

# Factors associated with Japanese public health nurses' support for the mentally ill person who was the target of neighbors' claims to go to the hospital: a cross-sectional survey

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## Abstract

To investigate the incidence rate of the neighbors' claims about mentally ill persons, and to clarify the related factors of public health nurses' support for the individual to go to the medical facility. In this cross-sectional survey, 1593 mental health consultation records were analyzed which filled in the form from April 1<sup>st</sup> 2007 to the end of July 2012. Logistic regression analysis was used to determine associated factors. Of those 1593 records, there were 81 had information of the neighboring complaint about the behavior of the mentally ill persons. The incidence of the neighboring complaint consultation for one yr was 10.3 per 100,000 population. Forty two (51.9%) had 'support group,' and 39 (48.1%) was 'no support group.' Logistic regression analysis identified that 'Having a serious influence on his/her life and body when the present condition was neglected' was significantly related to public health nurses' support for the mentally ill individuals to go to the hospital. To our knowledge, this is the first to systematically investigate the incidence rate of the neighbors' claims about mentally ill person. The results suggest that neighbors' complaints are useful for public health nurses to identify patients who need psychiatric interventions.

**Key words:** public health nursing, mentally ill people, community, neighbors' claims, normalization, stigma

## ❖ Introduction

Despite differences in health care system and culture between Eastern and Western countries, deinstitutionalization is the current trend<sup>1)</sup>. Japan's mental health services have been criticized for the excessive number of inpatients, insufficient community resources, and infringement on the human rights of the mentally ill persons (MIPs). In response, Japan's government policy on mental health services has been changing from hospital-centered to community-based to improve the quality of life of the MIPs. In the process, MIPs discharged from the hospital into the community<sup>2,3)</sup>. Read-

mission to the psychiatric hospital may reflect the clinical condition of the patient, lack of family and community support, and the efficiency of psychiatric facilities<sup>4,5)</sup>. In Japan, public health nurses (PHNs) who work in the public sector provide mental health services to local residents as administration services, and try to support MIPs for maintaining a stable life<sup>6)</sup>.

Normalization has been the philosophy of the long-term care for MIPs. However, the success of this goal is difficult. Despite the increasing public knowledge about mental disorder, previous surveys suggest that psychiatric stigmatization and the perception that MIPs are frightening has increased<sup>7,8)</sup>.

Further urbanization and poor interpersonal relationships would cause residents to complain about the behavior of MIPs. In Japan, PHN actually work on management of the claims. Two public health centers developed guidelines on how to manage residents' claims about MIPs<sup>9,10)</sup>. However, these guidelines were developed by analyzing only the residents' complaints

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about MIPs over a one-yr period. The whole picture of this issue and incidence rate was not clarified.

A few qualitative studies showed that PHN support MIPs who interrupted their treatment and who became the target of residents' complaints<sup>11,12</sup>. However, to our knowledge, no previous study has systematically investigated the relationship between PHNs' support for the MIPs to go to the hospital and any of the following variables: demographic factors of the consulters, the MIPs, and PHN-related factors.

The purpose of this study was to investigate the incidence rate of neighbors' claims about MIPs, and to clarify factors related to PHN's support for the MIPs to go to the hospital.

## ❖ Methods

### 1 Design and sample

The researchers analyzed 1,593 mental health consultation records at one community health center in Tokyo that were written from April 1<sup>st</sup> 2007 to July 31 2012. This community health center serves a population of about 150,000.

The researchers checked all of the records, and examined whether there was a description of neighbors' claims about the behavior of MIPs.

### 2 Measures

The variables examined included characteristics of both the consulters and the MIPs. Characteristics of the consulter included gender, relationship to the MIPs, method of consultation, average number of yr after a problem behavior occurred, feeling and request of the consulter, and the problem behaviors of the MIPs that were reported by the consulter<sup>9,10</sup>.

