



# Review of hikikomori: A global health issue, identification and treatment

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## ABSTRACT

In the early 2000s, Japanese society became aware of the social phenomenon of hikikomori or social withdrawal among Japanese youth. However, the hikikomori phenomenon was not a domestic Japanese social problem, but a global social and health issue or a global silent epidemic. A literature review was conducted on the global silent epidemic issue and identifying hikikomori and effective treatment. This paper will reveal how to identify hikikomori with biomarkers or determinants and treatments for hikikomori. Impact of COVID-19 on hikikomori was briefly investigated.

## 1. Introduction

In the early 2000s, Japanese society became aware of the social phenomenon of hikikomori or social withdrawal among Japanese youth. A total of 1.2 % of respondents experienced "hikikomori" in their lifetime in Japan. A literature review was conducted on why hikikomori is the global social and health issue.

The hikikomori phenomenon was not a domestic Japanese social problem, but a global social and health issue or a global silent epidemic. Hikikomori of adolescents was studied in France, Hong Kong, Oman (Sakamoto et al., 2005). Malagón-Amor et al. discovered that hikikomori was prevalent in Spain (Malagón-Amor et al., 2015).

The hikikomori phenomena were reported in many countries such as France (Chauliac et al., 2017), Brazil (Gondim et al., 2017), China (Wong et al., 2017), Canada, Italy (Stip et al., 2016), India, South Korea and the US (Teo et al., 2015).

Eckardt et al. summarized the global study on hikikomori rates of the eight countries (Eckardt, 2023): hikikomori ranging from 0.87 % to 1.2 % in Japan, 6.6 % in China, 1.9 % in Hong Kong, 2.3 % in South Korea, 20.9 % in Singapore, 9.5 % in Nigeria, 2.7 % in the United States, and 9% in Taiwan respectively. Powell reported hikikomori rate in the UK: NEET (Not in Education, Employment or Training) in January-March 2021 is 10.6 % of all people in this age group (Powell, 2021). Silić et al. (2019) stated that hikikomori is a silent epidemic.

The result of the literature review can summarize that hikikomori is the global social and health issue. Treating a large number of hikikomori patients in many countries will help stimulate the economies of those countries.

### 1.1. Hikikomori biomarkers or determinants

Hayakawa et al. investigated blood biomarkers of hikikomori (Hayakawa et al., 2018). They reported that individuals with hikikomori had higher avoidant personality scores in both sexes, and showed lower serum uric acid (UA) levels in men and lower high-density lipoprotein cholesterol (HDL-C) levels in women compared with healthy controls (Hayakawa et al., 2018).

Setoyama et al. (2022) discovered that long-chain acylcarnitine levels were significantly higher in hikikomori patients, and bilirubin, arginine, ornithine, and serum arginase were significantly different in male hikikomori patients. Their method can detect hikikomori using biomarkers with a prediction accuracy of 0.854.

### 1.2. Hikikomori treatment

A literature review was conducted on hikikomori therapy or treatment. The result found six therapies: 1) a jogging therapy with 30 min of jogging three times a week, 2) an educational program for family members of hikikomori and community reinforcement and family training with role-play and homework, 3) a music therapy based on cognitive-behavioral therapy, 4) a role-playing therapy with enjoying fictional narratives on empathy, relaxation, depression, and anxiety in people with hikikomori experience, 5) an animal-assisted therapy, and 6) a group therapy with group-based interventions that promote identity development for preventing hikikomori symptoms.

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### 1.3. Impact of COVID-19 on hikikomori

A literature review was conducted on the effects of COVID-19 on hikikomori. Wong (2020) investigated potential changes to the hikikomori phenomenon due to COVID-19. Wong suggested that new investments in youth mental health such as more paid or unpaid job opportunities to keep young people engaged in society, any youth advocacy efforts, the efficacy of individual interventions and government supports may prove most cost-effective in the long run.

Imai et al. studied the characteristics of patients with hikikomori in two community psychiatry clinics in Japan (Imai et al., 2021). Their result showed that patients with current or past hikikomori status are more anxious than other patients without hikikomori status, and patients with current hikikomori status tend to be more anxious than those with past hikikomori status. Hikikomori state changes were due to lower economic status. In other words, the current hikikomori condition is significantly reducing the patient's quality of life.

Kumazaki et al. investigated using a tele-operated robot to increase sociability in individuals with autism spectrum disorder with hikikomori (Kumazaki et al., 2021). Robotic interventions may help people with ASD understand the importance of polite refusals and enhance social interaction by improving facial expressions.

## 2. Conclusion

Based on the literature review on hikikomori therapies, a new effective therapy is immediately needed. Unfortunately, there are not many datasets on hikikomori to vitalize the hikikomori research. Researchers should internationally share datasets on hikikomori to be able to create the effective therapy for hikikomori.

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### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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