

Deconstructing Patterns of Stigma towards People Living with Mental Illness

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Abstract: The adverse effects of stigma on people living with mental illness (PLMI) have been well documented. This study aimed to investigate the latent structure of that stigma. The study respondents included 218 Chinese university students in Hong Kong who completed the attribution questionnaire. The latent structure of stigma was examined by factor mixture analysis and psychological correlates. The results supported the two-class, one-factor mixture model under a t distribution. Most of the sample ($n = 175$; 80.2%) belonged to the low-stigmatizing class, with low to moderate expressions of stigma toward PLMI. Compared with the low-stigmatizing class, the high-stigmatizing class was significantly more likely to be male, not working, and younger and to report significantly higher social distance, personal distress, and empathetic concern. The different group profiles demonstrated a nuanced view of stigma toward PLMI. An appreciation of stigma's complexity could inform the development of more appropriately tailored psychiatric services and education and advocacy initiatives that foster greater mental health inclusion.

Key words: attribution questionnaire; Chinese context; latent structure; mental health; stigma

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Social stigma denotes a societal reaction that characterizes certain attributes as undesirable and devalues the people who possess them, leading to stereotypes, prejudice, and discrimination (Corrigan & Watson, 2002). Studies have found that stigmatizing attitudes toward people living with mental illness (PLMI) are widespread and entrenched within both Western and Chinese communities (Gearing et al., 2015; Oleniuk, Duncan, & Tempier, 2013). In Hong Kong, an estimated 14% to 24% of its 7.1 million residents suffer from mental illnesses (Hospital Authority, 2011). Yet, only 1% receive adequate psychiatric care (BBC News, 2011) because of the harmful impact of social stigma and the cultural taboos associated with mental illness.

In Chinese culture, the presence of mental illness within the family has traditionally been regarded as a matter of inferior origin, parents' failure, and even retribution for the sins of past generations (Tsang, Tam, Chan, & Cheung, 2003b). These long-standing taboos and a paucity of mental health education have combined to create a negative image of PLMI in Hong Kong that has been aggravated by constant adverse media exposure depicting them as untrustworthy, threatening, and dangerous (Yip, 2005). Such degradation has limited the support PLMI receive because they dare not disclose their needs to the community for fear of humiliation and disgracing their families (Tsang, Tam, Chan, & Cheung, 2003a). Among the PLMI, feelings of shame and indignity (Yang & Pearson, 2002) create internalized reactions, and social stigma may progress into self-stigma, causing feelings of guilt, low self-esteem, and social isolation (Corrigan, 2000; Corrigan & Watson, 2002). This can become a vicious cycle that dissuades individuals from seeking help and undermines care management, ultimately leading to worsening symptoms (Sirey et al., 2001).

The burden of mental illness stigma is further exacerbated by traditional psychiatric services that are limited to inpatient care and hospital programs in which consideration of community reintegration is treated as an afterthought rather than an actual clinical practice (Tsang, 2001). It was not until 2010 that the Hong Kong government began to make rigorous

attempts to expand community-based psychiatric services by establishing integrated community centers for mental wellness across the region and providing a wide spectrum of rehabilitation services (Hospital Authority, 2011). Although the general population consensus seemingly supports this policy, the establishment of these mental health facilities has encountered grave opposition from local neighborhoods (Ng, 2017). Such a discriminatory “not in my backyard” mentality is detrimental to enhancing community-based services that aspire to cultivate greater social inclusion for PLMI.

In view of the devastating effects of mental illness stigma, many Western studies have examined the processes and factors related to stigma to inform interventions for change. In particular, attribution theory has provided an important framework within which to understand the relationship between stigmatizing attitudes and discriminatory behavior. The theory postulates that behavior is determined by cognitive–emotional processes wherein individuals make attributions about the causes and controllability of a person’s illness, leading to inferences about who or what is responsible for them. These inferences, in turn, lead to emotional reactions such as pity or anger that affect the likelihood of helping or punishing such behavior (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003). It has repeatedly been found that individuals who attribute mental illness to external uncontrollable causes (such as genetic factors and stressful life circumstances) rather than internal controllable causes (such as bad character and poor upbringing) are less likely to hold discriminatory attitudes toward PLMI (Corrigan et al., 2001a; Corrigan et al., 2001b), lending support to attribution theory.