Characteristics of the MIPs included gender, age, welfare benefit, living arrangement, living with family, whether or not his/her family worried about the problem behavior of the MIPs, existence of a key family person, and whether the family understood the mental disorder and cooperated to go to the hospital with the MIPs or not<sup>9,10</sup>. We also included the history of the MIPs: history of consultation with a community health center, whether a resident complained about his/her behavior, interruption of medical treatment article 24 report history of Mental Health and Welfare Act (i.e., someone called a policemen about trouble with a MIPs), hospitalization for medical care and protection, and diagnosis of schizophrenia. Furthermore, we re-

corded whether the MIPs understood the mental disorder or not, whether the MIPs had a primary doctor or not, medical treatment status, refusing to take medicine, inability to sustain an independent life, having a serious influence on his/her life and body when the present condition was neglected, having a fear of other damaged.

From the records, we analyzed whether the PHN encouraged the MIPs to go to the hospital or not. We also studied PHN-related factors: whether the PHN tried to meet the MIPs and his/her family or not, whether the PHN made contact with the related institutions, the number of institutions concerned, and whether PHN consulted with the hospital about the patient's hospitalization and his/her primary doctor about the patient's condition. We included whether or not PHN went to the hospital with the MIPs, the number of support days of him/her by PHN.

### 3 Statistical Analysis

We used Microsoft Office Excel 2010. For each variable for which there was information in the medical records, a value of 1 was inputted; if there was no information, a value of 0 was inputted.

First, to assemble a picture of the neighbors who complained about the behavior of MIPs, we performed descriptive statistics about the consulters, the MIPs and PHN-related factors.

Second, we divided the MIPs into two groups depending on whether PHN assisted the MIPs to go to the hospital or not: the 'Support group' included MIPs whom PHN assisted to go to the hospital, and the 'No-support group' included MIPs whom PHN did not assist.

Statistical analyses were performed with the chi-squared test, Fisher's exact test, and t-test. We performed logistic regression analysis to examine the relationship between PHN's support for the MIPs to go to the hospital 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 18 and  $p < 0.05$  was considered significant.

### 4 Ethics

Before beginning this research, the researchers ex-

Table 1 Characteristics of the consulters

	Total (n=81)		Support group (n=42)		No support group (n=39)		p-value
	n	%	n	%	n	%	
Gender							
Male	31	(38.3)	19	(45.2)	12	(31.6)	0.46
Relationship to the MIPs (multiple answers were allowed)							
Neighbors	37	(45.7)	16	(38.1)	21	(55.3)	
Institutions concerned	43	(53.1)	18	(42.9)	25	(65.8)	0.04
Police	24	(29.6)	14	(33.3)	10	(26.3)	0.62
Superintendent	19	(23.5)	10	(23.8)	9	(23.7)	1.00
Welfare volunteer	13	(16.0)	6	(14.3)	7	(18.4)	0.76
Telephone	5	(6.2)	3	(7.1)	2	(5.3)	1.00
Visiting public health center	66	(81.5)	35	(83.3)	31	(81.6)	0.57
Average number of yrs after problem behaviors occurred	14	(17.3)	7	(16.7)	7	(18.4)	
Feeling of the consuler	2.6	(3.8)	2.3	(3.8)	3.0	(3.8)	0.39
Request of the consuler							
Confusion	25	(30.9)	16	(38.1)	9	(23.7)	0.54
Calm	20	(24.7)	11	(26.2)	9	(23.7)	
Angry	15	(18.5)	6	(14.3)	9	(23.7)	
Anxiety	8	(9.9)	4	(9.2)	4	(10.5)	
Displeasure	5	(6.2)	3	(7.1)	2	(5.3)	
Worry	7	(8.6)	2	(4.8)	5	(13.2)	
Public health center has to deal with this problem	48	(59.3)	23	(54.8)	25	(65.8)	0.06
The problem behaviors of MIPs that were mentioned by the consuler (multiple answers were allowed)							
PHN can get the patients into hospital	10	(12.3)	7	(16.7)	3	(7.9)	
Listen to my experience	8	(9.9)	2	(4.8)	6	(15.8)	
Let me know how to deal with the person	6	(7.4)	5	(11.9)	1	(2.6)	
Provide information about the MIPs	6	(7.4)	5	(11.9)	1	(2.6)	
Warn the MIPs to stop the problem behavior	2	(2.5)	0	(0)	2	(5.3)	
Delusion remarks	39	(48.1)	25	(59.5)	14	(36.8)	0.04
The problem behaviors of MIPs that were mentioned by the consuler (multiple answers were allowed)							
Noise	34	(42.0)	17	(40.5)	17	(44.7)	0.82
Verbal abuse	29	(35.8)	11	(26.2)	18	(47.4)	0.07
Property destruction	15	(18.5)	8	(19.0)	7	(18.4)	1.00
Keep watch of the neighbors' movement	13	(16.0)	7	(16.7)	6	(15.8)	1.00
Throw things	11	(13.6)	6	(14.3)	5	(13.2)	1.00
Violence	10	(12.3)	7	(16.7)	3	(7.9)	0.32
Collect miscellaneous debris	10	(12.3)	5	(11.9)	5	(13.2)	1.00
House-invasion	8	(9.9)	6	(14.3)	2	(5.3)	0.27
Fetidness	8	(9.9)	4	(9.5)	4	(10.5)	1.00
Knife-wielding	5	(6.2)	4	(9.5)	1	(2.6)	0.36

