Functioning of psychiatric daycare users in Japan and the background factors that affect their abilities

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Abstract—**The present study aimed to clarify the state of and background factors affecting functioning in Users of psychiatric daycare centers in Japan. A questionnaire survey based on the Self-Rating Scale for Functioning of Individuals with Mental Disorders was conducted on 1,176 Users and 916 psychiatric hospital outpatients between September 2008 and February 2009. The mean functioning score of Users was 91.4±19.1 points, which was higher than that of Patients. Functioning scores were higher in Users with goals compared to those without goals. Background factors that led to improvement in functioning scores of Users were short duration of daycare use, having a goal other than to control symptoms, high assertiveness, and doing most of the cleaning at home.**

Keywords-schizophrenia; support for daily living; Self-Rating Scale for Functioning of Individuals with Mental Disorders; schizophrenia; psychiatric daycare centers

I. INTRODUCTION

Functioning refers to an individual's ability to participate in society, considered from a positive perspective [1]. Based on the International Classification of Functioning, Disability and Health, the authors developed a Self-Rating Scale for Functioning of Individuals with Mental Disorders (Functioning Scale) to evaluate the ability of individuals with mental disorders to participate in society from a positive perspective [2,3].

Japan's mental health and welfare policy focuses on enabling individuals with mental disorders to live independently. The ultimate goal of rehabilitation is complete independence without any requirement of support. However, the basic objective of rehabilitation is the restoration of rights and dignity. Therefore, the ultimate goal of rehabilitation differs between individuals. The important point is to regard life and daily living from a positive perspective [4].

Psychiatric daycare centers (Centers) provide structured support for individuals with mental disorders. As users of psychiatric daycare centers (Users) outnumber users of all other rehabilitation facilities [5], gaining an understanding of their functioning will provide an overall picture of the functioning of individuals with mental disorders. Based on the Functioning Scale, the present study aimed to clarify User functioning and the background factors that affect their abilities.

II. CHARACTERISTICS OF CENTERS IN JAPAN

Within Japan's mental health and welfare measures, Centers are given a similar status as hospital outpatient departments as facilities that provide medical care [5]. However, the practical role of Centers differs from that of hospital outpatient departments [6]. In addition to medical care, Centers also provide support for daily living. This support is particularly effective at responding to the various problems of daily living experienced by individuals with mental disorders.

Centers were first established in Japan in 1974, and as of June 2015, there were 1,499 Centers nationwide, of which 1,048 (69.9%) were established by hospitals, receiving 706,648 Users (including 2,751 new Users) over an average of 21.8 days per month [5]. Centers aim to support individuals with mental disorders who have difficulty with daily living. Users, around 80% of which have schizophrenia [7], are attended by specialists including nurses, occupational therapists, and doctors. Centers provide morning and afternoon programs that include cooking, sports, and group psychotherapy.

III. METHODS

A. Participants

Participants comprised Japanese individuals aged ≥20 years diagnosed with schizophrenia who were either attending Centers established by psychiatric hospitals (Users; n=1,176) or psychiatric hospital outpatient departments (Patients; n=916). Patients did not attend Centers and were not admitted to a hospital during the study period.

B. Survey Methods

We conducted a questionnaire survey by postal mail between September 2008 and February 2009.

C. Questionnaire Contents

Questionnaire contents were related to the Functioning Scale and background factors that affect Users' abilities. Questions regarding background factors pertained to both functioning and daycare use (Users only) and daily living (Users and Patients).

The Center use-related questions comprised the duration of current use; the number of days of use in the previous

month; and the goals of use, for which participants selected multiple answers from seven possible goals [6]. Daily living-related questions asked the participant's age; sex; level of assertiveness; if they used public transport; if they lived with someone else; and who did most of the laundry, most of the cleaning, and most of the cooking at home.

