sanatoria’s operation and maintenance is costly and labor-intensive. Following the extreme decrease in total survivor numbers: the population for the remainder of their lives. This raises questions regarding the optimal operation and maintenance of facilities due to improving public hygiene. In consequence, the population of suitable medicine and continued accommodation at sanatoria, and will continue to memorialize the dead, work to promote contact between Hansen’s disease survivors and the public, and promote public awareness activities in order to restore Hansen’s disease survivors’ public image.

The government abolished laws requiring isolation, apologized to and compensated Hansen’s disease survivors, and implemented new laws in 2009. The new laws state that the government will provide lifelong support to Hansen’s disease survivors, including the provision of suitable medicine and continued accommodation at sanatoria, and will continue to memorialize the dead, work to promote contact between Hansen’s disease survivors and the public, and promote public awareness activities in order to restore Hansen’s disease survivors’ public image [3].

The incidence of Hansen’s disease decreased after 1960 in Japan due to improving public hygiene. In consequence, the population of Hansen’s disease survivors is aging (survivors’ average age was 82.1 years at 2012), and the number of survivors is decreasing due to survivors’ aging and death. The total number was 1840 at 2012, and the number of survivors is decreasing due to aging; 2. The burden of creating new strategies to live with multiple severe sequelae in a new environment; 3. Displeasure at the disruption of routines; 4. Dissatisfaction with the decision-making process regarding structuring the building and rooms’ layout; 5. Thinking positively to accept moving house and enjoying the new environment.

Introduction

Historically, Hansen’s disease has been stigmatized. Until about 1950, patients with Hansen’s disease around the world were forced into isolation in leprosaria. Following the development of the medicine Promin, Hansen’s disease could be cured and the WHO recommended cessation of isolation [1, 2]. In Japan, however, laws requiring isolation remained effective until 1996, although in practice isolation ceased gradually. Hansen’s disease survivors therefore lost the chance to be reintegrated into society, and continued to live out their lives in sanatoria.

The government abolished laws requiring isolation, apologized to and compensated Hansen’s disease survivors, and implemented new laws in 2009. The new laws state that the government will provide lifelong support to Hansen’s disease survivors, including the provision of suitable medicine and continued accommodation at sanatoria, and will continue to memorialize the dead, work to promote contact between Hansen’s disease survivors and the public, and promote public awareness activities in order to restore Hansen’s disease survivors’ public image.

The incidence of Hansen’s disease decreased after 1960 in Japan due to improving public hygiene. In consequence, the population of Hansen’s disease survivors is aging (survivors’ average age was 82.1 years at 2012), and the number of survivors is decreasing due to survivors’ aging and death. The total number was 1840 at 2012; most of these live in 13 national and two private sanatoria. Survivors were rendered infertile by vasectomy; most had broken off their relationships with relatives in order to prevent discrimination against those parties. Sanatorium staff must therefore care for the survivor population for the remainder of their lives. This raises questions regarding the optimal operation and maintenance of facilities following the extreme decrease in total survivor numbers: the sanatoria’s operation and maintenance is costly and labor-intensive.

Some sanatoria have attempted to also accommodate aging people in general, and thereby convert from Hansen’s disease-specific facilities to general geriatric health services facilities; however, not all sanatoria are able to do this. The remaining facilities’ integration with general aged care therefore requires consideration.

B Sanatorium, which is this paper’s participant, is one of the 13 national sanatoria, and is located on an isolated island in the Seto inland sea. The sanatorium owns almost the entire island. The sanatorium is only accessible by ship; it is eight kilometers from the mainland. This isolation impedes B Sanatorium’s efforts to make plans for its future; however, B Sanatorium’s total number of residents is decreasing faster than that of other sanatoria (eg. 122 person at 2008, 67 at 2015). This means that B Sanatorium must prioritize considerations regarding caring for its residents for the remainder of their lives. We intend to relocate B Sanatorium’s residents. Historically, the residents have lived in terrace houses dispersed across the island as married couples or individual persons; however, these houses have become dilapidated, and as residents’ physical functioning decreases due to aging, the risk of injury and emergency rises. We intend to construct a new building for geriatric health services, which will permanently accommodate nursing staff, and which residents may visit if they require care.

