Validity and reliability of the Japanese version of the Rathus assertiveness schedule in day psychiatric care users with schizophrenia

Miyuki Saito1, and Eiko Suzuki2

1 School of Nursing, Faculty of Medicine, Yamagata University, Japan
2 International University of Health and Welfare Graduate School, Japan

Abstract

Objective: This study aimed to investigate the validity and reliability of the Japanese version of the Rathus assertiveness schedule (J-RAS) in psychiatric day care users with schizophrenia.

Subjects and Methods: We examined 715 psychiatric day care users with schizophrenia by conducting the test twice between September 2007 and February 2008 using a questionnaire-based survey. We examined construct validity and used the internal reliability test, split-half method, and test–retest method to examine reliability. The questionnaires were distributed and collected by post via the director of each facility.

Results: Of the 1272 psychiatric day care users, 715 users (56.2%) were enrolled in the study. Seven factors were extracted for construct validity. The cumulative contribution rate of these factors was 49.4% and the internal consistency of 30 items of the J-RAS was \( \alpha = 0.72 \). The split-half method revealed a significant correlation between the total scores of the odd- and even-numbered items \((r = 0.64, p < 0.01)\). The test–retest method revealed a significant difference between the total scores of the first and second tests of the 30 items of the J-RAS \((r = 0.73, P < 0.01)\).

Conclusion: We confirmed the validity and reliability of the J-RAS in psychiatric day care users with schizophrenia and demonstrated its efficacy in evaluating psychiatric day care users.

Key words: schizophrenia, psychiatric day care, J-RAS

Introduction

Psychiatric day care (hereinafter, day care) provides living assistance and medical care to people who experience challenges in their daily lives because of mental illness. In Japan, approximately 80% of day care users have schizophrenia3). As schizophrenia is characterized by distinctive thought disturbances and derangements of the ego, day care users (hereinafter, users) frequently present with deterioration in interpersonal relationships and spontaneity. Hence, users with schizophrenia have poor assertiveness, making it difficult for them to respect other person’s opinions while naturally asserting something5). Owing to their decreased abilities to self-assert, they are more likely to feel stressed in interpersonal relationships and this stress is a factor related to recurrence or worsening of symptoms.

Therefore, day care’s approach emphasizes building users’ daily life skills, especially social skills, by conducting regular interviews and daily life skill training. While investigating the effectiveness of day care programs to promote social skills, we focused on the Japanese version of the Rathus assertiveness schedule (RAS), hereinafter, the J-RAS. Previously, we have tested the validity and reliability of the J-RAS on Japanese individuals and have proven its efficacy for assessing the assertiveness of Japanese people4-5). The J-RAS has also been used in several previous studies that have investigated the assertiveness of Japanese people. However, the validity and reliability of the J-RAS to examine the assertiveness of users with schizophrenia has not yet been studied. Hence, this study aimed to investigate the validity and reliability of the J-RAS in users with schizophrenia using day care.
Subjects and Methods

Subjects

In this study, we examined 1272 users aged ≥ 20 years, who were diagnosed with schizophrenia.

Methods

We conducted two questionnaire-based surveys at an interval of three weeks between September 2007 and February 2008. The questionnaires were distributed and collected by post via the director of each facility. In addition, we asked respondents to indicate their age, gender, and the duration of using day care.

J-RAS

The J-RAS assesses Japanese individuals’ abilities to self-assert. Previously, we have translated the RAS into Japanese to test its validity and reliability. In November 2002, we obtained permission from the Association for Advancement of Behavior Therapy to create the J-RAS. 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 on 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. The total score is calculated by adding the points and lies within the range of −90 and +90 points. Higher total scores indicate higher abilities to self-assert.

Ethical considerations

The study was conducted following the ethical guidelines on clinical studies of the Ministry of Health, Labour and Welfare of Japan. This study was also approved by the Ethics Committees of Yamagata University (Yamagata-shi, Japan). The nature of the study was explained in writing to the director of each research facility for approval. We explained the nature of the study, the free will to participate, the freedom to withdraw consent of participation, and the protection of personal information to all users in writing. Subsequently, users’ responses to the questionnaire were considered to indicate consent to participate in the study.

Statistical analysis

Of the 1272 users, 715 respondents (56.2%) who returned our questionnaires were enrolled in this study for analysis. In addition to the construct validity test performed to examine the validity, we used an internal consistency test, the split-half method, and the test–retest method to assess the reliability.

