

Prevalence and characteristics of depression in a Japanese leprosarium from the viewpoints of social stigmas and ageing. A preliminary report

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Summary

Objective To investigate the prevalence and characteristics of depressed patients living in a Japanese leprosarium who have been isolated by national law and are now becoming very elderly.

Methods We surveyed the prevalence of depressed patients living in the National Tamazenshouen Sanatorium, a major leprosarium in Japan. We also investigated the characteristics of patients who had suffered a depressive episode during the last 5 years (2000–2004). The characteristics of residents who committed suicide were also studied. *Results* At the time of the investigation, 48 out of 385 (12.5%) patients were depressed or had experienced a depressive episode. Forty-one residents had committed suicide since the leprosarium was established in 1907. Somatic symptoms and depressive moods were the predominant symptoms and were not limited to symptoms unique to leprosy. The period of isolation was not statistically correlated with the GDS-SF or PGC morale scale scores.

Conclusion The findings of this study emphasize the importance of consultation psychiatric for elderly leprosy residents and could be used as a reference for treatment in countries with ageing leprosy residents.

Introduction

Leprosy is a chronic disease that leads to physical disability from nerve damage and has struck fear into human beings.¹ Stigmas and associated psychosocial problems are common among people affected by leprosy throughout the world and may cause social, economical, and spiritual deprivation. People affected by leprosy in Japan have a long history of suffering from social stigmas. In 1909, the Japanese government adopted an isolation policy for leprosy. Although compulsory isolation was abolished in 1996, most leprosy people continue to live in sanatoriums under peculiar living conditions.

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Residents in Japanese leprosaria are now mostly very elderly. The mean age of residents is nearly 80 years. Some physicians are concerned that the stigma of leprosy combined with ageing may increase the risk of mental disorders and depressive states. Despite several reports on psychiatric problems in people affected by leprosy, the prevalence of psychiatric disorders remains controversial.^{2,3} Depression is thought to be one of the important psychiatric disorders among the elderly, as well as among residents in leprosaria.⁴ There have been several reports focusing on depressed patients with leprosy; however, most of these reports focused on adolescents and were performed in south-Asian countries, such as India and Bangladesh.⁵⁻⁷ Although Kamiya studied the prevalence of psychiatric disorders in Japanese leprosaria,⁸ this study focused on the mental health of adolescents, and not on depressive disorders. Adachi reported that Charles Bonnet syndrome was observed in Japanese leprosy residents but did not refer to depressive symptoms.⁹ No reports have focused on depressed patients in leprosaria with an ageing population.

In this study, we investigated the characteristics of depressed patients of leprosy living in the National Tamazenshoen Sanatorium. This hospital is the oldest major leprosarium that provided by the Japanese government, accommodating approximately 12% of all residents with leprosy registered in Japan. Even now, it is run directly by the Japanese government and has a hospital with 142 beds (October 17, 2005). The prevalence of depression and the clinical features of leprosy residents with depression were determined. All records of residents who had committed suicide since the establishment of the leprosarium were also surveyed.

Material and methods

We surveyed the number, age and isolation period of all the residents living in the National Tamazenshouen Sanatorium at the time of the investigation (December 1, 2004). The clinical records of all the residents in the leprosarium were examined for reports of psychiatric disturbances. Patients with a history of depressive illness that met the DSM-IV criteria for an axis-depressive disorder during 5-year period were also evaluated. These patients had been diagnosed directly by a psychiatrist according to their past clinical records or the interview from patients, their families and/or hospital staffs.

The subjects consisted of 20 patients with depressive history in the National Tamazenshouen Sanatorium who agreed to participate in this study. Subjects who had manifested either acute exacerbation, such as severe appetite loss or urgent suicidal idea, or deterioration of cognition at the investigation time were excluded. Twenty non-depressed controls matched for age with the depressed subjects were recruited from among the leprosy residents without depression. Written informed consent was obtained from all the subjects, and all the subjects were interviewed directly by the authors. The contents of the questionnaire were as follows: characteristics of depressive symptoms, classified into five categories: somatic symptoms, depressive mood, anxiety-aggression, persecutory delusion and suicidal tendency. Each symptom was graded (0: absent, 1: mild, 2: moderate, 3: severe, 4: extreme) at the onset of the depressive state. To evaluate psychological status, the subjects were evaluated using the mini-mental state examination (MMSE), the Geriatric Depression Scale-Short Form (GDS-SF), the Philadelphia Geriatric Center (PGC) morale scale¹⁰ and the Tokyo Metropolitan Institute of Gerontology index (TMIG index)¹¹ while they were in remission. The PGC moral scale is a well-known survey for satisfaction with life, which is important to evaluate the mental status of people with leprosy who isolated involuntarily for a long time.

The TMIG index is a scale for evaluating instrumental, intellectual and social activities in daily life, because people affected by leprosy often suffer restriction due to various disturbances, such as deformities of appearance or visual and/or tactile system disturbances.