Nonetheless, although relocation and integration are unavoidable, these changes will strongly affect the resident Hansen’s disease survivors due to their age and sustenance of multiple severe sequelae.


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2. Data collection: Semi-structured interviews were conducted among aging Hansen’s disease survivors, and to discuss care strategies for multiple sequelae before the development of Promin. The loss of pain sensation, which serves as a caution against wounding, and patients’ having to work due to poverty, were found to result in common injury; further, primitive medical care, poor hygiene, inadequate infrastructure, and superstitions contributed to debilitating injuries. In sanatoria, residents easily sustain injuries due to sensory and motor nerve paralysis, which in turn makes an appropriate living environment critical to injury prevention. Further, aging tends to diminish individuals’ capacity to maintain homeostasis, making aging persons more susceptible of illness and limiting their ability to adapt to environmental change [5]. Changing the living environment may therefore critically affect aging Hansen’s disease survivors; however, we have found no ameliorating factors except for air conditioning, which prevents residents suffering heat accumulation due to perspiration disorders [6].

Many Hansen’s disease survivors have been made bitter by experiences of discrimination. Sanatorium nurses have a responsibility to promote their health and well being. In this context, we must minimize the negative effects of relocation, and promote survivors’ adjustment to a new living environment.

This study’s objectives are as follows: 1) identifying care strategies that will minimize the negative effects of relocation; solving emerging problems in B sanatorium; 2) gathering basic evidence regarding survivors’ care requirements and preparing for survivors’ relocation, since integration is made necessary by the decreasing number of survivors in Japan; 3) making suggestions regarding the living environment’s effect on aging Hansen’s disease patients, and regarding survivors’ perceptions of relocation, given that the incidence of Hansen’s disease is increasing in developing countries; 4) the possibility of generalization to other aging handicapped populations, given that Hansen’s disease sequelae are characteristically multiple and severe.

Purpose

The purposes of this study are to clarify the meaning of relocation among aging Hansen’s disease survivors, and to discuss care strategies that may minimize the negative effects of relocation and promote adaptation to new living environments among Hansen’s disease survivors.

Method

1. Participants: Hansen’s disease survivors who intended move house in B sanatorium and volunteered to participate.

2. Data collection: Semi-structured interviews were conducted 7–8 months before relocation. The researcher listened to and empathized with the participants’ accounts. Questions were sometimes added in order to clarify responses’ meaning. Participants’ accounts were recorded; verbatim transcripts were created with permission.

3. Interview guide: Hansen’s disease survivors were asked the following questions: 1) what is worrying about preparing to move, 2) what is worrying about life after moving, 3) how are those worries related to your sequelae, 4) what are your wishes regarding your final abode, 5) what pleasure is there after moving, 6) what are your wishes regarding nurses and care staff.

3. Data analysis: Qualitative and inductive analysis were performed as follows, to understand the meaning of relocation as a topic: 1) individual analysis: a) close reading of the verbatim transcript; identifying utterances relating to relocation and expressing their meaning in one sentence, b) grouping sentences with similar meanings, expressing the meaning of the grouped sentences, and creating labels. 2) Holistic analysis: a) reading all labels thoroughly, collating similar labels, expressing their meaning, and creating categories, b) continuing this process, increasing the level of abstraction. 3) Ensuring the results’ authenticity and validity: a) supervision by a qualitative researcher during the research process, b) obtaining confirmation from participants regarding categories and subcategories’ correct capturing of their meaning.

4. Ethical considerations: Participants were informed that participation was voluntary, that all data would be kept confidential and used only in the study, and that they were free not to answer questions or provide information. Participants also received a description of the research’s objectives and procedures. All participants indicated consent orally and in writing. The proposed research was approved by the ethical committee at the National Sanatorium Oshima Seisho-en (Authorization number: H25-2)

Results

Participant characteristics

Participants were ten residents (five male, five female; average age: 80.7±4.9 years). Five participants had spouses; five did not. Regarding sequelae of Hansen’s disease, three participants had enucleated eyeballs, and all participants had motor and sensory paralysis. Regarding independence in activities of daily life (ADLs), four participants did not require support, three required partial support, and three required considerable support (Table 1).

