Visual Assessment of Therapeutic Relationships in Psychiatric Patients: A Pilot Study Using the Pictorial Representation of Illness and Self Measure

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Summary: *Background*: Although the therapeutic relationship (or 'alliance') is well known to be a key component of psychiatric treatment, there has been no simple way to objectively measure the patient-therapist relationship. Here, we measured the psychological distance between patients and their therapists by using the Pictorial Representation of Illness and Self Measure (PRISM).

Patients and Methods: We analyzed the patient-therapist relationship of 112 patients from two hospitals in Japan (54 males, 57 females, 1 unknown; age 46.20 ± 15.03 years [mean $\pm$ SD]) who completed the PRISM and self-report questionnaires (LSNS-6, K6, and BASIS-32) about their social network, psychological distress, and outcomes of mental health treatment.

Results: PRISM measurements were available for all patients who consented to participate. In the comparison by disease category, schizophrenia recorded the closest distance to the psychiatrist in charge, followed by bipolar disorder, depression, and neurotic disorder. Regarding the distance to the psychiatrist in charge, PRISM showed a weak negative correlation ($r = -0.23$, $p < 0.05$) with age, indicating that with increasing age, the therapeutic relationship was more important to the patients.

Conclusion: Our findings indicate the possibility of implementing PRISM to assess the impact of the therapeutic relationship in patients with a wide range of psychiatric disorders, and they suggest that PRISM holds great potential for clinical application.

Keywords pictorial representation of illness and self measure, PRISM, therapeutic relationship, therapeutic alliance, psychological distance, psychiatric disorder

INTRODUCTION

Psychiatric treatment consists mainly of pharmacotherapy and psychotherapy. The therapeutic relationship (or 'alliance') between a patient and his or her therapist or psychiatrist is well known to be a key component of psychiatric treatment [1,2]; however, no simple way to objectively measure the patient-therapist relationship has been established. The existing methods of measuring the patient-therapist relationship include case report descriptions and questionnaire studies such as the Working Alliance Inventory (WAI) [3]. A systematic review of the therapeutic alliance in psychological therapy for people with schizophrenia showed that a therapeutic alliance using validated measures predicts overall psychotic symptomatic outcomes, and the review's authors noted that there is a need to consider the alliance from the perspective of

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both the patient and the therapist during therapy [4].

A potential disadvantage of using a questionnaire is that the questionnaire may be dependent on the respondent's language abilities. In addition, if a questionnaire is comprised of a large number of items to answer, the psychological burden may be too large for patients with mental illness.

To address these weaknesses, we developed a plan to use the Pictorial Representation of Illness and Self Measure (PRISM), a visual tool that assesses relevant subject-object relationships by measuring the distance between oneself and an object in a two-dimensional flat space [5,6]. A person's suffering due to illness can be estimated using Self-Illness Separation (SIS), which measures the distance between the centers of the Self and Illness Disks. Since the development of PRISM in 1998, various measurement targets have been examined [5,7], e.g., suicidality [8], job [9], traumatic events [10], and risk perception of overseas travelers [11]. To the best of our knowledge, PRISM has not been used to measure the quality of the relationship between patients and therapists. We speculated that PRISM could be applicable to patients with psychiatric disorders because it is simple to administer, and it is easy to avoid asking patients to answer questions that may lead to psychological burdens.

Using PRISM, we conducted the present study to measure the therapeutic relationship between patients and therapists. We suspected that we could determine how patients' psychopathology levels affect the psychological distance between them and their therapists by comparing the PRISM results of patients in different categories of psychiatric disorders (obtained from the patients' medical records).

Our hypotheses were that: (*i*) patients with schizophrenia would have a greater psychological distance — meaning a weaker therapeutic alliance — than patients in other disease categories (especially depression and neurotic disorders), and (*ii*) among the patients, the psychological distance from their therapists would be negatively correlated with psychological distress. The reason why we hypothesized that patients with schizophrenia would have greater distance from their therapists was that a core characteristic of schizophrenia is a lack of awareness of their illness [12] and that they tend not to feel the need for treatment. We thought it logical that the relationship with the therapist would be distant if the patients did not feel that the treatment was meaningful. Regarding the second hypothesis, we considered that subjective distress might cause people to seek treatment and become closer to the therapist.

