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Seven-Year Outcome of Two Cases of Depression in Elderly High-Altitude Residents in Ladakh, India

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Abstract

Studies have reported a positive association between suicide rate and altitude, suggesting a relationship between hypoxia and depression. Previously we reported that a high frequency of depression is not universal at high altitudes and that the prevalence of depression in Ladakh was low. This study aimed to analyze the clinical course of residents diagnosed with depression during our previous health checkup. The participants were two residents diagnosed with depression during our health checkup of 114 residents in Domkhar, Ladakh in 2009. Their 7-year outcome was analyzed through home visits. The Geriatric Depression Scale-15 as an index of depression, the Religious Commitment Inventory-10 as an index of religious devotion, and the Multidimensional Scale of Perceived Social Support as an index of social support were administered. The two residents diagnosed with depression achieved spontaneous remission without treatment. Both residents had strong religious devotion and were satisfied with their relationship with other residents. They reported that praying, listening to a priest's lecture, and visiting a religious facility made them feel better. The results suggest that social support and religious beliefs may not only protect against the development of depression but also have a positive effect on the clinical course of depression in high-altitude communities.

Keywords: Depression; Hypoxia; High altitude; Ladakh; Tibetan Buddhism

Introduction

Suicide rates in the United States are greater in higher altitude areas, and hypoxia has been cited as a factor in these increased rates [1,2]. One group of authors speculated that decreased oxygen saturation at high altitudes may exacerbate the bio-energetic dysfunction associated with affective illnesses [2], which may be due to glycolytic metabolic shifts, or mitochondrial dysfunction. High altitude may appear to be a significant risk factor for depression [3]. We previously reported that despite the harsh high-altitude environment, the prevalence of depression was low in elderly highlanders residing in the Himalayas [4,5]. Through the survey, we noticed that people living at high altitudes have very strong ties centered on the family, and such strong interpersonal networks may prevent the development of depression. A majority of the participants in our survey responded with "Praying" in answer to the question "What activity makes you the happiest?". Religion plays a major role in these regions. Participants in our study in Ladakh were all devout followers of Tibetan Buddhism. They believe in karma. According to the concept of karma, happiness and suffering in this life are the result of your actions in a previous life. Such strong beliefs could act to suppress the onset of depression. The results suggest that deep religious devotion and social support are helpful in defending against development of depression. But little is known about clinical course of depression in these areas. This study aimed to analyze the clinical course of the two residents diagnosed with depression in a clinical interview during our previous health checkup in Ladakh.

Methods

The village of Domkhar, which is in the outlying areas of the Ladakh district of India, is located in the foothills of the Himalayas. It is a small village with a population of approximately 1500, and it is 3000-4000 m above sea level. Domkhar is a developing region with little electricity or running water, and many people survive on subsistence agriculture and livestock farming. Population outflow to urban area (mainly young semi educated youths for employments and profits from tourism and government jobs) is becoming a problem.

In Ladakh, the Ladakhis are predominant group, and they are all Buddhists. The participants were two residents diagnosed with depression using the Diagnostic and Statistical Manual of Mental Disorders Text Revision during our health checkup of 114 residents over 60 years of age in Domkhar in 2009. Their 7-year outcome was analyzed through home visits. The interview was conducted in English with a local interpreter.

Depressive symptoms were assessed using the 15-item Geriatric Depression Scale (GDS). The scale, which contains 15 items that require only a yes/no answer, is the most widely used scale for detecting depression [6]. The score ranges from 0 to 15: higher scores indicate stronger depression tendency.

The Religious Commitment Inventory-10 (RCI-10) is a 10-item measure of religious commitment designed for use across faith groups [7]. The scale has two related subscales, intrapersonal (6 items) and interpersonal (4 items) religious commitment. The intrapersonal and interpersonal items include: "I spend time trying to grow in understanding of my faith" and "Religious beliefs influence all my dealing in life" respectively. Responses to these items are scored on a 5-

point gradient scale, with a score of 1 anchored to: "Not at all true of me" and a score of 5 anchored to: "Totally true of me."

The Multi-Dimensional Scale of Perceived Social Support (MSPSS) consists of a 12-point Likert-type scale ranging from "very strongly disagree" to "very strongly agree" [8]. The total score of the scale varies between 12 and 84. It is easy to use and a short measure of the subjective assessment of perceived social support.

Informed consent was obtained from all individual participants included in the study.

Presentation of the Case

Case 1

Ms. S was a 67-year old woman living with her husband in Domkhar village. She was born as the eldest of three daughters in Domkhar and got married at the age of 19. She never received schooling. She has two sons and a daughter. Her eldest son, who worked in the army, died in an accident abroad in 2008. Since then, she had experienced loss of appetite, insomnia, and fatigue for more than a year. We interviewed her at a medical checkup in 2009, and she reported depressed mood, anhedonia, decreased concentration, and decreased memory. There was no history of any long-term physical disease or psychiatric illness. There was no family history of mental disorder. Blood tests showed normal results. We diagnosed her as having major depression. There was no hospital nearby, and it was difficult to procure antidepressants. We explained her condition to her family and told them to support her.

