



Development of a Scale of COVID-19 Stigma and its Psychometric Properties: A Study of Pregnant Japanese Women

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Abstract

The stigma surrounding COVID-19 can adversely affect those who suffer from COVID-19 and those who support and treat COVID-19. To develop and validate a scale for assessing 11-point COVID-19-related stigma. A total of 696 pregnant women with gestational ages of 12 to 15 weeks were interviewed using an online survey using a newly developed scale for COVID-19 stigma and other variables. The internal consistency of the scale was calculated using the omega index. We also examined the measurement invariance of the scale. Exploratory factor analysis (EFA) of scale items was performed using half the sample ($n = 350$). Confirmatory factor analysis (CFA) of the other half of the samples ($n = 346$) compared single, two, three, and four-factor structural models derived from EFA. The best model included the following three-factor structure ($\chi^2 / df = 2.718$, CFI = 0.960, RMSEA = 0.071) omnidirectional avoidance, attribution avoidance, and hostility. Its internal integrity was excellent (all omega indexes > 0.70). A three-factor structural model revealed composition, measurement, and structural invariance between primiparas and prolific women, and between young women (under 32 years) and older women (32 years and older). Birth fear, maternal-fetal attachment, compulsive symptoms, depression, self-modelling of adult attachment, and borderline personality traits were not significantly correlated with the omnidirectional avoidance subscale, but attribution avoidance. And correlated with hostility subscales ($p < 0.001$). Conclusion: The results suggest that our COVID-19 stigma scale was robust in both its factor structure and the validity of its composition.

Infections can lead to a stigma among the general public. Historically, patients have experienced stigma as a result of being infected with the disease. Currently, researchers and practitioners share concerns about the stigma associated with COVID-19 [1-3]. The stigma of an infectious disease represents an additional burden on the affected patient. In addition, stigmatized people often develop self-stigma, the internalization of external stigma, which leads to reduced self-efficacy and self-esteem of the stigmatized person. Bagcchi reported that people infected with COVID-19 face stigma such as being abandoned by their families and the general public and healthcare professionals face social expulsion and even attacks. This is a phenomenon seen all over the world. Such stigma can confuse effective intervention and even lead to a loss of control over the pandemic. Stigma attitudes can also cause psychological distress to those infected with COVID-19 and those who care for and support them. From an evolutionary psychological point of view, infectious disease stigma has been shown to be adaptable to community survival and protection, but in modern society stigma no longer has such a function [4, 5].

Keywords: Covid-19; Psychological distress; Infectious disease

Introduction

Investigating the effects of stigma is paramount to effective management of COVID-19 and minimizing mental health problems. Addressing this issue is the first step that requires the development of an easy-to-use, psychometrically standardized scale of stigma for COVID-19. Searching PubMed using ((Stigma) AND (COVID-19)) AND (Scale OR Inventory OR Measurement) returned a total of 339 articles. From these, we identified 14 articles dealing with COVID-19 stigma. However, none of them addressed the topic in psychometric details (content validity, factor structure, measurement invariance, etc.). The COVID-19 pandemic in Japan has made people afraid of infection. In a close society like Japan, people are becoming more and more sensitive to the behaviour of their communities [6]. A person who does not do what others are doing can be considered "noisy" or even "outlaw". Such persons may be advised or criticized in public. There are reports that non-legally responsible people give strict advice to citizens who feel they are not in compliance with social norms. Such demands on social norms can result from stigma in society. Pregnant women may face mental health problems during the COVID-19 pandemic. Studies show that they often suffer from mood, anxiety, and traumatic symptoms. Infectious diseases and the stigma that pregnant women have on infected people can adversely affect their psychological adaptation [7, 8].

Method

Learning course and participants

Participants in this internet survey were 696 pregnant women with gestational ages of 12 to 15 weeks. Participants were recruited via a web application by Luna and Baby (MTI Ltd., Tokyo, Japan) for two weeks from December 7th to 21st, 2020. Participants came from almost every prefecture in Japan. Anonymity was guaranteed and participation was voluntary. The questionnaire included an information page that included the purpose of the survey, affiliation, informed consent information, and the address of the survey counselling centre provided. As an incentive, participants received e-commerce that they could use to purchase Amazon. We emailed 696 pregnant women an invitation to participate in a follow-up study approximately 10 weeks later to

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investigate the structure, measurement, and structural invariance of the scale factor structure. Of the pregnant women, 245 (35.2%) responded. It is speculated that the three areas of COVID-19 stigma have different causes and consequences [9, 10]. Pregnant women who showed attribution avoidance and hostility were more likely to exhibit all aspects of OCD, MDE, and borderline personality traits. Such psychopathology can lead to prejudice and vice versa. Longitudinal studies can reveal a causal relationship. The marital relationship of these women was characterized by a poor self-model. Feeling they are not worth loving can increase fear and anger at infected people. Highly hostile women are more likely to exhibit borderline personality traits. We speculate that such personality traits underlie stigma and prejudice. Pregnant women who expressed a high level of attribution avoidance and hostility were more likely to be afraid of the next childbirth. Women who expressed a high level of hostility were more likely to express negative feelings towards themselves [11, 12].

The impact of a pandemic on mental health

Although there is evidence that disasters increase the symptoms and incidence of mental illness, there are few studies on the effects of epidemics and pandemics on mental health. Existing studies have focused on front-line healthcare professionals and the psychological effects of adapting to disease-related morbidity (e.g., parents of children with congenital Zika virus syndrome [13, 14]). However, little is known about the psychological impact of pandemic response measures such as quarantine, physical distance, and on-site orders. A small study of people voluntarily ordered to quarantine during the 2003 outbreak of Severe Acute Respiratory Syndrome (SARS) in Toronto reported increased symptoms of post-traumatic stress disorder and depression. In post-disaster studies, nature (earthquakes, etc.), traumatic (attacks by the World Trade centre, etc.), environment (e.g., Chernobyl nuclear power plant) observed disasters [15, 16].

Discussion and Conclusion

As far as we know, our work was the first to develop a COVID-19-specific stigma scale. It consisted of three independent subscales, and the three-factor structure was stable in terms of composition, measurement, and structural invariance. Factor means did not differ between evenness and age. The three subscales obtained from the factor analysis were associated differently than the other variables. The stigma of illness and those who suffer from it is an attitude that occurs in many areas. It can be expressed in people's avoidance behaviour for the target disease. However, if humans cannot easily detect the disease or condition, it is difficult to detect the target disease. COVID-19 is one of them in such a case. There are many cases of subclinical infections with no observable signs or symptoms. People are afraid of getting infected, but it is difficult to determine who should be avoided and where. This leads to a general fear of approaching an unidentified target. This is represented by omnidirectional avoidance. Second, regardless of its truthfulness, people are learning from the media that there are several groups of people who are likely to be virus-positive. This includes people working in bars, restaurants, hospitals, clinics and medical facilities. The goals to avoid in such cases are clear. This is represented

by avoidance of attribution. Third, fear of pollution manifests itself as an attack on those suffering. Some people are resentful of the fact that those who have recovered have returned to work. They no longer want to communicate with those who have recovered. Infected individuals are careless and can therefore claim to be responsible for the spread of COVID-19. They may even insist that they should apologize. This is represented by hostility. These three factors are partially correlated but still independent of each other. There is limited evidence of factors that influenced mental health status at the population level during the COVID-19 pandemic. A systematic review and meta-analysis examining factors associated with mental distress in the general population (i.e., anxiety and depression) found that women were young and low.

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