MIPs: mentally ill persons, PHN: public health nurse. Numbers are mean ±SD (range) or n (%).

plained the aims and methods of this study, participation was voluntary, that the information would not be used for any purpose other than this study, and that their privacy would be protected to the head of the community health center, the managers and all staff members both orally and in writing. The head of the community health center approved the conduction of this study. All materials related to this study were kept in strict anonymity.

## ❖ Results

### 1 Incidence of neighboring complaint consultation about the MIPs

Of the 1,593 records, there were 81 records that had information on a claim about the behavior of MIPs. The incidence of the consultation in one yr was 10.3 per 100,000 population.

Among the 81 records, PHN assisted 42 MIPs (51.9%) to go to the hospital, while PHN did not assist 39 people (48.1%).

### 2 Demographic factors of the consulters, the MIPs, and PHN

The characteristics of the consulters are summarized in Table 1. Neighbors comprised 43 (53.1%) of the consulters. Sixty-six consulters (81.5%) consulted with a PHN by telephone. Average number of yrs after a problem behavior occurred was 2.6 (SD=3.8) yrs. There were no significant differences in these parameters between the Support group and No-support group. Among the 81 complaints, 'delusional behavior' was significantly related to the PHN's support for the MIPs to go to the hospital ( $p=0.04$ ).

The characteristics of the MIPs are summarized in Table 2. Thirty-four were male, and having a fear of other damaged were 65.4%. There were significant differences in the percentage of MIPs receiving welfare benefits, percentage of those who live alone, percentage of those whose family cooperated to go to the hospital with the individual, percentage having a history of medical treatment interruption, percentage with a history of hospitalization for medical care and protection, percentage having a primary doctor, percentage refusing to take medicine, percentage of inability to sustain an independent life, and percentage in having serious influences on his/her life and body when the present condition was neglected, between the Support and No-support groups.

Table 3 shows the types of support that PHN provided for the MIPs. A significantly greater percentage of PHN tried to meet with the individuals in the Support group than the No-support group ( $p<0.01$ ).

Significantly greater percentages of PHN consulted with the hospital about the patient's hospitalization, consulted with his/her primary doctor about their condition, and went to the hospital with the MIPs in the Support than in the No-support group ( $p<0.01$ ,  $p<0.01$ ,  $p=0.01$ ). There were significant differences in the number of institutions concerned, the number of support days of him/her by PHN between the Support and No-support groups ( $p=0.01$ ,  $p<0.01$ ).