The meaning of relocation among aging Hansen’s disease survivors

The meaning participants ascribed to relocation was sorted into five categories (Table 2).

1. The burden of relocation after the age-related decline of our community’s powers of mutual aid and mobility

This category contained five subcategories: 1. Our power of mutual aid is decreasing because we are all getting old (by the death of other survivors and our spouses, and the decreasing function of the survivors’ self-government association and of individuals’ physical functioning). 2. Increasing fear of dementia and early death due to environmental changes and overwork due to moving house. 3. Indeterminate anxiety due to inability to imagine life after moving house. 4. Bitter memories of past relocation events. 5. The burden of packing and carrying household goods in a deteriorating living environment.

2. The burden of creating new strategies to live with multiple and severe sequelae in a new environment

This category contained the following subcategories: 6. Participants who had lost their eyesight expressed misgivings regarding being watched while eating, because they felt their manner of eating was disgraceful. 7. Participants who had lost their eyesight felt the burden
Table 1: Participant characteristics.

<table>
<thead>
<tr>
<th>Case</th>
<th>Year</th>
<th>Sex</th>
<th>Spouse (presence)</th>
<th>Lost eyesight</th>
<th>Motor paralysis</th>
<th>Sensory paralysis</th>
<th>Independence in daily life activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>85</td>
<td>male</td>
<td>yes</td>
<td>enucleation of eyeball &amp; artificial eye (left), amblyopia (right)</td>
<td>dropping legs (both, using bandage)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>partial support</td>
</tr>
<tr>
<td>B</td>
<td>85</td>
<td>female</td>
<td>no</td>
<td>enucleation of eyeball &amp; artificial eye (both)</td>
<td>dropping legs (both, using bandage)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>partial support</td>
</tr>
<tr>
<td>C</td>
<td>85</td>
<td>female</td>
<td>no</td>
<td>amblyopia (both)</td>
<td>Charcot’s joint (both foot joint), arthrodosis due to splintered fracture (one side), dropping legs (one side, using brace)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>partial support</td>
</tr>
<tr>
<td>D</td>
<td>84</td>
<td>female</td>
<td>no</td>
<td>none</td>
<td>none</td>
<td>anesthesia (only right forearm)</td>
<td>no support</td>
</tr>
<tr>
<td>E</td>
<td>82</td>
<td>male</td>
<td>yes</td>
<td>amblyopia (right)</td>
<td>none</td>
<td>anesthesia (hand &amp; foot)</td>
<td>no support</td>
</tr>
<tr>
<td>F</td>
<td>82</td>
<td>male</td>
<td>no</td>
<td>amblyopia (both)</td>
<td>Charcot's joint (elbow, using brace), transformation by Charcot's joint (both foot joint, using brace)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>full support</td>
</tr>
<tr>
<td>G</td>
<td>80</td>
<td>female</td>
<td>yes</td>
<td>none</td>
<td>dropping legs (both, using bandage)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>no support</td>
</tr>
<tr>
<td>H</td>
<td>79</td>
<td>female</td>
<td>yes</td>
<td>enucleation of eyeball &amp; artificial eye (both)</td>
<td>dropping legs (one side, using bandage)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>full support</td>
</tr>
<tr>
<td>I</td>
<td>75</td>
<td>male</td>
<td>yes (outside sanatorium)</td>
<td>none</td>
<td>amputation (both legs), amputation (fingers at both hands)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>full support</td>
</tr>
<tr>
<td>J</td>
<td>70</td>
<td>male</td>
<td>no</td>
<td>lagophthalmos (both)</td>
<td>dropping legs (both)</td>
<td>anesthesia (hand &amp; foot)</td>
<td>no support</td>
</tr>
</tbody>
</table>

1. The burden of relocation following the age-related decline of our mobility and our community's mutual aid ability.

1. Because we are all getting old, our ability to help each other is decreasing (e.g., due to the death of colleagues or spouses, and the decreasing functioning of the survivors' self-government association, as well as age-related decreases in individual physical functioning).