PATIENTS AND METHODS

Patients

The data collection was conducted from June 2018 to November 2019. The subjects included a total of 79 outpatients and 33 inpatients from the psychiatric departments of two hospitals in Japan. The inclusion criterion was patients who were ≥ 20 years old. We excluded patients: (*i*) with organic psychiatric diseases such as epilepsy and dementia and (*ii*) those considered inappropriate for the study by the principal investigator and sub-investigators. Possible exclusions include being too agitated to calmly listen to the explanation, being unable to understand the explanation due to thought blocking and inhibition of thought, and being unable to respond to the psychiatrist in charge.

In Japan, the interval between visits to a psychiatric department for most patients is generally 2–4 weeks. For inpatients, the frequency of patient interviews is not fixed, but interviews lasting ~30 min are often scheduled 1 or 2 times/week. In this study, we did not investigate the intervals between visits for individual patients.

Procedures

A questionnaire request form was distributed to the participants. Explanations about voluntary participation, the purpose and methods of the study, the survey items, the protection of personal information, and contact information were conducted orally, and written consent was obtained from each participant. After the patients' completion of PRISM, their sociodemographic data were obtained, and a self-administered questionnaire was provided. The results were collected by the research collaborators at the two study sites. The total duration of the survey was ~15 min. Each patient's primary psychiatric disorder was extracted from his or her medical records, and the extracted information of primary psychiatric disorders was classified as schizophrenia, bipolar affective disorder, depression, neurotic disorder, and others according to the ICD-10 classification system.

Assessment tools

The Pictorial Representation of Illness and Self Measure (PRISM) (Fig. 1) was used as a tool to measure the therapeutic relationship using the psychological distance between patients and the psychiatrists in charge. PRISM was originally developed for patients with chronic illness and patients who complained of pain, and it has shown high reliability [13]. In the pre-

sent protocol, the patients were told that an A4-size white metal plate represented the patient's life, and the 7-cm-diameter yellow circle at the lower right corner indicates the patient's 'self.' The patient was given a 5-cm-diameter magnet (A) and asked to imagine the space between the therapist as the object and him/herself ('self') and place the magnet at the appropriate distance. The distance between the stationary 'self' circle and the placed magnet was measured as the psychological distance.

The Lubben Social Network Scale (LSNS-6) is a scale originally developed to assess the social network of elderly people [14]. The Japanese version of the LSNS-6 was used in the study of residents who were affected by the Fukushima Daiichi Nuclear Power Plant accident [15], and the results demonstrated that this scale could be used for all age groups of adults. The Japanese version of LSNS-6 was validated by Kurimoto et al. in 2011 [16]. The higher the score on the LSNS-6, the broader the social network; scores <12 points are considered to indicate social isolation.

The Kessler Psychological Distress scale, Six-item (K6), is a self-administered questionnaire to assess depression and anxiety symptoms [17]. The K6 is scored as 0–24 points, with higher scores indicating greater psychological distress. The Japanese version of the K6 was validated by Furukawa et al. in 2008 [18] and by Sakurai et al. in 2011 [19].
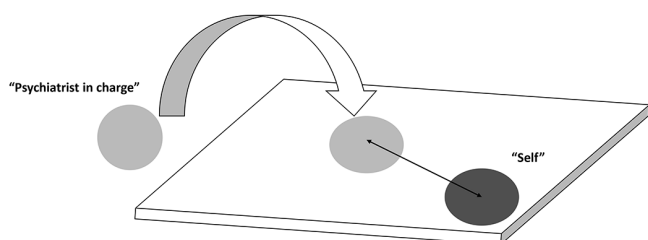

Fig. 1. The Pictorial Representation of Illness and Self Measure (PRISM) method.