### 3 Multicollinearity among independent variables

To control for potential multicollinearity, we determined the Spearman's rank correlation coefficient between pairs of the 18 independent variables that were significantly related to the PHN's support for the MIPs to go to the hospital.

The correlation coefficient between 'welfare benefit clients' and 'living alone' was  $-0.47$ . We selected 'welfare benefit clients' as the variable to include in logistic regression analysis.

The correlation coefficients between 'having a history of medical treatment interruption' and 'history of hospitalization for medical care protection,' and between 'having a history of medical treatment interruption' and 'having a primary doctor' were 0.70 and 0.48, respectively. It is very important to prevent medical treatment interruption so that MIPs can maintain a stable life<sup>4,5</sup>). We selected 'having a history of medical treatment interruption' as the variable.

'Having a serious influence on his/her life and body when the present condition was neglected' had positive correlations with 'refusing to take medicine ( $r = 0.44$ ),' and 'inability to sustain an independent life ( $r = 0.45$ ).' To confirm the finding of qualitative study<sup>11</sup>), we chose 'having serious influences on his/her life and body when the present condition was neglected' to cover the other two independent variables.

Among the independent variables of the support for the MIPs, 'PHN tried to meet with the individual' had a positive correlation with 'PHN interviewed the individual ( $r = 0.61$ ).' We selected the former variable.

The number of support days of him/her by PHN had positive correlations with the number of institutions concerned ( $r = 0.55$ ). The number of support days

Table 2 Characteristics of the MIPs

	Total (n=81)		Support group (n=42)		No support group (n=39)		p-value
	n	%	n	%	n	%	
Gender							
Age	34	(42.0)	21	(50.0)	13	(34.2)	0.18
Welfare benefit	56.9	(13.9)	55.3	(15.6)	58.7	(11.9)	0.29
Living arrangement	25	(30.9)	19	(45.2)	6	(15.8)	0.02
	50	(62.5)	29	(69.0)	20	(54.0)	0.38
Living with family	30	(37.5)	13	(31.0)	17	(46.0)	
	29	(35.8)	11	(28.6)	18	(47.4)	<0.01
	48	(59.3)	30	(71.4)	18	(39.5)	
	4	(4.9)	1	(2.4)	5	(13.2)	
Family worried about the problem behavior of the MIPs	34	(42.0)	22	(52.4)	12	(35.3)	0.19
Existence of family key person	42	(51.9)	26	(63.4)	16	(43.2)	0.13
Family understood the mental disorder	34	(42.0)	21	(52.5)	13	(38.2)	0.35
Family cooperation to go to the hospital with the individual	18	(22.2)	15	(35.7)	3	(7.9)	0.01
History of consultation with a community health center	43	(53.1)	27	(64.3)	16	(42.1)	0.07
History of resident who complained about his/her behavior	29	(35.8)	18	(42.9)	11	(28.9)	0.25
History of medical treatment interruption	24	(29.6)	17	(40.5)	7	(18.4)	0.02
History of article 24 report history of Mental Health and Welfare Act	10	(12.3)	8	(19.0)	2	(5.3)	0.09
History of hospitalization for medical care and protection	15	(18.5)	13	(31.0)	2	(5.3)	0.01
History of diagnosis as schizophrenia	29	(35.8)	20	(58.8)	9	(40.9)	0.27
The MIPs understood the mental disorder	14	(17.3)	8	(19.0)	6	(15.8)	0.68
Having a primary doctor	52	(64.2)	32	(76.2)	20	(52.6)	<0.01
Medical treatment status	17	(21.0)	8	(20.0)	9	(32.1)	0.48
	18	(22.2)	12	(30.0)	6	(21.5)	
	33	(40.7)	20	(50.0)	13	(46.4)	
Refusing to take medicine	19	(23.5)	14	(33.3)	5	(13.2)	0.02
Inability to sustain an independent life	21	(25.9)	17	(40.5)	4	(10.5)	0.01
Having serious influences on his/her life and body when the present condition was neglected	18	(22.2)	17	(40.5)	1	(2.6)	<0.01
Having a fear of other damaged	53	(65.4)	28	(66.7)	25	(65.8)	1.00

MIPs: mentally ill persons, PHN: public health nurse.