D. Functioning Scale

We previously confirmed the reliability and validity of the Functioning Scale, which measures the ability of individuals with schizophrenia to participate in society from a positive perspective [2,3]. The 42-item scale is composed of two sub-scales: activities (18 items) and participation (24 items). The activities sub-scale measures the ability to execute particular tasks and actions, while the participation sub-scale measures the ability to engage in daily living and life situations. A high score (range, 0–126) indicates high functioning. Two particular features of this scale are that it evaluates the ability to participate in society from a positive perspective and is based on the areas of daily living that are necessary for an individual to participate in society [2,3].

E. The Japanese version of the Rathus assertiveness schedule (J-RAS)

The Rathus Assertiveness Schedule (RAS), originally developed by Rathus in 1973, is the scale most widely used for measuring assertiveness. The questionnaire comprises 30 questions, wherein a situation or statement is given for each question and respondents are asked to indicate how well each item describes them from a scale of −3, −2, −1, 1, 2, or 3, with 3 indicating "very much like me" and −3 indicating "very much unlike me." The scale does not include 0, a neutral response. The total score is calculated by adding the points, which range between −90 and +90 points. Higher total scores indicate higher abilities to self-assert.

In November 2002, we obtained permission from the Association for Advancement of Behavior Therapy to create the J-RAS. The J-RAS assesses Japanese individuals' abilities to self-assert. We previously translated the RAS into Japanese and confirmed its validity and reliability [8]. We used the J-RAS in the present study because it is based on the most frequently used scale in the world for measuring assertiveness [9] and because it assumes a general situation for each question and hence avoids the bias implicit in specific circumstances.

F. Ethical Considerations

We obtained approval from the Ethics Committees of Yamagata University (Yamagata City, Japan). We conducted the study according to the ethical guidelines for clinical studies by the Ministry of Health, Labor and Welfare of Japan. The nature of the study was explained in writing to the director of each research facility for their approval. We explained the nature of the study, the voluntary nature of participation, freedom to withdraw from the study at any time without penalty, and protection of personal information to all participants in writing.

Subsequently, participants' responses to the questionnaire were considered to indicate acquisition of consent.

G. Analysis and methods

Data from the 311 Users and 77 Patients who consented to participate and had no missing or redundant questionnaire items (valid response rates, 28.1% and 8.4%, respectively) were statistically analyzed using SPSS Statistic 25 (Japan). The Mann-Whitney U test was used to compare functioning based on background factors while Spearman's rank correlation was applied to the relationship between functioning and background factors. Forced-entry multiple regression analysis was used to clarify the background factors affecting functioning.

IV. RESULTS

A. User and Patient Background Factors

User background factors are shown in Table I. The mean duration of Center use was 60.6±57.1 months with 171 Users (55.0%) attending for ≥3 years. The mean number of days of use in the previous month was 12.3±7.4. The mean number of goals of use was 3.3±2.0, and the most common goal was to increase proficiency in daily living (n=197 [63.3%]).

TABLE I. BACKGROUND FACTORS RELATED TO CENTER USE (USERS ONLY)

	Users (n=311)	
	Mean	*Standard deviation*
Duration of use (months)	60.6	57.1
No. of days of use per month	12.3	7.4
No. of goals of use	3.3	2.0
	n	%
Goals of use (multiple answers possible)		
Increase proficiency in daily living	197	63.3
Get along well with others	170	54.7
Enjoy daily living	140	45.0
Have aims and a reason for living	140	45.0
Control symptoms	134	43.1
Live true to self	119	38.3
Find people who can be trusted	112	36.0
Other	25	8.0

The background factors of both Users and Patients are shown in Table II. Users comprised 201 men (64.6%) and 110 women (35.4%). The mean age of Users was 47.2±11.9 years with 224 Users (72.0%) aged ≥40 years. The mean assertiveness score of Users was -7.9±20.1 points. A total of 181 Users (58.2%) used public transport; 214 (68.8%) lived with someone else; 204 (65.6%) did the laundry; 187 (60.1%) did the cleaning, and 110 (35.4%) did the cooking. Patients comprised 42 men (54.5%) and 35 (45.5%) women. The mean age of Patients was 49.5±13.4 years with 56 (72.7%) Patients aged ≥40 years. The mean assertiveness score of Patients was -17.2±22.0 points. A total of 25 Patients (32.5%) used public transport; 56 (72.7%) lived with someone else; 48 (62.3%) did the laundry; 41 (53.2%) did the cleaning; and 31 (40.3%) did the cooking.