The Behavior and Symptom Identification Scale (BASIS-32), developed by Eisen et al. in 1996 [20], is a 32-item self-report scale for the assessment of behaviors and symptoms with five subscales: relation to self/others, daily living/role functioning, depression/anxiety, impulsive/addictive, psychosis. It assesses the outcomes of mental health treatment from the patient's perspective. The Japanese version of the BASIS-32 was validated by Setoya et al. [21]. The scores range from 0 to 128, with higher scores indicating a poorer assessment of the mental health treatment.

Statistical analyses

Since the PRISM distance data used in this study did not show a normal distribution, nonparametric tests were used. The Mann-Whitney U-test was used for comparisons between two groups, and the Kruskal-Wallis test was used for comparisons between three or more groups. Spearman's rank correlation coefficient was used for correlations. The significance level was set at 5%. The statistical analyses were performed using JMP Pro 16.1 (SAS Institute, Cary, NC, USA).

Ethical considerations

This study was conducted with the approval of the Ethics Committee of Kurume University (No. 18060).

RESULTS

The patients' sociodemographic data

Table 1 summarizes the sociodemographic data of the 112 patients (54 males, 57 females, 1 unknown; age 46.20 ± 15.03 years [mean $\pm$ SD]). Their ages were significantly different by disease category (χ^2 (3) = 9.6, p = 0.02), and the Steel-Dwass test showed a significant difference in age between the patients with schizophrenia and those with neurotic disorders (|Z| = 2.83, p = 0.02). The mean duration of treatment with

TABLE 1.
Sociodemographic data of the study participants (n=112; 54 males, 57 females, 1 unknown)

	n	Age, yrs; mean $\pm$ SD	Duration of treatment with the psychiatrist in charge, months; mean $\pm$ SD
All	112	46.20 ± 15.03	42.02 ± 46.02
Schizophrenia	43	50.67 ± 14.70	59.74 ± 50.26
Bipolar disorder	23	47.91 ± 13.25	34.70 ± 49.50
Major depression disorder	18	46.22 ± 14.01	34.61 ± 31.25
Neurotic disorder (anxiety disorders, and trauma and stress-related disorders)	24	38.92 ± 15.74	27.96 ± 9.18
Others	4	n/a	n/a

the psychiatrist in charge was 42.02 months (SD 46.02 months) but ranged from 0 to 177 months (median 23.5 months). There was a significant difference in the duration of treatment with the psychiatrist in charge by disease categories (χ^2 (3) = 15.0, p < 0.01). The Steel-Dwass test showed a significant difference between the duration of treatment of the schizophrenia patients and that of the bipolar disorder patients and between the duration of treatment of the schizophrenia patients and that of the neurotic disorder patients (|Z| = 3.27, p < 0.01; |Z| = 2.96, p = 0.016).

Psychological distances by PRISM

The data of the distances measured by PRISM is shown in Table 2. The therapist-patient distances showed a wide distribution. There were no significant differences in the PRISM distance by sex or disease category. However, there were several issues that are worth considering in detail. (*i*) In a comparison between male and female patients, the distance to the psychiatrist in charge was approx. 15 mm closer for male patients. (*ii*) In the comparison by disease category, schizophrenia was the closest to the psychiatrist in charge, followed by bipolar disorder, depression, and neurotic disorder, respectively.

Assessment scales

The mean scores of the LSNS-6, K6, and BASIS-32 were 9.90 (SD 5.84), 9.15 (SD 6.24), and 28.36 (SD 21.94), respectively. There were no significant differences by sex or disease category in the LSNS-6, K6, or BASIS-32.

Relationship between the PRISM distances and other measures

The correlations between the distance shown by PRISM and the results of the other measures are shown in Table 3. Regarding the distance to the psychiatrist in charge, PRISM showed a weak negative correlation with age. There were no significant correlations between PRISM and the LSNS-6, K6, and BASIS-32 assessment measures.

