Risk factors for interruption of psychiatric treatment in mentally ill people living in a Japanese community: a cross-sectional study

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Abstract

The aim of this study was to clarify the risk factors for interruption of psychiatric treatment among mentally ill people living in the community. Three hundred seventy-two mentally ill people who received psychiatric consultation services that supported healthcare professionals who experienced difficulties in carrying out their casework on community people were analyzed. We performed logistic regression analysis to examine the relationship between a mentally ill person's interruption of psychiatric treatment and parameters. Among 199 mentally ill people in whom usable data could be obtained, 64 people (32.2%) had no history of interruption of psychiatric treatment, while 135 (67.8%) interrupted psychiatric treatment.

The logistic regression analysis revealed that receiving welfare benefit (Odds Ratio=3.07, 95%CI=1.40−6.72) and refusing to take medicine (Odds Ratio=7.99, 95% CI=3.62−17.63) were significantly associated with interruption of psychiatric treatment among the mentally disabled. To our knowledge, this is the first study that systematically investigated the percentage of mentally ill patients living in a Japanese community with treatment interruption. Our findings indicated the necessity of developing a community health care system to prevent interruption of psychiatric treatment in mentally ill patients. Furthermore, health care professionals should share information on patients who refuse to take medicine and try to use the information on patients' refusal to take medicine for avoiding an untreated period in mentally ill people.

Key words: risk factors, interruption of psychiatric treatment, community, refusing to take medicine, psychiatry, prevention

❖Introduction

Deinstitutionalization is a worldwide trend in mental health services[1]. In Western countries, there has been a transition from long-term inpatient hospitalization of people with mental illness to outpatient treatment in the community[2]. This transition tried to promote psychiatric patients' quality of life[3]. The process and its pace have been different in each country, and it has just begun in Japan[4].

Based on the Organisation for Economic Co-operation and Development (OECD) Health Data, the average number of psychiatry care beds per 1000 population was 0.3. In contrast, in Japan the average number of psychiatry care beds per 1000 population was 2.9 in 1993, which was the highest rate in the world, and was still 2.7 in 2011. It has remained relatively constant in the past 20 years in Japan[5]. This means that discharge of long-stay patients has recently started and has been on-going in Japan. After discharge, whether the people with mental illness could continue their life in the community depended on the levels of available community accommodation, daytime activities, and daily living support services in the area[6]. To promote deinstitutionalization and reduce medical costs in Japan, the Ministry of Health, Labor and Welfare disclosed the 'Vision in reform of mental health and medical welfare' in 2004[7]. Based on this policy, hospitalized patients are discharged to live in the community. Home visiting ser-

vices and some community mental health programs and services have been developed for mentally ill persons[8].

In Japan, public health nurses and caseworkers who work at municipal community health centers and welfare offices are mainly in charge of providing mental health services. However, many psychiatric public health nurses felt that they had difficulties and high casework load because of the unpredictability of day-to-day tasks, and the prevalence of burnout among them was significantly high[9]. Furthermore, deinstitutionalization has raised a new issue of revolving-door patients and high-frequency users who are readmitted shortly after being discharged from psychiatric hospitals[10-12]. About 30% of patients with mental disorders dropped out of treatment[13] and approximately 50% have not been receiving psychiatric treatment[14]. Previous studies showed the risk factors of readmission: male gender, economic poverty, unemployment, length of admission, and residential living status[15][16]. Moreover, dropping out from outpatient mental healthcare is another issue in the public health field[17]. A few studies showed that psychiatric patients who live in the community have interrupted their treatment in Japan[18]. Little is known about the risk factors for interruption of psychiatric treatment in mentally ill people living in the community[19].

The purpose of this study was to clarify the risk factors for interruption of psychiatric treatment in mentally ill people living in the community.

❖Methods

1 Design and sample

A research agreement was signed between the researchers and the local government office of City A. A series of psychiatric consultation services had been started in 2006 for healthcare professionals who experience difficulty in carrying out their casework on community people. Three hundred seventy-two mentally ill persons living in the community who underwent consultation services from 2006 to 2012 were analyzed in this cross-sectional study.