Table 3 Support of PHN for the MIPs

		Total (n=81)		Support group (n=42)		No support group (n=39)		p-value
		n	%	n	%	n	%	
PHN tried to meet the MIPs (multiple answers were allowed)		39	(48.1)	27	(64.3)	12	(31.6)	<0.01
	Home visit	23	(28.4)	16	(38.1)	7	(18.4)	0.08
	Consultation at public health center	21	(25.9)	17	(40.5)	4	(10.5)	<0.01
	Calling	25	(30.9)	17	(40.5)	8	(21.1)	0.09
PHN tried to meet his/her families (multiple answers were allowed)	Yes	31	(38.3)	21	(50.0)	10	(26.3)	0.05
	Home visit	7	( 8.6)	6	(14.3)	1	( 2.6)	0.11
	Consultation at public health center	20	(24.7)	13	(31.0)	7	(18.4)	0.30
	Calling	28	(34.6)	19	(45.2)	9	(23.7)	0.06
Making contact with the related institu- tions	Yes	43	(53.1)	25	(59.5)	18	(47.4)	0.37
The number of institutions concerned	number(SD)	2.8	( 4.1)	3.9	( 5.2)	1.6	( 1.9)	0.01
PHN consulted with the hospital about the patient's hospitalization	Yes	20	(24.7)	18	(42.9)	2	( 5.3)	<0.01
PHN consulted with his/her primary doctor about the patient's conditio	Yes	28	(34.6)	23	(54.8)	5	(13.2)	<0.01
PHN went to the hospital with the MIPs	Yes	8	( 9.9)	8	(19.0)	0	(0)	0.01
The number of support days of him/her by PHN		366.2±554.9		546.3±640.0		176.7±366.9		<0.01

MIPs: mentally ill persons, PHN: public health nurse.  
Numbers are mean ±SD (range) or n (%).

of him/her by PHN varied more widely than the number of institutions concerned, we selected it. This independent variable had positive correlations with 'whether or not PHN consulted with the hospital for the patient's hospitalization ( $r = 0.46$ ),' and with 'PHN went to the hospital with the MIPs ( $r = 0.52$ ).' These two independent variables had a positive correlation with each other ( $r = 0.42$ ). To control for potential multicollinearity, we selected 'the number of support days of him/her by PHN' as the variable.

We chose these 9 independent variables to perform the logistic regression analysis.

#### 4 Results of logistic regression analysis

The results of logistic regression analysis to examine the relationship between the PHN's support for the MIPs to go to the hospital and these 9 parameters are shown in Table 4.

Logistic regression analysis identified one factor that influenced PHN's support for the MIPs to go to the hospital. 'Having serious influences on his/her life and body when the present condition was neglected' was significantly related to PHN's support for the MIPs to go to the hospital (odds ratio, 18.45; 95% CIs, 1.61-210.95).

## Discussion

The current study was conducted to investigate the incidence rate of complaints by community people about the MIPs, and to clarify the related factors to PHN's support for them to go to the hospital. We found that the incidence rate of neighbors' claims about the behavior of MIPs in one yr was 10.3 per 100,000 population. To our knowledge, this is the first study that systematically investigated the incidence rate of neighbors' claims about the MIPs. This finding will help for PHNs to promote readiness for responding the neighbors' claims about the MIPs.

In this study, neighbors accounted for approximately half of the consultation records, and consultation by telephone comprised about 80%. This finding was the same as those in previous studies<sup>9,10</sup>. For the neighbors, it would be easy to make claims by telephone because the neighbors would not have to meet with the PHN. PHNs need to listen actively the claim, and to understand the neighbors' emotions for finding a clue.