Her family supported her well. Her family also received a compensatory pension for surviving families. She and her family believed that she had bad karma, that praying would improve her condition, and she should stay together with her family and neighbors. She spent most of the time praying in her house. Her family sometimes invited a high priest and took her to a religious facility. She had been experiencing depressive symptoms, and five years later, in 2014, her condition finally improved. Then, she opened a guesthouse and worked hard with her husband and her second son.

We visited her again in 2016. She denied any depressive symptoms, and her GDS was 1/15, RCI-10 was 37/50, and MSPSS was 62/84. We asked about the situation seven years ago, and she said, "I just kept praying every day. Praying reduced my feeling of sadness and maintained my peace of mind. Praying, listening to a high priest's lecture, and visiting a religious facility made me feel better. I was experiencing depressive symptoms for five years. However, one day, I suddenly realized that I must accept my situation and live for my grandchildren, and that I cannot stay sad forever."

Case 2

Ms. T is an 86-year old female farmer living with her husband in Domkhar village. She was born in Domkhar and got married at the age of 25. She was not formally educated. She has five sons and a daughter. She was very happy until her children moved out of the village for their jobs or due to marriage, even though they were poor. She thought that children should live with their parents and take care of them. She had a major problem with farming in 2008, but her children could not help her. Since then, she experienced depressed mood, anhedonia, decreased appetite, fatigue, insomnia, and decreased concentration almost every day for more than a year. She experienced difficulty in walking due to hip pain. There was no history of any psychiatric illness. There was no family history of mental disorder. Blood tests showed normal results. We diagnosed her as having major depression at a medical checkup in 2009.

Seven years later, she had no depressive symptoms. Her GDS score was 3/15, RCI-10 was 40/50, and MSPSS was 66/84. Her son, who worked in the army, could not bear to see her distress. He came to help her with harvesting and housework for three months since then. She started to work like before. She could not visit the Buddhist monastery due to the hip pain, but she prayed at home every day. This also helped her reduce her feeling of sadness. We asked her about what made her feel better, and she replied, "My son. Recently, many young people have been leaving their hometown. I was depressed when my children left home, but I felt relieved when one of my sons returned. Children should stay with their parents."

Discussion

Previous research has shown that religious adults are less likely to experience depressive symptoms and report a positive view of life, possibly due to the social support offered by faith-based group activities [9-11]. However, little is known about the Buddhist or high-altitude communities. Previously, we reported that the prevalence of depression was 1.8% (2 cases) in Domkhar in 2009. We investigated the outcome of the two residents diagnosed with depression; both of them achieved spontaneous remission without treatment in 7 years. Additionally, both residents had strong religious devotion and perceived high social support. They reported that praying, listening to a priest's lecture, and visiting a religious facility made them feel better. The prognoses of these patients provide an important clinical suggestion. Religious devotion and social support may have a positive effect on the clinical course of depression.

Clinical pictures of depression in Ladakh differ greatly from those in developed countries, showing that the clinical course and indication for treatment of depression differ among cultures and societies. Depression is a disease in which the state of mind of the individual influences the symptoms. The recovery process also changes depending on how the individual perceives depression. Further, the socio-cultural environment contributes to the unique presentations of stress in the form of idioms of distress [12]. Management of idioms of distress would require cultural competence and sensitivity. Hence, it would be useful to understand the explanatory models held by the individuals and establish a cultural formulation as such explanations would be more acceptable to the individuals and their families [13]. It is important to not underestimate the importance of local knowledge and customs, especially for those with a long tradition. What is needed is to understand the backgrounds of the long-standing knowledge and customs of people by listening to their narratives and to accumulate understanding. The results of this study suggest that social support and religious beliefs may not only protect against the development of depression but also have a positive effect on the clinical course of depression. Even those with a condition described as depression can find support from religious beliefs and continue to function with the help of extended family ties. We have much to learn from these high-altitude communities, given the social issues arising from depression in the elderly in industrialized nations. Social support would be a reasonable treatment target in interventions seeking to improve psychological wellbeing.

This study has several limitations. First, it is too limited in sample size and recruitment methods to be representative. Second, the GDS, RCI-10, and MSPSS have not been validated in the Ladakhi context. Third, we did not use these questionnaires in our study in 2009, and hence could not directly compare the 7-year outcome of the two cases. It is unknown whether these two individuals had both strong religious commitment and constant social support when they were experiencing depression. However, this study has highlighted the possibility that strong religious beliefs and strong interpersonal networks in the community might may assist in accelerating the recovery from depression. Further perspective and quantitative studies are required to clarify this issue.

Conclusion

The results of this study suggest that social support and religious beliefs may not only protect against the development of depression but also have a positive effect on the clinical course of depression in high-altitude communities.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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