, each of which gave rise to different outcomes. The sessions concluded with a summarization of what was discussed through these strips and her understanding of the mental states of others. Through these activities, she was led to understand that others' minds were opaque; it was difficult to know exactly what the other person was thinking. The aim of this activity was to improve mentalizing ability; to build in flexibility in considering multiple possibilities for others' behavior, as well as one's own.

Using Stories in therapy

Once she understood the process better and became more comfortable with it, stories which were closer approximations to her own life, were used to explain similar concepts. Here, the therapist would begin a story and narrate to a point where there was some altercation. The client was then asked to find multiple endings for the story, based on how each of the different reactions of the protagonist would lead to different responses from others and consequently result in different endings. Stories were used as a mode to illuminate mentalization processes such as judging the accuracy of one's understanding of another's emotions, or intentions; its effect on one's own emotions, and appropriate and effective responses. This approach enabled the discussion and reconstruction of past interpersonal events as well as anticipated issues with others.

By this time, the client was more aware of the subtleties of social interactions and of how her actions and reactions could lead to a spiral of events. However, these changes were not reflected in her behaviours, though in retrospect she would be able to identify failures in mentalization and generate alternate possibilities. At this stage, role plays were planned to facilitate generalization to her current interactions.

Using role-plays in therapy

During the role plays the focus was on her tendency to be hypervigilant to cues of rejection (real and imagined). She was urged to notice the non-verbal cues without making assumptions about intentions. Even if she did assume intentions, she was encouraged to give the other person the benefit of doubt. For example, in one instance when her mother refused to get her a glass of water, she immediately assumed that this was a sign about her mother's disapproval of her behavior earlier in the day. During the role play, she could step back and remind herself that

other people's minds are opaque. She clarified the intent behind her mother's refusal and averted an emotional outburst. The series of role plays increased her confidence in dealing with potentially distressing interpersonal situations.

The client demonstrated growing enthusiasm and involvement in the sessions. She reported that her initial apprehensions about these methods stemmed from worries about the therapist's evaluation of her drawing skills. She also mentioned that she could understand concepts through the comic strips and stories better and felt these were more effective for her than verbal discussions alone. The role plays were helpful in the modification of her behaviours in interpersonal interactions.

Overall, positive changes were observed in her interactions with her parents though some difficulties continued even at the time of discharge. She could understand her own mind better, including the way she thought and how she tended to interpret what others thought. Also, she could give her parents the benefit of doubt and would clarify what they meant in uncertain situations, displaying an attempt to overcome concrete mentalization. She was also able to take perspectives, albeit often post the event. She was aware of her tendency to be sensitive to rejection and loneliness and would keep track of her thoughts and emotions rather than doing something impulsively. Overall, there were noticeable changes in her regulation of emotions and tolerance of distress.

Sessions had to be terminated as the client's discharge was finalized. The learnings were reviewed and consolidated and she was prepared for potential problems that might arise following discharge and her return to her home.

Working with this client was challenging as she was someone who got easily overwhelmed and distressed by minor disturbances in interpersonal interactions. Sessions tended to be unpredictable and disorganised and the client would tend to ramble and bring up a range of current and past issues. Initially, the therapist struggled to set goals and introduce more structure in the sessions. While she was given time to ventilate in the session, it was restricted so that other therapeutic goals could be addressed.

The methods using comic strips and stories were new and both the therapist and supervisor were uncertain and somewhat apprehensive about their acceptability and efficacy. Although the client was also hesitant, she was willing to try. This was probably due to her growing trust in the therapist and the ability to use the therapy setting as a secure base to explore things out of her comfort zone.

The negotiation of the client-therapist alliance was an important learning ground in this therapeutic encounter. The therapist had to be extremely sensitive while establishing boundaries in therapy as the client would perceive these as rejections. The therapist also had to constantly be aware of the client's tendency to assume or misinterpret her actions. In fact, there were instances where the client would notice that the therapist was tired but, would attribute that to a lack of interest or would feel that she was being too burdensome. In the initial phase, the therapist had to proactively look out for and correct these perceptions. Interestingly, as therapy progressed, the client began to clarify her perceptions with the therapist rather than making assumptions. The positive alliance also helped the client push herself to use the techniques introduced to improve perspective taking. The use of these innovative methods to address mentalization deficits was a challenge but, also helped the therapist broaden her repertoire of skills.

Discussion

This case report elucidates the importance of addressing mentalization deficits in persons diagnosed with BPD, using concrete and interactive methods as an adjunct to dialectical behavior therapy.

With increasing research confirming the presence of mentalization deficits in persons

with BPD (Fenske et al., 2015; Domes et al., 2008; Harari et al., 2010; Sharp et al., 2013), pre-therapy assessments to understand the extent and areas of deficits might be beneficial in planning therapy. Research has indicated that both task-based as well as self-report measures are required to understand mentalization comprehensively in this group of clients (Sharp & Vanwoerden, 2015). Some of the task based assessments such as Reading the Mind in the Eye (RMET) (Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997) or Pictures of Facial Affect (PFA) (Ekman & Friesen, 1976) assess the subject's ability to recognize emotions from photographs of only the eyes or the entire face. The Movie for Assessment of Social Cognition (MASC) (Dziobek et al., 2006) is another task, which uses movie clips to assess mentalization. Besides these, there are self-report measures such as Reflective Functioning Questionnaire (RFQ) (Fonagy et al., 2016) or Mentalization Questionnaire (MZQ) (Hausberg et al., 2012) that could help understand the mentalization ability in these individuals. Though there are different measures of mentalization, it is essential to develop culturally relevant measures and use structured assessments to track changes.