2 Measures

We collected the following information on the mentally ill persons: gender, age, years of schooling, business experience, receiving welfare benefit, getting a disabled certificate, years of having the health problem, first consulter, living status, existence of a key

family person, whether the family understood his/her mental disorder, family discord, long-term care need of his/her parents, elderly abuse, history of his/her parent having substance abuse or not, having a history of child abuse when he/she was a child, having a child or not, whether the mentally ill person committed child abuse, and whether the mentally ill person's child was taken into custody by a child consultation office or not.

We also collected information on whether the mentally ill person had a primary psychiatrist, primary diagnosis, and history of interruption of psychiatric treatment, whether the neighbors complained about his/her behavior, past hospitalization history in a psychiatric unit, whether the mentally ill person understood the mental disorder or not, refusing to take medicine, inability to sustain an independent life, having a fear of self-injury and inflicting injury on others, and problematic behaviors.

We acquired the data from the public health center which was a branch of the governmental office of city A. For each variable, if there was information in the medical records, a value of 1 was inputted, and if there was no information, a value of 0 was inputted in a Microsoft Excel 2010 spreadsheet. The data did not include names and other private information.

3 Statistical analysis

From the records, we divided the mentally ill persons into two groups depending on whether they had interrupted psychiatric treatment or not: the 'No-interrupt group' included mentally ill persons with uninterrupted psychiatric treatment, and the 'Interrupt group' included mentally ill persons who had a history of temporarily stopping treatment.

Statistical analyses were performed with the chi-squared test and t-test. We performed logistic regression analysis to examine the relationships between interruption of psychiatric treatment and these parameters. We calculated odds ratios and 95% confidence intervals (95% CIs) after controlling simultaneously for potential confounders. Multicollinearity between independent variables was assessed by using Spearman's rank correlation coefficient ($r < 0.4$). All statistical analyses were carried out using PASW Statistics (Predictive Analysis Soft Ware, version 18.0. Armonk, NY: IBM Corp), and $p < 0.05$ was considered significant.

4 Ethics

The study protocol was approved by the nursing

research ethics committee of Tokyo Medical University. In addition, administrative approval was obtained from the local government office of city A.

All data related to this study were kept in strict anonymity. The data were analyzed on a computer that was not connected to the Internet.

❖ Results

1 Demographic data in the 'No-interrupt group' and the 'Interrupt group'

A total of 372 profiles of mentally ill persons were analyzed, and usable data were obtained on 199 persons (53.5%). The demographic data of the 'No-interrupt group' and the 'Interrupt group' are summarized in Table 1. Among 199 mentally ill persons, 64 (32.2%) had no history of interrupt ion of psychiatric treatment, and 135 (67.8%) had interrupted treatment. There were

Table 1. Demographic data of the No-interrupt group and the Interrupt group.