We used SPSS Statistic 19 Software (IBM, Tokyo, Japan) for statistical analysis. Data from the first survey were used for assessment of construct validity (major factor method for the factor analysis and varimax rotation) and internal consistency (Cronbach’s α coefficient), and for the split-half method (Spearman’s rank correlation coefficient). In addition, data of 566 questionnaires from the first survey with complete data were used for this analysis (valid response rate was 79.2%). Furthermore, data from the first and second surveys were used for the test–retest method to determine the Spearman’s rate correlation coefficient. Complete data sets of 352 respondents from both surveys (valid response rate was 62.2%) were included in this analysis.

Results

Users’ background

The mean age of users was 46.9 ± 12.8 years. 387 respondents (68.4%) were aged ≥ 40 years. 393 respondents were males (69.4%) and 173 (30.6%) were females. The mean duration of using day care was 54.3 ± 48.5 months, and 332 respondents (58.6%) were using day care for ≥ 3 years (Table 1).

Validity

We performed factor analysis of the 30 items of the J-RAS and extracted seven factors with pre-rotation eigenvalues of ≥ 1 to assess construct validity. The cumulative contribution ratio of the varimax rotation was 49.4%, and the eigenvalues for factors 1–7 were 3.0, 2.5, 2.4, 2.2, 2.1, 1.4, and 1.3, respectively. Factors 1–7 were named “Self-expression lacking quick-wittedness,” “Spontaneity,” “Self-assertion in work,” “Dissatisfaction to injustice,” “Frank debate,” “Fluency of spontaneous conversation,” and “Avoiding conflict with others” (Table 2).
Table 2  Factor analysis of the J-RAS (n = 566)