A large portion of research in social cognition, Theory of Mind (ToM) and mentalization, often uses comics and stories for assessment (Sarfati, Hardy-Bayle, Besche & Widlocher, 1997; Gallagher, Happe, Brunswick, Fletcher, Frith & Frith, 1999). This might be because stories or narratives often simulate the social world and encourage empathy besides allowing for transmission of social knowledge (Mar & Oatley, 2008). Studies have shown that people tend to spontaneously ascribe mental states to even simple geometrical figures when they move in ways that appear to be chasing, fighting etc. (Abell, Happe & Frith, 2000). The brain areas that are activated during observation of these stimuli are the same ones activated during other ToM tasks (Castelli, Frith, Happe & Frith, 2002). Recent research in cognitive neuroscience has also found that the neural networks for mentalizing and narrative comprehension overlap (Mar, 2011). This implies that comic strips and stories may be effective in enhancing mentalization abilities in people with these deficits and could be a helpful medium in therapy.

This case report suggests that a focus on mentalization capacity during therapy has the potential for bringing about changes in various dimensions of affect and behaviour among clients with BPD.

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LETTER TO THE EDITOR

HOME-BASED EXERCISE TRAINING FOR BLIND CHILDREN

Dear Editor-in-Chief

Legally-blind student is a term used to define students whose best visual ability is 3,6 or lower. According to this definition, a person who cannot read a test card in 90 feet (about 91 cm) is considered blind, as opposed to a visually-able person, who can read it in 60 feet (about 1829 cm) (Cuturi, Aggius-Vella, Campus, Parmiggiani, & Gori, 2016). It is a well-established fact that visual deprivation causes structural and functional reorganization in both the deprived and the intact sensory cortices (Lieberman, Byrne, Mattern, Watt, & Fernandez-Vivo, 2010). Although functional and structural changes after sensory deprivation have been studied extensively, relatively little is known about how these changes relate to each other and there is also lack of a specific non-pharmacological treatment for this issue. Having healthy children can be regarded as God's greatest gift to humankind, but on the other hand, having exceptional children (deaf and blind) puts a lot of psychological pressure on family members, especially mothers (De Laat, Freriksen, & Vervloed, 2013). In many cases, such children are sent by their parents to special educational centers for schooling. However, some of these children are sent to normal schools and are taught using what is known as combined education (Pérez-Pereira & Conti-Ramsden, 2013). It is undeniable that family mental health directly affects the academic achievements of children. Child disability influences the behavior and attitude of mothers, and the process of improvement of mental and physical status of disabilities is under the influence of the characteristics and behavior of mothers (De Laat et al., 2013; Pérez-Pereira & Conti-Ramsden, 2013). As such, it is very important for mothers to know how to improve the abilities of their blind children.

Till now, most past studies are focused on treatment with medicines and there would be some side effects for visually-impaired children. Other forms of treatments are mostly focused on educational improvements that try to improve their abilities with academic learning, but in both of these methods there is a gap in physical activity and exercise. Regular physical activity can affect the physiological, psychological and physical characteristics of children (Shariat, Shariat, Abedi, & Tamrin, 2014). It can directly affect their mood and participation in social physical activities and it can also improve their communication abilities (Lieberman et al., 2010). Plus, as blind children are mostly seated and inactive in comparison with other children, this will result in atrophy in their muscles and it can further impair their balance in gait (Lieberman et al., 2010).

Creating a practical solution to this problem for blind children is a high priority, and this has led to the aim of producing an easy, practical series of training exercises that can be performed at home and will benefit the physical, psychological and physiological abilities of this population without producing any side-effects. The first aim of this series of exercise training will be to improve the balance among blind children. Previous research suggests that doing a series of physical activities would be useful but, so far, there have been no clear instructions regarding the specific exercises that should be undertaken (Lieberman et al., 2010). The main hypothesis underlying this study, based upon the scientific literature, is that improving the balance among blind children can be achieved by increasing the flexibility and strength of trunk muscles.

Therefore, the exercises should include some stretching and resistance training, and they should be easy to perform by blind children at home without the need for any special apparatus. The exercises should target the upper and lower body, particularly the core muscles and vertebral column. The optimal timing for partaking of this package is 3-4 times per week. Each exercise should be done 10 times (or for 10-15 s), with 60-90 seconds of rest in between different exercises. The duration of this series of exercise should be short, and it should be gentle enough to not cause fatigue or pain. Yoga, meditation and other stretching-based exercise training are suggested more than any other type of exercise training. It is suggested that the correct way to perform the exercises should be taught to mothers by a licensed coach for them to transfer this knowledge to their children (Cuturi et al., 2016; Shariat et al., 2014). This series of exercises should be introduced to children as a fun and recreational activity, indicative of the need for them to enjoy enough.

As a take-home message, the series of exercise training for blind children is new and designed to improve the balance among this population. Partaking in these regular types of exercise training would have effects on their learning abilities as well. More importantly, getting to sleep more easily and feeling more comfortable during sleep are other positive effects of this physical exercise package.

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