TABLE 2.
Distance between the patients and psychiatrists in charge

	Mean ± SD	Median	Range	|z|	p
All, n = 112	119.0 ± 62.2	116	5–269	n/a	n/a
Male, n = 54	111.4 ± 54.2	116	5–269	0.89	0.4
Female, n = 57	126.2 ± 68.7	110	10–265		
Disease category:	Mean ± SD	Median	Range	H	p
Schizophrenia, n = 43	107.0 ± 58.3	90	5–269	3.34	0.3
Bipolar disorder, n = 23	114.0 ± 57.7	106	10–250		
Major depression disorder, n = 18	128.6 ± 58.8	126	39–257		
Neurotic disorders, n = 24	137.4 ± 74.1	128	13–264		

TABLE 3.
Correlations between the distance shown by the PRISM and other measures

	PRISM Psychiatrist in charge	Age	K6 Total	LSNS6 Total	BASIS32 Total
PRISM					
Psychiatrist in charge	1				
Age	−0.23*	1			
K6 Total	0.03	−0.38**	1		
LSNS6 Total	−0.04	0.05	−0.23*	1	
BASIS32 Total	0.08	−0.39**	0.77**	−0.23*	1

*p<0.05, **p<0.01. BASIS: Behavior and Symptom Identification Scale, K6: Kessler Psychological Distress Scale: 6-item, LSNS: Lubben Social Network Scale, PRISM: Pictorial Representation of Illness and Self Measure.

DISCUSSION

To the best of our knowledge, this is the first study to use PRISM as a psychological distance measure for therapists. PRISM measurements were available for all the patients who consented to participate in this study, and the results suggest that the study participants clearly understood the meaning of PRISM. Our results are consistent with the statement by Sensky & Büchi (2016) that PRISM is simple to administer, readily understood, and yields personally salient results quickly [5]. Since some of our study participants might have difficulties in cognitive functions because of mental illness, it is especially important that we observe the feasibility of using PRISM to measure the patient-therapist relationship.

Regarding the distance between the patients and the psychiatrists in charge, our results did not support our hypothesis that patients with schizophrenia would have a less intensive therapeutic relationship, as expressed by a greater psychological distance from therapists. Unexpectedly, our results were in the opposite direction. A weak negative correlation was identified between the distance from the therapist shown by PRISM and the patient's age, and the results also revealed that the patients with schizophrenia were older than those with neurotic disorders, suggesting that there may have been some age-related factors involved.

It has been reported that the therapeutic alliance in schizophrenic patients strengthens with age [22]. Our finding that the duration of treatment with the patients' therapists was also the longest among the patients with schizophrenia may also have been reflected in the closeness of the patient-therapist relationship. However, another study obtained inconsistent results, i.e., that age and length of treatment with the current therapist were unrelated to the treatment alliance and that the treatment alliance was stable over time [23].

A study by Nechamkin et al. (2003) compared patients with schizophrenia and healthy controls by using the Comfortable Interpersonal Distance (CID) scale, which measures interpersonal distance by imagining the patient at the center of a 9-mm-radius circle in a two-dimensional plane and illustrating the safe distance from others approaching from the outside [24]. They observed that compared to the healthy participants, the patients with schizophrenia indicated significantly greater distances from family members and their own image; however, there was no significant difference in the distances between patients and 'significant others' such as friends, physicians, and superiors. Considering our findings, in which the PRISM distance is rather close in patients with schizophrenia, it would be possible to illustrate the physician-patient relationship investigated in the present study as a 'significant others' relationship, as shown in Nechamkin's study. It is important to note that PRISM and CID are not the same concepts: CID focuses on the personal space of the patient by indicating the distance at which he/she feels safe when the other person approaches him/her in the center. In PRISM, patients are asked to indicate their relationship with their doctor directly in terms of distance. Fear of being approached is associated with CID, but no such fear is thought to be associated with PRISM.