| Extracted factors | I    | II   | III  | IV   | V     | VI    | VII   |
|-------------------|------|------|------|------|-------|-------|-------|
| **Factor 1**      |      |      |      |      |       |       |       |
| Self-expression lacking quick-wittedness (8 items) | | | | | | | |
| 23. I often have a hard time saying “No”. | 0.67 | -0.07 | 0.19 | -0.11 | 0.06 | 0.15 | -0.06 |
| 24. I tend to bottle up my emotions rather than express them. | 0.65 | 0.03 | -0.04 | -0.02 | -0.10 | -0.07 | 0.24 |
| 26. When I am given a compliment, I sometimes don’t know what to say. | 0.57 | 0.03 | 0.21 | -0.03 | -0.01 | 0.14 | 0.06 |
| 30. There are times when I just can’t say anything. | 0.55 | 0.06 | 0.26 | -0.01 | 0.07 | 0.08 | -0.18 |
| 15. If a close and respected relative were annoying me, I would rather smother my feelings than express my annoyance. | 0.5 | -0.17 | 0.3 | 0.11 | -0.15 | -0.15 | 0.19 |
| 11. I often don’t know what to say to people of the opposite sex who I find attractive. | 0.49 | 0.28 | 0.22 | 0.01 | -0.13 | 0.18 | 0.1 |
| 2. I have hesitated to make or accept dates because of “shyness”. | 0.45 | 0.26 | 0.15 | 0.03 | -0.11 | 0.28 | 0.23 |
| 19. I avoid arguing over prices with clerks and salespeople. | 0.41 | -0.25 | 0.37 | 0.07 | 0.04 | 0.01 | -0.1 |
| **Factor 2**      |      |      |      |      |       |       |       |
| Spontaneity (5 items) |      |      |      |      |       |       |       |
| 10. I enjoy starting conversations with new acquaintances and strangers. | 0.1 | 0.68 | 0.02 | 0.13 | 0.01 | -0.21 | -0.10 |
| 21. I am open and frank about my feelings. | 0.04 | 0.66 | -0.03 | 0.09 | 0.27 | -0.02 | -0.13 |
| 29. I am quick to express an opinion. | 0.04 | 0.59 | 0.01 | 0.23 | 0.25 | 0.1 | 0.22 |
| 20. When I have done something important or worthwhile, I manage to let others know about it. | -0.24 | 0.52 | -0.10 | 0.09 | 0.26 | -0.08 | -0.02 |
| 22. If someone has been spreading false and bad stories about me, I see him or her as soon as possible and “have a talk” about it. | 0.01 | 0.37 | -0.22 | 0.26 | 0.3 | 0.23 | -0.01 |
| **Factor 3**      |      |      |      |      |       |       |       |
| Self-assertion in work (5 items) |      |      |      |      |       |       |       |
| 16. I have avoided asking questions for fear of sounding stupid. | 0.2 | 0.02 | 0.62 | -0.03 | 0.02 | 0.07 | 0.1 |
| 14. I find it embarrassing to return merchandise. | 0.3 | -0.17 | 0.59 | 0.11 | 0.06 | 0.1 | 0.04 |
| 17. During an argument, I am sometimes afraid that I will get so upset that I will shake all over. | 0.14 | -0.11 | 0.59 | -0.10 | 0.04 | 0.37 | -0.03 |
| 13. I would rather apply for a job or for admission to a college by writing letters than by attending personal interviews. | 0.12 | -0.04 | 0.55 | -0.14 | -0.05 | -0.21 | 0.17 |
| 12. I will hesitate to call business establishments and institutions for work. | 0.18 | 0.23 | 0.54 | -0.04 | -0.23 | 0.07 | -0.01 |
| **Factor 4**      |      |      |      |      |       |       |       |
| Dissatisfaction to injustice (4 items) |      |      |      |      |       |       |       |
| 25. I complain about poor service in a restaurant and elsewhere. | -0.02 | 0.07 | -0.08 | 0.71 | 0.15 | -0.14 | -0.05 |
| 3. When the food served at a restaurant is not to my satisfaction, I complain about it to the waiter or waitress. | 0.14 | 0.04 | -0.01 | 0.69 | 0.01 | -0.26 | -0.14 |
| 28. Anyone attempting to push ahead of me in a line is in for a good battle. | -0.27 | 0.16 | 0.12 | 0.66 | 0.07 | 0.13 | 0.11 |
| 27. If a couple near me in a theater or at a lecture were conversing rather loudly, I would ask them to be quiet or take their conversation elsewhere. | 0.02 | 0.27 | -0.14 | 0.65 | 0.12 | 0.23 | -0.04 |
| **Factor 5**      |      |      |      |      |       |       |       |
| Frank debate (4 items) |      |      |      |      |       |       |       |
| 7. There are times when I look for a good healthy argument. | -0.08 | 0.26 | 0.03 | 0.04 | 0.7 | -0.09 | 0.05 |
| 6. When I am asked to do something, I insist upon knowing why. | 0.03 | 0.03 | -0.06 | 0.21 | 0.68 | -0.06 | -0.04 |
| 8. Like most people, I strive to get ahead in my position. | -0.17 | 0.25 | 0.09 | -0.04 | 0.65 | -0.01 | -0.26 |
| 18. If a famous and respected lecturer makes a comment that is incorrect, I will have the audience hear my point of view as well. | 0.11 | 0.35 | -0.28 | 0.21 | 0.47 | -0.01 | -0.04 |
| **Factor 6**      |      |      |      |      |       |       |       |
| Fluency of spontaneous conversation (2 items) |      |      |      |      |       |       |       |
| 9. To be honest, people often take advantage of me. | 0.18 | -0.05 | 0.04 | -0.09 | -0.19 | 0.65 | -0.11 |
| 5. If a salesperson is going through considerable trouble to show me merchandise that is not quite suitable, I have a hard time saying “No”. | 0.18 | -0.23 | 0.2 | 0.05 | 0.04 | 0.49 | 0.34 |
| **Factor 7**      |      |      |      |      |       |       |       |
| Avoiding conflict with others (2 items) |      |      |      |      |       |       |       |
| 1. Most people seem to be more aggressive and assertive than I am. | -0.02 | 0.07 | 0.18 | -0.11 | -0.09 | 0.07 | 0.7 |
| 4. I am careful in avoiding hurting other people’s feelings, even when I feel that I have been hurt. | 0.35 | -0.21 | -0.02 | -0.01 | -0.08 | -0.13 | 0.54 |
| **Sums of squares of loading** | | | | | | | |
| | 3 | 2.5 | 2.4 | 2.2 | 2.1 | 1.4 | 1.3 |
| **Contribution ratio (%)** | | | | | | | |
| | 9.9 | 8.2 | 7.9 | 7.3 | 7 | 4.5 | 4.5 |
| **Cumulative contribution ratio (%)** | | | | | | | |
| | 9.9 | 18.1 | 26.1 | 33.4 | 40.1 | 45.9 | 49.4 |