A growing body of research has reported that successful strategies used to reduce stigmatizing attitudes and improve attributions toward PLMI involve enhancing familiarity, lowering social distance, facilitating perspective taking, and fostering empathetic concern among the general public (A. H. Chung & Slater, 2013; Griffiths, Christensen, & Jorm, 2008). These strategies augment the capacity of individuals to empathize with PLMI, eliminate the

myths and taboos about mental illness, foster understanding, and facilitate compassionate actions.

Despite emerging evidence from Western studies (Barczyk, 2015; Loch et al., 2013; Loch et al., 2014; Oleniuk et al., 2013) examining the multidimensional nature of stigma and the distinctive features of stigmatizing attitudes and behaviors, there has been a notable lack of similar studies in Chinese societies, which would to promote greater understanding and empathy for PLMI. Effectively ameliorating social stigma, a complex phenomenon at both the individual and societal levels, requires a comprehensive understanding of the latent structure of public beliefs and attitudes toward it. However, traditional research has adopted a continuous variable-centered analytic approach that does not distinguish unique group characteristics or adequately explain stigma behavior. Latent profile analysis (LPA) is a categorical, person-oriented analytical technique that models latent classes of individuals with similar profiles (Lubke & Muthén, 2005). Recently, Loch et al. (2013) and Loch et al. (2014) applied LPA to assess social stigma toward schizophrenia among psychiatrists and the general population in Brazil. The latter study found four distinct classes of stigma among individuals in the sample: “no stigma,” “labelers,” “discriminators,” and “unobtrusive stigma.” These stigma profiles were found to be associated with social distance and familial contact with PLMI. The findings also highlighted the importance of analyzing the sample as a heterogeneous group.

From the analytical point of view, LPA relies on the conditional independence assumption, which may not be realistic for analyzing stigma toward PLMI. Similarly, LPA does not account for expected within-subgroup heterogeneity, and this may lead to biased assessments of its latent structure. In contrast, factor mixture analysis (FMA) is a hybrid analytical technique (Lubke & Muthén, 2005) that models both the categorical latent classes and dimensional factor structure (Clark et al., 2013). Its use allows us to examine both the stigma class membership and stigma severity within classes simultaneously. However,

although FMA has been used to examine the latent structure of such constructs as psychotic symptoms (Rietdijk et al., 2014), cancer-related fatigue (Ho, Fong, & Cheung, 2014), and mental disorders (Almansa et al., 2011), researchers have not yet conducted FMA in studies of mental illness stigma. Furthermore, in view of the potential discrepancies across cultures, the latent structure of stigma toward PLMI has remained largely unclear in Chinese societies like that of Hong Kong, and empirical research is needed to obtain more insight into how stigma manifests itself in such a cultural context.

The aim of this study is to evaluate the latent profiles of social stigma related to mental illness in the under-researched Chinese context through FMA. The profiles of the identified latent classes are compared in terms of covariates including gender, age, and previous contact with PLMI, together with concurrent outcomes including social distance, personal distress, perspective taking, and empathetic concern. Such an analysis allows us to determine the factors related to stigma. By identifying and understanding the profiles of individuals within the community and their varying degrees of stigmatizing attitudes, researchers or policymakers can design more tailored mental health education curricula and implement anti-stigma programs for specific subgroups to address their distinct needs.

Method

Sample

A convenience sample of 218 Chinese respondents was recruited from the student body of the University of Hong Kong, including those from one liberal arts course on life and death education and one interdisciplinary social work-related course on holistic health theories and practices. The respondents included undergraduate and graduate students from a range of academic disciplines such as social work, psychology, sociology, law, medicine, nursing, and dentistry. The first and fourth authors approached potential respondents during the last lecture of their respective classes, and all those who were in attendance agreed to participate. At the