Interestingly, Nechamkin et al. reported that the CID scale distances were not correlated with positive symptoms of schizophrenia, but they were correlated with negative symptoms. To elaborate, when negative symptoms were severe, patients tended to distance themselves from family members and other close people, while they tended to be closer to those they should generally distance themselves from, such as threatening people. However, this result is not consistent; in a more recent study, interpersonal distancing from threat-related and hostile figures by the CID was associated with psychotic and affective symptoms [25]. Although we did not measure the severity of the patients' symptoms in this study, the distance between the patients and their therapists may have been influenced by their symptom profiles.

Our patients with depression showed greater distances from their therapists compared to the patients with schizophrenia, although there were no significant differences between them. A study using the CID scale among patients with depression, patients with schizophrenia, and a non-patient group [25] showed that distances from generally positively-valenced stimuli (self-images, family members, and significant others) were significantly larger for depressive individuals than for healthy subjects, but they were similar to the analogous distances for patients with schizophrenia; whereas distances from strangers (emotionally neutral and hostile stimuli) were similar in the depressed and control participants, although they substantially exceeded those in the schizophrenia group. Comparing our results to this previously published paper, there seemed to be a similarity with respect to the distance to the therapist, as indicated by the positively-valenced relationship.

The PRISM distances shown by the present patients in the category of neurotic disorders also revealed an interesting finding. Of the studies that meas-

ured personal space without the use of a planar metaphor (in which patients were actually in the room and asked to report the distance at which they would feel safe if a stranger entered the room), one study compared patients with anxiety disorders to patients with schizophrenia [26]. The study's results demonstrated that the distance reported by patients with anxiety was greater than that of patients with schizophrenia. In another investigation that used the 127-item Inventory of Interpersonal Problems scale for students, the interpersonal distance was determined by social anxiety scores, not depression, and higher social anxiety was observed to result in a greater interpersonal distance [27]. Taken together, our present findings suggest that the disease-specific distances to therapists are consistent with previous findings.

Our results did not support our second hypothesis that the psychological distance from their therapists would be negatively correlated with psychological distress. In the present study, the number of subjects was small, so we could not examine correlations by disease. It could be explained that the relationship between psychological distress and PRISM was not observed due to the various disease and severity groups being included. Future studies will shed more light on this point when the number of subjects is increased, and it becomes possible to examine correlations by severity and types of disease.

It is possible that differences in the treatment environment may affect the treatment relationship. A study compared the quality of the therapeutic alliance between psychodynamic-interpersonal and cognitive behavioral therapy in 57 clients with depression [28], and their results indicated significantly greater alliance scores for cognitive behavioral therapy sessions on the whole. Regarding whether the treatment environment differs by disease categories, we suspect that there is not much difference in the treatment settings in Japan. In the Japanese healthcare insurance system, there is no system to determine the fee for psychotherapy by the length of time, and each interview is generally ≤15 minutes. The duration of the interview is largely dependent on individual factors, and there are a few factors that can be distinguished by disease categories. We believe that the difference in the proximity by disease categories shown in our present study indicates how patients feel about the presence of a psychiatrist in charge, regardless of the duration or formality of the interview.

There are several limitations to this study. Because this was a cross-sectional study, we could not examine intra-individual variability. Although the main purpose of the study was to analyze the differences among disease categories, the number of subjects in each disease category varied. This may have affected the results. The patients' disease classification was obtained from their medical records, but another limitation is that the disease classification was determined based on the name of the primary disease alone. In addition, we did not investigate the characteristics of the psychiatrists in charge.

Despite these limitations, we believe that this study presents the possibility of implementing PRISM for patients with a wide range of psychiatric disorders and that PRISM has great potential for clinical application. In addition, differences in the psychological distance shown by PRISM due to the content of medications and changes in the relationship with the therapist over time, during the course of treatment, can be discussed between patients and therapists with whom a trusting relationship has been established.

CONCLUSION

Our results demonstrated the possibility of implementing PRISM as a tool to measure the therapeutic relationship in psychiatric patients. We hope that future longitudinal and large-scale studies will be conducted based on the results of this study. Since cultural differences may exist in the relationship with physicians and in attitudes, international comparative studies are also encouraged. The measurement of psychological distance as an application of the PRISM technique could be widely used to help patients to communicate their views.

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