TABLE II. BACKGROUND FACTORS RELATED TO DAILY LIVING

	Users (n=311)		Patients (n=77)	
	Mean	Standard deviation	Mean	Standard deviation
Age (years)	47.2	11.9	49.5	13.4
Assertiveness score	-7.3	20.1	-17.2	22.0
	n	%	n	%
Sex				
Men	201	64.6	42	54.5
Women	110	35.4	35	45.5
Use of public transport				
Yes	181	58.2	25	32.5
No	130	41.8	52	67.5
Living with someone else				
Yes	214	68.8	56	72.7
No	97	31.2	21	27.3
Person who does most of the laundry				
Self	204	65.6	48	62.3
Other	107	34.4	29	37.7
Person who does most of the cleaning				
Self	187	60.1	41	53.2
Other	127	39.9	36	46.8
Person who does most of the cooking				
Self	110	35.4	31	40.3
Other	201	64.6	46	59.7

B. User and Patient Functioning Scores

With regard to functioning scores (Table III), there were significant differences between mean User and Patient functioning scores (91.4±19.1 vs. 84.9±20.4, respectively; $p<0.05$) and participation scores (50.8±12.2 vs. 45.1±15.3, respectively; $p<0.01$). There was no significant difference between mean User and Patient activities scores (40.7±9.2 vs. 39.9±9.6, respectively).

TABLE III. COMPARISON BETWEEN USER AND PATIENT FUNCTIONING SCORES

	Users (n=311)		Patients (n=77)		
	Mean	Standard deviation	Mean	Standard deviation	
Functioning score	91.4	19.1	84.9	20.4	*
Activities score	40.7	9.2	39.9	9.6	
Participation score	50.8	12.2	45.1	15.3	**

Mann-Whitney U test *: p<0.05, **: p<0.01

C. Comparison of Functioning Based on Background Factors for Users and Patients

The results for Users were as follows (Tables IV, V). Comparison of User functioning scores based on the goals of use (Table IV) revealed significant differences between Users with and without the following goals: get along well with others, 94.3±18.1 vs. 88.0±20.0, respectively ($p<0.05$); enjoy daily living, 95.1±17.3 vs. 88.4±20.1, respectively ($p<0.01$); and have aims and a reason for living, 96.8±17.3 vs. 87.0±19.5, respectively ($p<0.01$). There were no significant differences in functioning scores for increased proficiency in daily living, and the goals of control symptoms, live true to self, increase proficiency in daily living and find people who can be trusted.

With regard to background factors related to daily living (Table V), there were significant differences in functioning scores between Users based on sex (men, 89.4±19.4 vs. women, 92.1±18.1; $p<0.05$), doing most of the laundry, (self, 93.4±18.7 vs. other, 87.6±19.4; $p<0.05$), doing most of the

cleaning (self, 95.3±17.7 vs. other, 85.6±19.9; $p<0.01$), and doing most of the cooking (self, 94.8±17.9 vs. other, 89.5±19.6; $p<0.05$). There were no significant differences in User functioning scores based on use of public transport or living with someone else.

With regard to Patient functioning scores (Table V), significant differences were observed in functioning scores between Patients who did and did not do most of the cooking (92.0±21.8 vs. 80.2±18.1, respectively; $p<0.01$) and sex (men, 80.2±22.0 vs. women, 90.1±17.0; $p<0.05$). There were no significant differences in Patient functioning scores based on use of public transport, living with someone else, doing the laundry or doing the cleaning.