Category

Sub category | Lower category
--- | ---
1. The burden of relocation following the age-related decline of our mobility and our community’s mutual aid ability.

1) Mutual aid among Hansen’s disease survivors has decreased due to colleagues’ death and aging.

2) The functioning of the residents’ self-government association has decreased due to residents’ death and aging.

3) Relocation is an age-related burden for us, because of decreasing physical functioning, perception, memory, and visual ability.

4) I hesitate to request support from the sanatorium staff or resident’s helpers, because the staff must care for many other residents as well as for me. Additionally, helpers who have light sequelae and who have continued to help residents with severe sequelae for a long time are also aging and feel the burden of caring for residents with severe sequelae.

5) I think if we move house now we are old, dementia among us will increase.

6) I think if we move house now that we are old, the overwork will cause sickness and death to increase.

7) I feel anxiety for the future due to aging.

8) I will not know unless I go to the new house.

9) After a former relocation, I had difficulty becoming acclimatized to my new life and I have just now become acclimatized.

10) I had disagreeable experiences in previous moves.

11) Packing is a burden for me.

12) Carrying household goods brings the deterioration of the living environment; for example, by bringing noise and dust.
### 2. The burden of creating new strategies in order to live with multiple and severe sequelae in a new environment

<table>
<thead>
<tr>
<th>6. Misgivings about being watched while eating among blind survivors who are embarrassed of eating messily.</th>
<th>13) I don't want people to see me eating because my blindness causes me to make a mess.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. The burden of living with blindness and sensory paralysis, and having to lose one's mental map of one's environment and create a new map of a new environment.</td>
<td>14) I have a mental map of my house because I have lost my eyesight and cannot identify items by touch due to sensory paralysis. I have memorized the position and arrangement of items in the room and made a mental map of them over a long time. After house-moving, I would need to make a new mental map of the new house; this is a great burden for me.</td>
</tr>
<tr>
<td>8. Suffering the loss of a good residential environment that accommodated one's sequelae, neuralgia, thermal regulation disorder, and poor vision</td>
<td>15) Because I had gotten used to my old house and my body understands how I must move, I can move like a person with good vision.</td>
</tr>
<tr>
<td>9. Fear of increasing injuries that are liable to be more severe due to the characteristics of Hansen's disease, because of loss of a living environment that had been adapted to accommodate hand and leg sensory disorders and prevent injuries.</td>
<td>16) Because I cannot see and cannot perceive by touch, I know my direction by the sound of the radio. And when I change my course I know when I have come to a dead end because I can feel the resistance against my body.</td>
</tr>
<tr>
<td>10. Loneliness of a comfortable residential and personal environment as one's final abode.</td>
<td>17) I must re-remember the new layout and position of items at the new house. Although I am aging and my memory is failing, I have no confidence about re-learning and feel anxious about becoming familiar with the new house because I am blind and have sensory paralysis, and decreasing memory function.</td>
</tr>
<tr>
<td>11. The increasing burden of caring for an aging blind spouse.</td>
<td>18) I will have difficulty, because my spouse who could see is dead.</td>
</tr>
<tr>
<td>12. Misgivings about being disturbed from a familiar daily rhythm built for long time.</td>
<td>19) I cannot understand the layout of the new house, because I cannot see its blueprints.</td>
</tr>
<tr>
<td>13. Concerns about being disturbed due to living with trouble makers.</td>
<td>20) I hope not to lose this living environment that is currently perfect, where natural wind may enter. Natural wind alleviates both my neuralgia and my thermal regulation disorder.</td>
</tr>
<tr>
<td>14. Dissatisfaction about inconvenient building structure and room layout.</td>
<td>21) I hope not to lose this living environment that is currently perfect, where I can understand the time, weather, changing seasons, and my direction by the sunlight that entered my room.</td>
</tr>
<tr>
<td>15. Angry and resigned about not being able to agree in the process of deciding on the structure of the new building.</td>
<td>22) Because of sensory paralysis, I cannot feel when I am injured, and our injuries often become severe and lead to osteomyelitis. So we adapt everything in my room over a long time to prevent injury.</td>
</tr>
<tr>
<td>16. Dissatisfaction with the decision-making process managing building structure and room layout.</td>
<td>23) My favorite house is my old house, my old house is comfortable for me.</td>
</tr>
<tr>
<td>17. Concerns about being disturbed due to living with trouble makers.</td>
<td>24) I hope to continue living here with my familiar neighbors and staff until end of my life.</td>
</tr>
<tr>
<td>18. I want to live in a house that allows natural wind and sunshine to enter.</td>
<td>25) Because my blind spouse will not adapt to a new house easily, my burden of care for my spouse will increase.</td>
</tr>
</tbody>
</table>