Factor analysis (Major factor method, varimax rotation).
Reliability

The internal consistency of the 30 items of the J-RAS was $\alpha = 0.72$. The split-half testing method revealed a significant correlation between the total of odd- and even-numbered items ($r = 0.64, p < 0.01$). The test–retest method revealed a statistically significant correlation between the total scores for the 30 questions of the first and second J-RAS 30-item tests ($r = 0.73, p < 0.01$). Thus, a significant relationship was observed between the first and second total scores for all seven factors ($r = 0.25–0.65, p < 0.01$, Table 3).

Discussion

Users’ background

Day care in Japan provide daily living assistance to people whose abilities to perform daily tasks are hindered by their mental illness. Approximately 80% of day care users in Japan have schizophrenia$^1$. Although nearly 70% of users are aged ≥ 40 years, approximately 60% have been using day care services for ≥ 3 years$^2$. Because the demographic data of the subjects enrolled in this study were consistent with those of typical day care users, the data can be considered adequate for examining the validity and reliability of the J-RAS.

Validity and reliability of the J-RAS

We previously examined the validity of the J-RAS in Japanese nursing students, new nurses, and nurse managers$^3–5)$. The results of the factor analysis revealed seven factors for nursing students, eight for new nurses, and six for nurse managers. We extracted seven identical factors common to those of nursing students from the subjects of this study, thereby supporting construct validity to a certain extent. In addition, we hypothesize that the reason for identifying seven identical factors between our subjects and nursing students is shared information and views among users and nursing students regarding assertiveness. Therefore, it is ideal to use the assertiveness of nursing students as a reference in future investigations of the assertiveness of users with schizophrenia.

Usually, the two items of the questionnaires that overlapped factors would be eliminated. However, there is an established body of literature based on J-RAS and the number of items in our study should be identical to that in previous studies for valid comparisons. Therefore, we retained the two questions in overlapping factors.

In this study, the correlation coefficient of the internal consistency of the 30 items of the J-RAS was high at $\alpha = 0.72$, which supports internal consistency. Additionally, the significant relationships determined by the test–retest and split-half methods in this study signify the high stability of this scale$^7)$. Studies that have investigated the reliability of the J-RAS scale in Japanese people have also highlighted that the stability of J-RAS is high$^3–5)$. When the subjects were nursing students, the values were as follows: $\alpha = 0.82$, split-half method: $r = 0.86$, and test–retest method: $r = 0.86$.$^3). In addition, the stability of J-RAS was high in this study when the subjects were users, which supports our prior surveys.

As mentioned earlier, although our study included a problem of complexity over items that overlap in two factors, our analysis confirmed the validity and reliability of the J-RAS to some extent and demonstrates its usefulness for research.

Future implementation of the J-RAS

Going forward, we will use the J-RAS scale as a scale for assessing the assertiveness of users with schizophrenia. Although previous studies have indicated higher assertiveness in Americans, the levels of assertiveness exhibited by Japanese people were appropriate for the study group$^8, 9)$. Therefore, the characteristics of assertiveness in users with schizophrenia can be elucidated using this scale. In addi-

| Table 3  | Reliability of the J-RAS |
|----------|--------------------------|
|          | Internal consistency | Split-half method | Test-Reetest method |
|          | $n = 566$         | $n = 566$        | $n = 352$         |
| Factor 1 | Self-expression lacking quick-wittedness (8 items) | 0.75 | – | 0.55 ** |
| Factor 2 | Spontaneity (5 items) | 0.67 | – | 0.65 ** |
| Factor 3 | Self-assertion in work (5 items) | 0.65 | – | 0.46 ** |
| Factor 4 | Dissatisfaction to injustice (4 items) | 0.68 | – | 0.59 ** |
| Factor 5 | Frank debate (4 items) | 0.66 | – | 0.58 ** |
| Factor 6 | Fluency of spontaneous conversation (2 items) | 0.32 | – | 0.25 ** |
| Factor 7 | Avoiding conflict with others (2 items) | 0.22 | – | 0.26 ** |
| All items | (30 items) | 0.72 | 0.64 ** | 0.73 ** |

Spearman’s rank correlation coefficient of split-half and test–retest methods. **: $p < 0.01$. J-RAS, Japanese version of the Rathus assertiveness schedule.
tion, it can be used to examine and establish the target levels of assertiveness for day care services.