Records of people affected by leprosy who had committed suicide since the establishment of the National Tamazenshouen Sanatorium in 1909 were also investigated. Their age, sex, duration of isolation and suicide method were identified from their clinical records.

For the data analysis, a non-paired Student *t*-test was used to compare the two groups. Spearman correlation coefficients were used to assess the possible relationships between the duration of isolation and other factors. The statistical software package KyProt (version 4, KyensLab Inc., Tokyo, Japan) was used to analyse the data. The present study was approved by the ethics committee of the National Tamazenshouen Sanatorium. Written informed consent was obtained from each subject.

Results

A total of 385 residents (222 men and 163 women) lived in the National Tamazenshouen Sanatorium at the time of investigation; the mean age of the residents was 77.3 years, and the mean isolation period was 41.7 years. Forty-eight residents (22 men and 26 women) out of a total of 385 patients (12.5%) were diagnosed as having depression at the time of investigation, on December 1, 2004. Six patients (four men and two women) progressed from depression to dementia over the investigation period.

Table 1 shows the demographic data for the depressed and control subjects. Significant differences in the MMS, GDS-SF, PGC morale, and TMIG index findings were observed between the two groups. The rate of somatic symptoms was higher than that of other clinical symptoms. Persecutory delusion had the lowest score of all the symptoms. No significant correlations between the duration of isolation and any of the measured scales were observed. The GDS was not correlated with either PGC morale or the TMIG index.

Forty-one residents have committed suicide (26 men, 15 women) at a mean age of 46 years since the establishment of leprosarium (Table 2). Thirty-eight residents killed themselves by hanging, two by drowning and one by poisoning. Soon after the establishment of the sanatorium, young residents were more likely to commit suicide. After World War II, elderly residents tended to commit suicide. The oldest resident to commit suicide was a 90-year-old woman.

Discussion

The data on the prevalence and characteristics of depressed patients in a Japanese leprosarium shows that these patients are ageing. Since leprosy residents in Japanese leprosariums have been isolated from society by law for a long time, they are both stigmatized by their condition and confronted by their advancing age. Our report was retrospective and preliminary, the investigation period was short and lack of comparison with non-stigmatized elderly; however, to our knowledge, this is the first report to focus on depression among elderly residents in a leprosarium. Several studies have surveyed the morbidity of depression among the elderly.^{12,13} With regard to subjects who are more than 80 years old, Roberts *et al.* reported that the morbidity of depression was approximately 9%,¹⁴ which is lower than our

Table 1. Demographic data for leprosy patients and controls

Characteristics	Patients		Controls		Analysis <i>P</i>
	<i>(n</i> = 20 m: 8 f: 12)		<i>(n</i> = 20 m: 8 f: 12)		
	Mean	SD	Mean	SD	
Age, years	79.4	7.1	75.4	5.8	NS
Age of initiate isolation	23.2	11.3	21.3	15.1	NS
Time since isolation, years	56.2	10.0	57.7	14.5	NS
GAF	82.7	9.2	89.5	3.3	0.0046***
MMSE	25.9	2.3	29.0	1.6	< 0.001*
GDS-SF (0–15)	8.8	2.6	4.6	1.9	< 0.001*
PGC (0–17)	7.1	3.2	13.0	2.2	0.01655**
TMIG-index (0–13)	6.7	4.1	9.8	3.3	< 0.001*
Symptoms +					
Somatic manifestations	2.4	0.9			
Depressive mood	2.2	0.8			
Persecutory delusion	0.4	0.9			
Anxiety, agitation	1.5	1.0			
Suicidal idea	0.5	0.7			

SD: standard deviation; GAF: Global Assessment of Functioning; MMSE: Mini Mental Scale Examination; GDS-SF: Geriatric Depression Scale-Short Form; PGC: Philadelphia Geriatric Center morale scale; TMIG-index: Tokyo Metropolitan Institute of Gerontology index.

+ Coded as: 0 = absent; 1 = mild; 2 = moderate; 3 = severe; 4 = extreme. **P* < 0.001, ***P* < 0.05, ****P* < 0.01.

result. However, the results of these previous studies are difficult to compare with those of the present because the subjects' life histories and circumstances were dramatically different.