### 3. Disagreeableness of having one's life disturbed

| 26) I don't want to break from my daily rhythm that I have preserved for a long time. |
| 27) I don't want to to live with troublemakers. |
| 28) I am worry that nurses will not give me much care, because they will be busy with other residents who cannot perform daily life activities alone due to weak physical functioning from aging and multiple severe sequelae. |
| 29) The layout and arrangement of the new houses will be inconvenient for our lives. |
| 30) Because caregiver convenience will decide things, our familiar Japanese style of the good old days is lost. |
| 31) I want to live in a house that allows natural wind and sunshine to enter. |
| 32) The new house is not suitable as a place to die. |
| 33) We cannot accept the process that decided the design and layout of the new building. I feel angry and oppose the move |
| 34) I don't want to accept the move but I have no choice. |
| 35) I feel discontent to gather residents at one place due to decreasing number of residents. |
of losing their mental map of their living environment and having to create a new mental map of their new surroundings. 8. Suffering the loss of a good residential environment that had accommodated the participants' sequelae, neuralgia, thermal regulation disorder, and poor vision. 9. Fear of increasing injuries (which were more likely to be severe due to the characteristics of Hansen's disease) due to the loss of a living environment in which we had contrived to prevent injuries and offset sensory disorders affecting participants' hands and legs. 10. The loneliness of a comfortable residential and personal environment as one's final abode. 11. The increasing burden of caring for an aging blind spouse.

3. Dislike of having one's daily life disturbed

This category contained the following subcategories: 12. Misgivings about being disturbed from a familiar daily rhythm built up over a long time. 13. Worries about being disturbed in daily life due to living with trouble-makers.

4. Dissatisfaction with the decision-making process for structuring the building and room layout

This category contained the following subcategories: 14. Dissatisfaction with inconveniences in the building's structure and room layout. 15. Anger and resignation about not being able to agree in the decision-making process for structuring the building.

5. Thinking positively to accept moving house and enjoying the new environment

This category contained the following subcategories: 16. There will be no anxiety about moving if our requests will be met. 17. All that is necessary is enjoying a full and independent life before and after relocation.

Table 2: Meanings of relocation for aging Hansen's disease survivors.

<table>
<thead>
<tr>
<th>Number</th>
<th>Meanings of relocation for aging Hansen's disease survivors</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>There is no anxiety about moving if our requests will be met.</td>
</tr>
<tr>
<td>17</td>
<td>All that is necessary is enjoying a full and independent life before and after relocation.</td>
</tr>
<tr>
<td>36</td>
<td>I will overcome the move, because my relationships with my colleagues and the sanatorium's staff are good and I will receive the nurses' care.</td>
</tr>
<tr>
<td>37</td>
<td>My sequelae is light: I have eyesight and no motor paralysis or sensory paralysis. I will overcome the relocation.</td>
</tr>
<tr>
<td>38</td>
<td>Because my spouse will help me; our couple will help each other, if my spouse will be in good, I will overcome the relocation.</td>
</tr>
<tr>
<td>39</td>
<td>If others will help with packing the baggage, I do not feel anxious.</td>
</tr>
<tr>
<td>40</td>
<td>I understand and consent to the circumstance that we must move.</td>
</tr>
<tr>
<td>41</td>
<td>I wish to live with independence and autonomy.</td>
</tr>
<tr>
<td>42</td>
<td>I will have a new life after relocation, I feel joy and expectation.</td>
</tr>
<tr>
<td>43</td>
<td>I had hoped to leave this island and live in an apartment in the mainland, but this hope was not fulfilled. So I am looking forward to this move.</td>
</tr>
<tr>
<td>44</td>
<td>I hope to fully enjoy my remaining years of life at the new house, because I understand that the new house is where I will die.</td>
</tr>
</tbody>
</table>