TABLE IV. COMPARISON OF FUNCTIONING SCORES BASED ON GOALS OF USE (USERS ONLY)

	Users (n=311)	
	Functioning scores	
	Mean	Standard deviation
Increase proficiency in daily living (n=197)	92.6	19.7
Without that goal (n=114)	89.4	18.0
Get along well with others (n=170)	94.3	18.1 *
Without that goal (n=141)	88.0	20.0
Enjoy daily living (n=140)	95.1	17.3 **
Without that goal (n=171)	88.4	20.1
Have aims and a reason for living (n=140)	96.8	17.3 **
Without that goal (n=171)	87.0	19.5
Control symptoms (n=134)	91.1	19.9
Without that goal (n=177)	91.6	18.6
Live true to self (n=119)	93.0	19.3
Without that goal (n=192)	90.4	19.0
Find people who can be trusted (n=112)	94.7	16.7
Without that goal (n=189)	89.3	20.3

Mann-Whitney U test *: p<0.05, **: p<0.01

TABLE V. COMPARISON OF FUNCTIONING SCORES BASED ON BACKGROUND FACTORS RELATED TO DAILY LIVING

	Users (n=311)			Patients (n=77)		
		Functioning scores			Functioning scores	
	n	Mean	Standard deviation	n	Mean	Standard deviation
Sex						
Men	201	89.4	19.4 *	42	80.2	22.0 *
Women	110	92.1	18.1	35	90.1	17.0
Use of public transport						
Yes	181	92.9	17.9	25	85.4	21.3
No	130	89.3	20.7	52	84.7	20.2
Living with someone else						
Yes	214	90.7	19.0	56	86.1	19.0
No	97	92.9	19.5	21	81.7	23.9
Person who does most of the laundry						
Self	204	93.4	18.7 *	48	85.5	21.1
Other	107	87.6	19.4	29	84.1	19.5
Person who does most of the cleaning						
Self	187	95.3	17.7 **	41	87.7	20.9
Other	127	85.6	19.9	36	81.8	19.7
Person who does most of the cooking						
Self	110	94.8	17.9 *	31	92.0	21.8 **
Other	201	89.5	19.6	46	80.2	18.1

Mann-Whitney U test *: p<0.05, **: p<0.01

D. Relationship between Functioning Scores and Background Factors

There was a significant positive correlation between User functioning scores and assertiveness score (r=0.32, p<0.01) and number of goals of use (r=0.20, p<0.01). There was no relationship between Patient functioning scores and age or assertiveness score (Table VI).

TABLE VI. RELATIONSHIP BETWEEN FUNCTIONING SCORES AND BACKGROUND FACTORS

	Users (n=311)	Patients (n=77)
	functioning scores	*functioning scores*
Age	0.06	-0.09
Assertiveness score	0.32**	0.19
Duration of use	-0.08	—
No. of days of use per month	0.01	—
No. of goals of use	0.20**	—

Spearman's rank correlation **: p<0.01

E. Background Factors Affecting Functioning Scores

Factors with a significant relationship with functioning scores comprised assertiveness score (β=0.27, p<0.01), mainly doing the cleaning (β=0.17, p<0.01), duration of use (β=-0.11, p<0.01), and having a goal other than to control symptoms (β=0.24, p<0.05) for Users. These determinants contributed to functioning score (Table VI).