beginning of class, the respondents were asked to complete a 20-minute self-report questionnaire on social stigma and delineate the potential attributing factors. Data collection was cross-sectional and conducted between April and May 2012. Ethics approval was obtained from the human research ethics committee of the university, and informed consent was obtained from all of the respondents. The mean age of the sample was 22.4 years with a range of 17 to 51 years ($SD = 6.1$). Most of the respondents were female (67%) and undergraduates (91.7%). The majority of the sample (79.3%) did not have any full-time/part-time jobs. The monthly household income (in Hong Kong dollars; a Hong Kong dollar is currently equivalent to US\$0.13) of the participants were distributed as follows: 0–10,000: 14.6%; 10,001–20,000: 21.6%; 20,001–30,000: 23.9%; >30,000: 39.9%. Around one-fifth (19.3%) of the respondents had a family member living with mental illness, and one quarter (24.9%) knew a friend living with a mental illness.

Measures

Stigma toward PLMI was measured using the nine-item attribution questionnaire (AQ) (Brown, 2008) based on attribution theory (Corrigan et al., 2003). The vignette for the AQ is stated as follows:

John is a single man who lives alone in an apartment and works as a clerk at a large law firm. He was diagnosed with schizophrenia. He often hears voices of unknown origin and becomes upset. He has been hospitalized for two months because of his illness.

Respondents were asked to assess the vignette for the following domains: pity, danger, fear, blame, segregation, anger, help, avoidance, and coercion (Corrigan et al., 2003). The items were rated on a nine-point scale ranging from 1 = none at all to 9 = very much. The Chinese version was developed by our research team through translation and back-translation and reviewed by the original authors. Preliminary factor analysis supported a one-factor structure

for the scale. However, the item “pity” did not show a significant factor loading ($\lambda = -0.05$, $p = .53$) and was removed in the subsequent analysis. In this study, adequate reliability ($\alpha = .80$) was found for the scale.

Social distance was evaluated using the Chinese version of the social distance scale (K. F. Chung, Chen, & Liu, 2001). The seven-item scale assesses respondents’ willingness to participate in social relationships with PLMI. In this study, the items were rated on a five-point scale ranging from 1 = very willing to 5 = very unwilling. The Chinese version of the interpersonal reactivity index (Siu & Shek, 2005) was used to measure trait empathy that was not related to a specific circumstance or group of people (Davis, 1983). The three relevant constructs assessed in this study included personal distress (feelings of anxiety resulting from learning about others’ negative experiences), perspective taking (adopting others’ points of view), and empathetic concerns (feelings of compassion and concern for others). The items were rated on a five-point scale from 0 = none at all to 4 = very much. In this study, acceptable reliability was found for all of the measurement scales ($\alpha = .68-.83$).

Data Analysis

The LPA and FMA models were estimated in Mplus version 7.2 (Asparouhov & Muthén, 2014) using a robust maximum likelihood estimator. Missing data were minimal ($n = 7$, 3.2%) and handled via full-information maximum likelihood (Little & Rubin, 1987). To avoid the extraction of spurious classes with no substantive value (Bauer & Curran, 2003), FMA followed a non-normal mixture modeling approach (Asparouhov & Muthén, 2014). This approach relaxes the within-class normality assumption and permits the within-class distributions to be skewed or have heavy tails, thereby providing better fits to the data than normal mixtures. The one-class, one-factor mixture model was estimated under normal and non-normal skew-normal and t distributions. Skew and degree of freedom parameters were added into the models when necessary to correct for non-normality. The FMA models with

increasing numbers of classes were fitted to the data under class-varying item intercepts and class-invariant factor loadings and residual variances.

The model estimation was based on 40 random starting values and 10 final-stage optimizations to ensure replication of the best log likelihood. As FMA does not provide absolute and incremental fit indices of model fit, such as the root mean square error of approximation or comparative fit index, model selection was based on the Bayesian information criterion (BIC) (Nylund, Asparouhov, & Muthén, 2007; Raftery, 1995), a standardized and widely adopted parameter that penalizes the model log likelihood with a number of model parameters. A difference of more than 10 denoted substantial evidence favoring the model with a lower BIC (Fong & Ho, 2015; Ho et al., 2014). Average posterior class probabilities and entropy indicated the classification accuracy of the model with a higher value denoting greater accuracy. Substantive checking of latent classes was conducted with respect to the model's covariates (gender, age, and previous contact with PLMI) and concurrent outcomes (social distance, personal distress, perspective taking, and empathetic concern) using the stepwise distal outcome method (Lanza, Tan, & Bray, 2013).