n=199

Variables		No-interrupt group (n=64) n	%	Interrupt group (n=135) n	%	p-value[a]
Gender	Male	17	26.6	58	43.0	0.03
	Female	47	73.4	77	57.0	
Age (y)	Mean(SD)	37.4	(13.9)	40.2	(13.0)	0.16
Years of schooling	Mean(SD)	12.4	(2.3)	12.4	(2.6)	0.99
Business experience	Yes	44	81.5	111	87.4	0.36
Receiving welfare benefit	Yes	23	35.9	73	54.1	0.02
Getting a disabled certificate	Yes	9	14.1	13	9.8	0.47
Years of having the health problem	Mean(SD)	8.1	(6.9)	10.7	(8.4)	0.03
First consulter	Self	20	31.3	41	30.8	0.78
	Family members	18	28.1	26	19.5	
	Related institutions	22	34.4	58	43.6	
	Hospital profession	1	1.6	4	3.0	
	Neighbors	1	1.6	1	0.8	
	Others	2	3.2	3	2.3	
Living status	Single life	16	25.0	55	40.7	0.19
Existence of a key family person	Yes	22	34.4	42	31.1	0.75
Whether the family understood his/her mental disorder	Yes	21	33.3	42	32.3	1.00
Family discord	Yes	34	81.0	71	86.6	0.44
Long-term care need of his/her parents	Yes	1	1.6	15	11.1	0.02
Commited elderly abuse	Yes	4	6.3	15	11.1	0.32
History of his/her parent having substance abuse	Yes	11	27.5	18	26.9	1.00
Having a history of child abuse when he/she was a child	Yes	26	65.0	49	71.0	0.53
Having a child	Yes	22	34.5	53	38.8	0.55
Committed child abuse	Yes	17	85.0	38	92.7	0.38
The mentally ill person's child was taking into custody by a child consultation office	Yes	4	19.0	13	31.7	0.38
Having a primary psychiatrist	Yes	62	96.9	135	100	0.10
Primary diagnosis	Substance abuse	5	7.8	31	23.0	0.002
	Schizophrenia	12	18.8	32	23.7	
	Depression	22	34.4	12	8.9	
The neighbors complained about his/her behavior	Yes	4	6.3	22	16.3	0.07
Past hospitalization history in a psychiatric unit	Yes	22	34.4	79	60.3	0.001
Understanding of his/her mental disorder	No	35	55.6	105	78.4	0.001
Refusing to take medicine	Yes	11	18.6	85	66.4	<0.001
Sustaining an independent life	Difficult	24	37.5	47	34.8	0.75
Having a fear of self-injury	Yes	24	37.5	69	51.1	0.09
Having a fear of inflicting injury on others	Yes	27	42.2	82	60.7	0.02

[a]p-value calculated by t-test in age, years of schooling, years of having the health problem, χ^2 test in categorical variables.

Table 2.　Problematic behaviors between the No-interrupt group and the Interrupt group.

n=199

Variables	No-interrupt group (n=64)		Interrupt group (n=135)		p-value[a]
	n	%	n	%	
Interpersonal problems	53	82.8	110	81.5	1.00
Refusal of support from healthcare professionals	87	62.6	105	72.9	0.08
Abusive language towards healthcare professionals	26	40.6	81	60.0	0.02
Perseveration	29	45.3	64	47.4	0.88
Violence	17	26.6	58	43.0	0.03
Overdose	12	18.8	30	22.2	0.71
Gets panic attacks	30	46.9	51	37.8	0.28
Autosynnoia	23	36.5	33	24.4	0.09
Suicidal ideation	24	37.5	43	31.9	0.52
Self-injury	29	45.3	67	49.6	0.65
Heavy drinking	9	14.1	30	22.2	0.25
Vandalization	10	15.6	35	25.9	0.15
Difficulty of money management	10	15.6	39	28.9	0.05
Delusion	10	15.6	36	26.7	0.11
Suicide attempt	18	28.1	34	25.2	0.73

[a]p-value calculated by χ^2 test in categorical variables.
Numbers are n (%) of having the indicated problematic behavior

significant differences in gender (p=0.03), percentage receiving welfare benefits (p=0.02), length of having the health problem (p=0.03), percentage with parents with long-term care need (p=0.02), percentage with substance abuse (p=0.002), percentage with a history of hospitalization in a psychiatric unit (p=0.001), percentage with inability to sustain an independent life, percentage of patients not comprehending the mental disorder (p=0.001), percentage refusing to take medicine (p<0.001), and percentage having a fear of inflicting injury on others (p=0.02) between the No-interrupt and Interrupt groups.

　Table 2 shows a comparison of problematic behaviors between the No-interrupt group and the Interrupt group. The percentages with abusive language towards healthcare professionals (p=0.02) and violence (p=0.03) were significantly higher in the Interrupt group than in the No-interrupt group.

2 Multicollinearity among independent variables

　To control for potential multicollinearity, we deter-mined Spearman's rank correlation coefficients between pairs of the 11 independent variables that were significantly related to the interruption of psychiatric treatment in the mentally ill people. The correlation co-efficient between 'understanding of his/her mental disorder' and 'refusing to take medicine' was −0.46. Because 'refusing to take medicine' was the dominant conception of 'understanding of his/her mental disorder,' we selected 'refusing to take medicine' as the independent variable[20]. The correlation coefficient between 'using abusive language towards healthcare professionals' and 'violence' was 0.53. Using abusive language towards healthcare professionals was more common than violence in this study. We selected 'using abusive language towards healthcare professionals' as the independent variable. We chose these 9 independent variables to perform the logistic regression analysis.