TABLE VII. BACKGROUND FACTORS AFFECTING FUNCTIONING SCORES

	Users (n=311)	Patients (n=77)
	Functioning scores	*Functioning scores*
	β	*β*
Age	-0.01	-2.04
Assertiveness score	0.27 **	0.95
Sex (Men=1, Women=2)	0.09	0.81
Living with someone else [a]	0.08	0.67
Use of public transport [a]	0.02	-0.24
Person who does most of laundry [b]	-0.08	-0.50
Person who does most of cleaning [b]	0.17 **	0.41
Person who does most of cooking [b]	0.09	2.48
Duration of use	-0.11 *	—
No. of days of use per month	-0.02	—
No. of goals of use	0.72	—
Goals of use [c]		
Increase proficiency in daily living	0.16	—
Get along well with others	0.07	—
Enjoy daily living	0.80	—
Have aims and a reason for living	0.01	—
Control symptoms	0.24 *	—
Live true to self	0.18	—
Find people who can be trusted	0.16	—
R^2	0.25	0.20
Adjusted R^2	0.21 **	0.10

Forced-entry multiple regression analysis *: p<0.05, **: p<0.01
[a]: No=1, Yes=2
[b]: Other=1, Self=2
[c]: Yes=1, No=2

V. DISCUSSION

A. Background

Schizophrenia is typically a chronic condition with onset from adolescence through to adulthood, making individuals with schizophrenia prone to difficulties in daily living. Approximately 80% of individuals using hospital-established Centers in Japan have schizophrenia and approximately 60% of Users attend for 3 years or longer. Approximately 70% of Users are aged 40 years or older, and the majority are men (ratio of men to women, 6:4) [7]. The present Users exemplified these characteristics enabling their data to be used as representative of typical Users in Japan.

Approximately 60% of Users and 30% of Patients used public transport. Users attended the Center a mean of 12 times per month while in general, Patients with schizophrenia in Japan are typically examined once every 2 weeks. Both Users and Patients used public transport to attend Centers and hospitals; however, Users had more opportunities to attend Centers and thus used public transport more frequently than Patients.

With regard to living with someone else and the person who did most of the housework, 70% of Users lived with someone else while 70% and 60% did the laundry and the cleaning, respectively. In other words, Users did the housework despite living with their family. A smaller proportion of Users did the cooking (40%) than did other types of housework. Similar results were obtained for Patients. Individuals with schizophrenia have difficulty following procedures [10]. Cooking is more complex and challenging than cleaning or doing the laundry and few Users do these activities [10], explaining why a smaller proportion of present Users did the cooking.

The mean assertiveness score of Users was -7.3 points and the mean average score of Patients was -17.2 points. Assertiveness scores of Japanese outpatients with neurosis in a previous study were -14.2 ± 25.5 points [11]. The ideal target assertiveness score for Japanese individuals to avoid burnout is thought to be in the range of -10 points to 10 points [12]. Therefore, the assertiveness score of both Users and Patients in the present study was suitable. The reasons why the scores were suitable are as follows. The main reason is thought to be Japanese cultural factors. Japanese culture encourages conformity and Japanese society is characterized by a complex mixture of human relationships, social structures, family systems, and lifestyles. It is characteristic of Japanese culture to regard moderation as a virtue, to hide one's real intentions behind a mask of social politeness, and to use unclear verbal expressions in conversation. The assertiveness score of Users was higher than that of Patients. Users can maintain a suitable assertiveness score with the support of Centers.

B. The State of Functioning

Mean User functioning score was 91.4. Centers provide a diverse range of support for Users who have difficulty with daily living. Although Centers aim for Users to achieve their fullest individual potential ability to participate in society,

this potential ability is inherently fixed at a different level for each individual and cannot be increased. There was a significant difference in functioning scores between Users and Patients, indicating that Centers support enabled Users to maintain their current level of functioning.

The present study accurately evaluated the ability of individuals to participate in society from a positive perspective, something that was difficult to assess with earlier scales. The functioning scores obtained will provide a benchmark for future support for daily living for individuals with mental disorders.