The meaning of relocation among aging Hansen's disease survivors

1. Meanings of aging for Hansen's disease survivors

The burden of relocation following the age-related degradation of mobility and of our community's mutual aid ability—an illustration of the meaning of aging among Hansen's disease survivors.

This burden had two aspects among Hansen's disease survivors: packing baggage and carrying furniture, and adaptation to a new house. These two types of burden are common to general people's experience; however, participants anticipated greater difficulty than in previous experiences of relocation due to an increased number of household effects and large and heavy furniture. The participants were very poor in previous forced isolation, and were therefore unable to acquire household effects. In turn, that meant they were only required to move a small amount of baggage in previous relocations. In contrast, the participants now lived more abundantly, and relocation was an accordingly large-scale endeavor.

Additionally, survivors were critically worried about increasing dementia and death by overwork following relocation. Before and after the Great East Japan Earthquake, the amount of required insurance for long-term aged-care nursing support (measured in terms of approved support) increased by 1.2 times; however, it increased by 1.9 times in 42 towns directly affected by the earthquake and tsunami, and by as much as 4.9 times in 10 towns whose populations were required to relocate following the accident at the Fukushima nuclear power plant. Increasing nursing support was required due to decreasing physical functions, increasing dementia and depression, and loss of care givers due to the death or relocation of their relatives [7]. This data indicates the negative effects of forced relocation. Aging persons typically have decreased physical resilience, adaptability, recuperative power, and homeostatic stability [5]; nurses must therefore provide sufficient support, and assess if aging residents have developed physical or psychological disorders.

Aging residents found house-moving difficult due to decreased mutual aid ability (for example due to the death of their spouses or other survivors, and the decreased functioning of the survivors' self-government association, as well as the residents' own decreasing physical functioning). During forced isolation, this study's participants...
Patients' living environment thus affected the occurrence of sequelae.

According to Oyabu et al. [9], people with Hansen's disease have been forced to work in hazardous environments; additionally, patients may suffer heat accumulation due to perspiration disorders. Drop, ape hand, and claw hand. Regarding peripheral nerve disorder, some patients' facial expression was changed due to facial nerve paralysis; patients also suffered foot drop and claw toes, wrist dysfunction, due to loss of perception (resulting from narcosis), and osteomyelitis. Further, sensory nerves may understand objects by touch; however, Hansen's disease survivors with poor eyesight and sensory paralysis cannot understand objects by touch. Survivors must therefore create and memorize a mental map of their surroundings, and for instance be able to determine their location and direction by the sound of a radio or by feeling resistance from colliding with a wall, or with the help of a spouse with good eyesight. Similarly, survivors with perspiration disorders resulting from autonomic nerve disorders accumulate heat easily, and in west Japan peak temperatures reach 37 degrees Celsius and the average humidity is 70% during summer. We therefore control the temperature using an air conditioner; however, excess cooling can provoke neuralgia. Capturing the natural sea breeze resolves this issue by providing sufficient cooling to prevent heat accumulation while avoiding provoking patients' neuralgia. Additionally, survivors with dropped and unclosed lips due to facial nerve paralysis, absent nasal septa, saddle nose, amputated fingers, and blindness experience difficulty eating, and commonly drop or soil their faces with food. Survivors therefore aim to eat alone in order to preserve their self-esteem. Survivors' living environments must thus simultaneously fulfill multiple requirements in order to accommodate the multiple severe sequelae that are characteristic of Hansen's disease. Relocation therefore entails the loss of this specially-suited living environment that fulfills multiple requirements; it is critical that nurses understand the importance of this loss.