3 Results of logistic regression analysis

　The results of logistic regression analysis to examine risk factors for interruption of psychiatric treatment in mentally ill people and these 9 parameters are shown

Table 3.　Logistic regression analysis to examine the risk factors for interruption of psychiatric treatment

n=179

Variables		Odds Ratio	95%CI	p-value
Receiving welfare benefit	No	(Reference)		
	Yes	3.07	1.40- 6.72	0.005
Refusing to take medicine	No	(Reference)		
	Yes	7.99	3.62-17.63	<0.001

Hosmer & Lemeshow Test: χ^2 = 5.582(df=5), p-value=0.349
Nagelkerke R^2 = 0.344

in Table 3.

The logistic regression analysis revealed that receiving welfare benefit (Odds Ratio=3.07, 95%CI= 1.40−6.72) and refusing to take medicine (Odds Ratio=7.99, 95%CI=3.62−17.63) were significantly associated with interruption of psychiatric treatment in the mentally disabled.

❖Discussion

The current study was conducted to investigate the risk factors for interruption of psychiatric treatment in mentally ill people living in the community. We found that approximately 70% of them interrupted psychiatric treatment. Previous studies mainly focused on inpatients with schizophrenia[6)21)]. To our knowledge, this is the first study that systematically investigated the percentage with treatment interruption among mentally ill people living in a Japanese community. Japan has just begun deinstitutionalization and discharge of long-stay psychiatric patients, and the shortage of social resources for them is a serious issue[4)]. The finding of a high percentage of mentally ill persons with treatment interruption indicated the necessity of developing a health care system to prevent interruption of psychiatry treatment in the mentally disabled who live in the community[22)]. Health care providers such as home visiting nurses, public health nurses, and case workers who belong to the municipal welfare office, can recognize mentally ill persons who interrupt psychiatric treatment and help to restart their psychiatric treatment. Furthermore, discharge planning is a key milestone of continuity of psychiatric patients' life in the community. It is effective in preventing readmission and interruption of treatment in these patients[23)]. Before being discharged from the psychiatric unit, a person with mental disorders and related staffs who support him/her in the community should have meetings and design a daily sched-

ule to prevent worsening of his/her condition.

Logistic regression analysis showed that receiving welfare benefit had a significant association with interruption of psychiatric treatment in the mentally disabled. In Japan, people with mental disorders who have started their life in the community often receive welfare benefits as financial support[24)]. The public and private sectors collaborate to support psychiatric patients who have lived in the community by using an outreach program[25)]. The result indicated that municipal case workers need to cooperate with public health nurses and others concerned to prevent interruption of psychiatric treatment.

Our results also showed that drug refusal was significantly associated with interruption of psychiatric treatment among mentally ill people. Refusing to take medicine is common in patients with chronic illnesses and depends on the patients' perspective on diseases and their everyday life[26)]. It was reported that the primary psychiatrist did not know about patients' refusal to take medicine and the condition of the mentally ill patients, and this has led to increased risk of misdirected prescription to patients[20)]. Psychiatric patients recognized early warning signs of their own condition and sought professional and non-professional support[27)]. Health care professionals should share this information and try to use it to prevent interruption of psychiatric treatment.

This study has several limitations. First, it was a retrospective study and we did not identify the cause-effect relationship. Second, this study was conducted in only one municipality, and generalization would be difficult. In the future, we will need to perform a nationwide survey to investigate factors related to interruption of psychiatric treatment in mentally ill persons. Despite these limitations, this study clarified that approximately 70% of mentally ill people living in the community had interrupted psychiatric treatment. Re-

ceiving welfare benefit and refusing to take medicine were significantly related with interruption of psychiatric treatment. The results indicated the necessity of developing a community health care system to prevent interruption of psychiatry treatment for them.

❖Acknowledgements

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