Our scale was developed based on an earlier scale that evaluated the ability of individuals with mental disorders to participate in society (the International Classification of Impairments, Disabilities, and Handicaps). That scale evaluated ability from a negative perspective, focusing on inability and obvious areas of the disability; therefore, it could not be used to accurately evaluate the ability to participate in society [13]. Other scales used behavior to indirectly evaluate the ability to engage in daily living or life situations, reducing evaluation accuracy [14,15].

C. Differences in Functioning based on Background Factors

For three of the seven goals of use, functioning scores were higher for Users with goals than for those without those goals. In other words, Users with goals had higher functioning than Users without. Centers support Users in having goals and provide various types of support for daily living geared toward those goals. Having a goal promotes skills practice, as Users remain aware of their goals while participating in the Center's programs [6]. Goal awareness and skills practice increases User functioning.

Users who used public transport and did most of the housework had high functioning, presumably because they were practicing skills during daily living outside of the Center. When they begin attending Centers, Users practice skills through the programs but rarely during their daily lives [6]. Support enables Users to practice skills in their daily lives.

D. Background Factors Affecting Functioning

There were four background factors that affected functioning: assertiveness, mainly doing the cleaning, duration of Center use and having a goal other than to control symptoms. These reasons are described below.

Assertiveness improved functioning of Users. High assertiveness indicates that the ability to assert oneself is high. The ability to assert oneself helps an individual deal with stress in interpersonal relationships, and this improved the functioning of Uses [11]. To live in society, it is important to promote smooth interpersonal relationships. However, in general, individuals with schizophrenia are not good at communicating their opinions and ideas. Therefore, it is easy for individuals with schizophrenia to feel stress in interpersonal relationships, and much effort is needed to live in society.

Doing the cleaning improved functioning due to the many opportunities for practicing skills at Centers and during daily living. Japanese culture and household structure holds that the most frequently performed activities are cooking, followed by cleaning, and laundry. Accordingly, the challenge of housework for Users was greater for cooking, than for cleaning and laundry [10]. Users practiced skills such as cleaning through programs in which instructors provide specific guidance according to the Users' current level of functioning and living environment. Support provided Users with increased opportunities to do the cleaning.

Duration of Center use improved functioning; however, there are few studies of functioning, so the reason for this is not clear [16,17]. The number of days of Center use is different from the duration of use. Because we cannot discuss functioning only based on duration of use, it will be necessary to examine the duration of use and its relationship with the number of times of use in the future.

Having a goal other than to control symptoms improved functioning. When Users attend Centers, their first goal is to control symptoms; once they achieve their first goal, they move on to the next goal [6]. Practicing skills toward the next goal improves functioning.

For Centers to provide support for daily living that improves functioning, it is necessary to clarify whether Users' background factors include having a goal to control symptoms, duration of use, doing the cleaning, and assertiveness, and to investigate specific support contents. Since Users have multiple goals, Centers should also clarify Users' priorities. In particular, if a User's goal is to control symptoms, it is necessary to confirm whether that takes priority over any other goals.

E. Direction of Future Research

Future research should aim to clarify two points. First, the necessary functioning score for continued use should be investigated. Approximately 40% of individuals with mental disorders do not receive any specialized training after becoming aware of their condition [18], and many new Users stop attending Centers within 3 months of beginning use [19]. Therefore, if specific functioning scores can be presented to individuals with schizophrenia who are new Users or who are considering using Centers, it will provide a target for getting through the first 3 months. Second, support for daily living should be evaluated based on the Functioning Scale. Studies to date have evaluated the medical care aspects of Centers but have been unable to accurately evaluate support for daily living [6,7,19]. Evaluations of support for daily living can demonstrate the effectiveness of these centers [6,7].

VI. CONCLUSION

The present study conducted a questionnaire survey of Users and Patients with schizophrenia in Japan to clarify Users' functioning scores and related background factors. The mean functioning score of Users was 91.4±19.1.

Background factors affecting improvement in User functioning scores were short duration of use; having a goal other than to control symptoms; high assertiveness, and doing most of the cleaning.

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