With regard to depressive symptoms, somatization was dominant and the patients were inclined to manifest physical symptoms whereas a few patients had persecutory delusions and suicidal thoughts. The typical physical symptoms of leprosy are neuralgia and perspiratory and visual disturbances,¹ and the patients occasionally developed a depressive state as their visual function declined. Despite the special physical symptoms of leprosy, the characteristics of psychosomatic symptoms manifested by the depressive patients were not limited to those of leprosy, but appeared in various ways, such as headache, gastrointestinal discomfort, general fatigue, lumbar pain and so on. On the other hand, the physical symptoms

Table 2. Characteristics of suicide patients

Year	Suicidal patients	Age, years
	<i>(n</i> = 41 male: 26 female: 15)	46.1 ± 16.1 SD
1909–1929	2 (male: 2)	25 ± 11.3 SD
1930–1949	20 (male: 15)	37.2 ± 13.2 SD
1950–1969	11 (male: 5)	55.4 ± 18.7 SD
1970–1989	5 (male: 3)	69.6 ± 12.8 SD
1990–2004	3 (male: 1)	59.3 ± 20.4 SD
Means		
Hanging	35	
Drawn	4	
Poisoning	2	

of control group were likely to be equivalent to those of leprosy, such as numbness, complaints of sweat and visual decline. Recently, we reported a patient with a chronic back pain disorder who seemed to benefit from a psychiatric assessment.¹⁵ Elderly patients are frequently somatized or express psychological distress in the form of medically unexplained somatic symptoms¹⁶ and the likelihood of a coexisting mood disorder increases with the number of somatic symptoms reported by patients.¹⁷ A strong association between severity of depression and somatization was demonstrated.¹⁸ Thus, physical symptoms should be carefully examined and the possibility of depression should be taken into account.

The grade of depression and the duration of isolation were not associated. Although the relationship between symptomatology and duration of illness was discussed,¹⁹ there has been no reports concerning to the isolation period. The background of previous studies differed from ours with regard to race, culture and religion, and mainly focused on adolescent residents. No association between the severity and the isolated duration could be attributed to settlement within the isolated community through the long-term period; however, it is likely that cerebral dysfunction that causes mood disorder occurs among the elderly, such as vascular damage and cortical changes. From the psychological aspect, soon after the leprosarium was established and when the leprosy residents were relatively young, various stigmas such as social discrimination, severe deformity of appearance and compulsory separation from their family were a burden for the residents. Severe psychiatric symptoms, like psychogenic reactions, despair and suicidal ideation, were not uncommon or unexpected. In addition to these reactions, other psychiatric disorders, such as schizophrenia, bipolar disorders and drug dependency, also presumably occurred, leading to peculiar clinical courses.

Discrimination depression from dementia is an important problem. Late-life depression is a risk factor for future dementia²⁰ and several studies showed that depression is associated with cognitive decline 1–3 years after the depressive episode.^{21,22} Despite eliminating the subjects with cognitive deterioration and those who progressed into overt dementia, the inclusion of some patients who evolve to dementia is inevitable, since our subjects were of great age. It becomes more important to treat depressed elderly patients because the early identification of high risk individuals that develop dementia is beneficial. Von Gunten *et al.* showed that subjective memory complaints may be related to increased risk for developing dementia, resulting from impairment of the executive components of working memory and limited access to the visual knowledge.²³ Persecutory delusion is common in dementia of various types²⁴ and the subjects who manifested it could develop dementia. The follow-up of the depressed elderly patients in leprosaria and the longitudinal study of the comorbidity of depression and dementia should be further investigated.

This study focused on depression among ageing leprosy residents within a limited time period; however, the historical living conditions of Japanese leprosariums must also be considered. In the past, the national authority forced people affected by leprosy to endure separation from their families, compulsory isolation, prevention of escape and forced sterilization. The life histories of these residents are essential to any speculations on their stigmas. Narita *et al.* postulated that residents who managed to overcome the psychological impact of their forced isolation and who were deprived of the opportunity to re-enter society and raise descendants sought to acquire spiritual strength to endure their loneliness.²⁵ After energetic struggles against the Japanese government for the protection and restoration of human rights, compulsory isolation was abolished and compensation was begun in 1996.

The residents' satisfaction with life might reflect feelings of achievement, acceptance and resignation.

Regarding suicide, adolescent suicide was most common during the early to middle periods of the leprosarium's history. While a large number of residents were suspected of attempting suicide, the lack of precise clinical records makes it impossible to determine the number of residents who attempted suicide. Suicides in individuals aged 65 and over were responsible for 29% of all suicides in Japan.²⁶ Although not directly comparable with the non-stigmatized elderly patients in our study, the results appear similar. Hanging was the most common method of suicide, because the residents' isolation and physical disabilities made this method the easiest. The finding that suicide was more common during the early to middle periods of the leprosarium's history probably reflects the severe living conditions during this time. Although it was impossible to follow the details of each suicidal person, five recent cases were thought to have been related to depression. We heard about a 90-year-old woman who committed suicide by hanging, so it is important to identify depressive patients earlier and prevent elderly residents from committing suicide. Recent studies demonstrate that the lack of social relationship is the most common risk factor for late-life suicide.^{27,28} As in the case of normal community, a suicide prevention program can be effective for elderly patients in leprosarium.

Leprosy residents in Japan and throughout the world require appropriate mental health care, such as brief therapy and cognitive behavioural therapy, is essential for leprosy residents, whether people with leprosy are depressed or not. These treatments are usually needed for residents with other chronic diseases.^{29,30} In addition, the possibility of depression should be emphasized in physical assessments of elderly patients with leprosy.

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