Hansen's disease survivors protect themselves from physical injury by adapting their living environment. Survivors are injured easily due to anesthesia caused by nerve damage; further, their injuries may easily be severe and become intractable. They compensate for this lack of perception by continually touching objects, and thereby becoming able to safely navigate their environments. The loss of this environment due to relocation thus directly increases the risk of severe and intractable injury.

Of all sequelae, blindness has perhaps the most severe effect on survivors. Before the development of Promin, blindness was one of the so-called three great sufferings (with the other two being the disease's diagnosis and tracheotomy). At that time, an economic differential existed between patients who were and were not able to work. Blind men experienced the greatest poverty because they could not work; this caused the self-government association to feel pity and led to the establishment of the mutual aid system [1,8]. Before the development of Promin, blindness was a severe sequela that brought poverty; currently, blindness remains the factor that most impedes...
survivors’ adaptation to new living environments. Caregivers must understand survivors’ difficulty in creating a mental map of a new house at an advanced age, given that the process is likely to lead to injury and will necessarily take place in a context of weakened mental function and homeostatic stability.

As mentioned above, survivors’ sequelae are affected by the living environment regarding both occurrence and management. Multiple severe sequelae are characteristic of Hansen’s disease; survivors’ living environments must accommodate survivors’ sequelae, and blind survivors have the most difficulty adapting to new environments. In Japan, the shrinking survivor population will eventually necessitate laws requiring the amalgamation of survivors and sanatoria with general aged care, due to tight national medical budgets and sanatoria’s high costs of operation and maintenance. Nonetheless, governmental and facility administrators’ integration plans must be informed by an understanding of the essential meaning of relocation among survivors of Hansen’s disease, which differs from that of relocation among the general aging population. Nurses’ management of survivors’ daily life must reflect the same understanding. We regard transmission of this information to medical administrators and national Hansen’s disease survivors’ self-government organizations as constituting advocacy on behalf of the survivors. Further, we must measure the effect of relocation in this population and integrate the resulting data into future reforms.

3. Adaptation to the loss of an old, familiar, and emotionally important house

Category 4 (dissatisfaction with the decision-making process for structuring the building and room layout) and category 5 (thinking positively to accept moving house and enjoying the new environment) illustrate different patterns acceptance of relocation.

During the initial decision-making process, the sanatorium’s staff explained the relocation plans to the residents’ self-government association and engaged the association in discussion; however, the residents expressed anger and dissatisfaction, reflecting survivors’ anticipation of loss due to moving house. Most importantly, relocation involves the loss of a living environment that is palliative of multiple and severe sequelae and which has been constructed over a long time, as explained at above.

Additionally, this study’s participants have lived in their established accommodation for between 60 and 70 years, due to the isolation imposed historically by the government. Currently, they are free to go, but are incapable of doing so and feel despair at the prospect of being unable to leave until their death, seeing the sanatorium as a tomb. The participants described attempting to improve their living environment in the understanding that it was where they would remain until their death. They had lived in their old houses while comforting a bereaved participant described attempting to improve their living environment and of relocation for aging Hansen’s disease survivors. Further, aged individuals are confronted with their own aging and imminent death, and failing physical abilities may cause the loss of autonomy and independence through inability to perform ADLs, which in turn may disrupt the survivors’ community (e.g. in section 1.1 above). These multiple losses may cause aging residents to experience multiple layers of grief. Additionally, the weakening of the survivors’ community entails the loss of social support. In this context of multiple losses, the additional loss of an emotionally important house is likely to provoke an angry, resigned, or dissatisfied reaction, making acceptance of relocation difficult for aging residents. Nurses must understand and care for abstruse grief that manifests as anger, resignation, and dissatisfaction in response to relocation. Further, the experience of repeated loss may cause individuals to enter exhaustive crises [9]. Nurses must assess residents’ recognition of this situation and organize sanatorium staff to provide social support, for instance by using Aguilerás crisis intervention model.