Daily-life assistance that day care services provide are integral and comprehensive\(^{10-12}\), which are effective in maintaining social life. However, the specific details of effectiveness are unclear. Hence, the effectiveness of daily life assistance, especially social skills training, warrants further investigation.

**Limitations**

Although seven factors common to those of nursing students were extracted from the subjects of this study using the J-RAS, the reasons for their extraction are unclear. Considering the possibilities of future research, we did not eliminate the questionnaire items that overlapped factors. Hence, these characteristics of the scale should be taken into account when using the J-RAS.

**Conclusions**

This study tested the validity and reliability of the J-RAS by conducting two questionnaire-based surveys on 1272 psychiatric day care users with schizophrenia. The results of this study demonstrated the validity and reliability of the J-RAS and suggested that it can be used to assess assertiveness of users with schizophrenia.

**Conflicts of interest:** The authors have no conflicts of interest to declare.

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**References**

1. Ministry of Health Labour and Welfare. Kongo no seishin hoken iyou fukushi no arikata ni kansuru kenkyu no dai 18 kai [18th Conference for examining the future of mental health care and welfare], Reference 1: Seishinka dei kea tou ni tsuite [On psychiatric day care] http://www.mhlw.go.jp/shingi/2009/06/s0604-7.html, accessed on October 29, 2010 (in Japanese).
2. Alberti R, Emmons M. Your perfect right: Assertiveness and equality in your life and relationships. 9th ed. Impact Publishers-Atascadero, CA, 1970. Sugawara Kenji, translated by Junko Jarrett. Jiko-shucho toreningu [Self-assertiveness training], Tokyo Tosho, 2014; 2–13 (in Japanese).
3. Suzuki E, Kanoya Y, Ishida S, et al. The development of the Japanese Version of the Rathus assertiveness schedule. Japanese Journal of Human Sciences of Health-Social Services 2004; 10: 19–29 (in Japanese, Abstract in English).
4. Suzuki E, Kanoya Y, Katsuki T, et al. Verification of reliability and validity of a Japanese version of the Rathus Assertiveness Schedule. J Nurs Manag 2007; 15: 530–537. [Medline] [CrossRef]
5. Suzuki E, Saito M, Azuma T, et al. Verification of Reliability and Validity of the Japanese Version of the Rathus Assertiveness Schedule (J-RAS) among executive nurses. Japanese Journal of Human Sciences of Health-Social Services 2007; 14: 33–41 (in Japanese, Abstract in English).
6. Rathus SA. A 30-item schedule for assessing assertive behavior. Behav Ther 1973; 4: 398–406. [CrossRef]
7. Polit DF, Beck CT. Nursing Research: Principles and Methods. 7th ed. 2004. Kondo Junko, supervising translator. Kango kenkyuu Genri to Houhou (dai 2 han) [Nursing Research Principles and Methods (2nd edition)] Igaku Shoin 2010; 430–443 (in Japanese).
8. Suzuki E, Tagaya A, Matsuura R, et al. Comparison of Burnout Scores Before and After Assertiveness Training among Nurse Managers. The Journal of the Japan Academy of Nursing Administration and Policies 2009; 13: 50–57 (in Japanese, Abstract in English).
9. Suzuki E, Kanoya Y, Kitagawa K, et al. Workplace Environment, Assertiveness and Burnout Risk among Novice Nurses in University Hospitals. J Jpn Soc Nurs Res 2005; 28: 89–99 (in Japanese, Abstract in English).
10. Saito M, Suzuki E, Azuma T. Life functions of day care center attendees – based on the functioning assessment scale for mentally disabled individuals. Japanese Journal of Human Sciences of Health-Social Services 2013; 20: 35–45 (in Japanese, Abstract in English).
11. Saito M. A study on living functions of psychiatric day care users. Japanese Journal of Human Sciences of Health-Social Services 2009; 15: 39–46 (in Japanese, Abstract in English).
12. Saito M, Kume K. A study about the relation between psychiatric day care member’s physical strength and other factors. Living functions of psychiatric day care users. Journal of the Japan Society of Nursing 2004; 13: 76–83 (in Japanese).