In our study, the average length of time that the complaints were made after the disturbances occurred was 2.6 (SD=3.8) yrs. Sagami-hara Public Health Center pointed out that the residents were in contact daily with the problematic behavior of the MIPs, and the res-

Table 4 Results of logistic regression analysis to determine factors related to PHN's support for the MIPs to go to the hospital

		n=48	
Independent variables		odds ratio	95% Confidence Interbals
Characteristics of the consulters		1.22	0.14-10.86
	Relationship with the MIPs: Neighbor (Yes)	1.22	0.14-10.86
	The problem behavior of MIPs that was appealed by the consultant: Delusion remarks (Yes)	1.42	0.19-10.55
Characteristics of the MIPs			
	Welfare benefit (Received)	2.70	0.27-27.19
	Family cooperation to go to the hospital (Yes)	3.30	0.36-30.34
	History of medical treatment interruption (Yes)	1.39	0.19-9.91
	Having serious influences on his/her life and body when the present condition was neglected (Yes)	18.45	1.61-210.95
Support of PHN for the mentally ill individuals			
	PHN tried to meet the MIPs (Yes)	1.29	0.17-9.72
	PHN consulted with his/her primary doctor about the patient's condition (Yes)	4.63	0.57-37.34
	The number of support days of him/her by PHN	0.99	0.96-1.01
p-value of this model		<0.001	
Hosmer-Lemeshow test (Chi-squaremodel, df)		0.48 (7.54, df=8)	

MIPs: mentally ill persons, PHN: public health nurse.

PHN support the MIPs to go to the hospital=1, PHNs did not support them=0.

'Yes' and 'Received'=1, 'No' and 'Did not receive'=0.

idents had an intense feeling<sup>10</sup>). For protecting the community health, PHNs have responsibility to assess the need of intervention with the troubled person's health at an early stage<sup>6</sup>). This finding indicates that PHN perceive the feelings of residents who are afflicted by the problem behaviors. Also, this is the good chance for PHN to identify the troubled MIPs in the community and to assess the need of support them.

We found that the MIPs could inflict harm on others in 65.4% of the cases. Previous studies showed a strong connection between mental disorders and perceived likelihood of violence<sup>13</sup>). PHNs know that the community residents do not want MIPs to live in their community<sup>14</sup>). To maintain safety of the MIPs and the neighbors, PHNs judge with their managers whether the public health center can respond to this issue by itself, or whether to obtain the assistance of the police. In addition, to improve population health problems, PHNs tried to increase the understanding of matters among the inhabitants<sup>15</sup>). To promote normalization, the neighbors' claim about MIPs would be a good opportunity for them to learn about mental disorder and MIPs who live in the community.

Logistic regression analysis showed that 'having serious influences on his/her life and body when the present condition was neglected' was significantly related to PHN's support for the MIPs to go to the hospi-

tal. Previous studies did not clarify how PHNs identified patients who need psychiatric interventions<sup>12</sup>). The results suggest that neighbors' claims are useful for PHN to identify patients who need psychiatric interventions. For maintaining the stable life in the community, MIPs need to manage their symptoms and PHNs support them<sup>6</sup>). To prevent readmission, PHNs require to monitor the MIPs' life through everyday practice, such as home visit and consultation for them.

The present study had three limitations. First, since this survey was conducted in only one public health center, generalizations would be difficult. Second, this was a cross-sectional survey. We could not study the cause-effect relationship. Third, we analyzed the mental health consultation records, and we could not fully grasp the intention of PHN. In the future, a qualitative study is required to clarify how PHN manage the neighbors' complaints about a MIPs who lives in the community and to develop a system of preventing their readmission. Despite these limitations, this research has clarified the incidence rate of consultation by people in the community about the problematic behavior of MIPs, and the related factor that influenced PHN's support for the MIPs to go to the hospital. The results suggest that neighbors' claims are useful for PHNs to identify MIPs who need psychiatric interventions.

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