In contrast, a small number of participants accepted the relocation plans positively and awaited relocation with pleasure. One such participant has relatively light sequelae and finds value in gardening, and had hoped to live outside the sanatorium one day. Another participant has heavy sequelae but is curious, and likes eating, shopping, and interacting with others. The sanatorium therefore needs to allow for value in residents’ lives, as well as compensating for decreasing physical and psychological functioning due to aging and providing end-of-life care. Nurses at B sanatorium should listen to survivors’ life stories and work to pass the history of Hansen’s disease and patients’ sufferings on to future generations [10]. Listening with empathy and helping to pass down experiences importantly helps patient to find value in life. In old age, developmental tasks use integration to protect against despair, and it is important for elderly people to be able to listen to their own life story in order to feel that they have used their wisdom to strengthen society [11]. Nurses must support this process to protect elderly people from despair resulting from multiple losses and provide end-of-life care that makes life worth while for elderly people.

Care plan for aging Hansen’s disease survivors in order to minimize the negative effects of relocation (Table 3)
| (2) Strengthening care that supports age-degraded physical and psychological functioning | a) Prioritize physical assessment for early detection of physical deconditioning and chronic illness.  
b) Continue early detection of and suitable care for dementia  
c) Particularly provide care to prevent accidents (e.g., falling).  
d) Detail-oriented care supporting residents’ ADLs.  |
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<td>(3) Future research should confirm the effects of relocation; subsequent strategies should be revised to reflect the confirmed effects.</td>
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| 3) Care aiming to alleviate the burden of developing new strategies to live with multiple and severe sequelae in a new environment | (1) Educate nurses and residents regarding the need for the living environment to accommodate multiple severe sequelae; support this environment’s re-creation.  
   a) Nurses should assess and understand each resident’s requirements.  
   b) Before entering new accommodation, nurses and residents should repeatedly and collaboratively consider how to best prepare the new house to meet the resident’s requirements.  
   c) After entering the new accommodation, nurses should identify and improve unsatisfactory elements.  |
| (2) Supporting blind residents with sensory paralysis | a) Nurses should empathize with residents’ grief over losing their mental map of their accommodation, and understand the resulting inconvenience.  
   b) Nurses should aim to prevent accidents and minimize inconvenience due to residents’ loss of their mental map.  
   i) The nurse and resident must repeatedly preview the new house in a preparatory period before moving into the house.  
   ii) The layout and position of objects should be as similar as possible between the resident’s old and new houses.  
   iii) Blind persons with sensory paralysis require the most considerate care; nursing administrators should therefore implement systems permitting nurses to care thoroughly for such residents.  
   iv) Thinking collaboratively about how to use residents’ remaining functions, for example if blind residents aim to determine their orientation using their hearing, staff should consider using the sound of radios or bells. Likewise, if blind residents aim to recognize distance by feeling resistance on colliding with a known object such as a door or pole, staff should cover that object with protective padding.  
   v) If a spouse with good eyesight is supporting a blind resident, staff should particularly monitor the spouse for fatigue or loss of physical condition. If the spouse feels burdened by a particular care requirement, for example helping the blind resident to bathe, staff should discuss supporting that care requirement with the spouse and the resident.  
   vi) Provide adequate support for residents’ ADLs.  
   vii) Implement strategies that prevent accidents.  |
| 3) Care aiming to diminish injury risk among residents with sensory paralysis | a) Nurses and residents should conduct a safety patrol to identify high-risk places and consider strategies for preventing injury. Including residents and nurses in such patrols will help to minimize rebound and preserve the chosen strategies by increasing resident acceptance of those strategies [12].  |
Conclusion

The meaning of relocation among aging Hansen’s disease survivors was categorized as follows: 1. The burden of relocation after the age-related degradation of our mobility and of our community’s mutual aid ability. 2. The burden of creating new strategies to manage multiple severe sequelae in a new environment. 3. Displeasure at being disturbed from established routines of daily life. 4. Dissatisfaction with the process for deciding the structure of the buildings and rooms’ layout. 5. Thinking positively to accept relocation and enjoy the new environment.

This study has the following important points: 1) The living environment affected the occurrence and management of Hansen’s disease sequelae, 2) Hansen’s disease survivors must adapt their living environment to meet multiple environments in order to manage multiple severe sequelae, 3) blind survivors created mental maps of their living environment; relocation entails the loss of these maps.

Competing Interests

The author declare that she has no competing interests.

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