Results

AQ Item Statistics and LPA Models

Table 1 presents the descriptive statistics of the AQ items. The respondents reported mild to moderate ($M = 1.8-4.8$) stigmatizing attitudes and high levels of pity and help ($M = 6.2-6.8$) toward the PLMI. Preliminary analysis showed substantial decreases in BIC for the LPA models up to the four-class solution ($BIC = 6,341.3$).

FMA Models of Stigma against PLMI

The fit statistics of the FMA models for stigma toward PLMI under various distributions are shown in Table 2. Among the one-class mixture models, model 2 did not show a substantially

lower BIC than model 1 (6,315.2 versus 6,319.4) and the skew parameter was not significant (skew = 5.09, standard error [SE] = 4.59, $p = .27$). The t distribution model (model 3) resulted in a substantially lower BIC (6,264.5 versus 6,319.4) than model 1, with a degree of freedom parameter equal to 10.9 ($SE = 2.10$) that deviated from the normal distribution (with $df \geq 30$). Subsequent two-class mixture models were estimated under normal and t distributions. The two-class t distribution mixture model (model 5) produced a substantially better BIC (BIC = 6,250.4) than Model 3 (BIC = 6,264.5), the two-class normal mixture model (BIC = 6,293.1), and the three-class normal mixture model (BIC = 6,284.7). Although the three-class t distribution mixture model showed the lowest BIC, the additional class was composed of only a small class size ($n = 8$, 3.8%). We selected the two-class t distribution mixture model (model 5) as the optimal model of stigma toward PLMI.

Profiles of the Two Latent Classes

Figure 1 displays the response profile plot for the AQ items in model 5. The majority of the sample belonged to the low-stigmatizing class ($n = 175$, 80.2%) with low stigma for blame, segregation, anger, and avoidance (item $M = 1.4$ – 3.1), moderate stigma for danger, fear, and coercion (item $M = 4.0$ – 4.5), and a high level of help (item $M = 6.3$). The second class ($n = 43$, 19.8%) was labeled the high-stigmatizing class and showed significantly higher levels of stigma for blame, segregation, anger, avoidance, danger, fear, and coercion but a lower level of stigma for help than the low-stigmatizing class (Wald test of equality of item intercepts = 140.0, $df = 8$, $p < .01$). The average posterior class probabilities (0.99 and 0.92 for the low- and high-stigma classes, respectively) and entropy (.883) indicated good classification accuracy for the model.

Table 3 shows the characteristics of the two latent classes of stigma toward PLMI. Gender [$\chi^2(1, N = 217) = 4.68, p = .03$], age [$\chi^2(1, N = 211) = 27.9, p < .01$], and having working experience [$\chi^2(1, N = 217) = 4.80, p = .03$] were significantly associated with stigma

class membership, with a greater proportion of women and older and working individuals belonging to the low-stigmatizing class. Respondents in the two stigma classes did not differ significantly in terms of their monthly household income [$\chi^2(1, N = 213) = 1.81, p = .61$]. Although statistically insignificant, the respondents in the low-stigmatizing class tended to have families and friends living with mental illness compared with those in the high-stigmatizing class [$\chi^2(1, N = 217) = 0.48-3.08, p = .08-.49$]. The high-stigmatizing class showed significantly higher levels of social distance [$\chi^2(1, N = 218) = 28.3, p < .01$], personal distress [$\chi^2(1, N = 217) = 6.25, p = .01$], and empathetic concern [$\chi^2(1, N = 215) = 4.76, p = .03$] than the low-stigmatizing class. The respondents in the high-stigmatizing class also displayed marginally lower levels of perspective taking [$\chi^2(1, N = 218) = 3.49, p = .06$].

Discussion

This is the first study to examine the cluster patterns of social stigma toward PLMI in the Chinese context using FMA. Despite the overall moderate levels of stigmatizing attitudes toward mental illness, our results point to two distinct subgroups: a high-stigmatizing group and a low-stigmatizing group, each with diverse profiles that revealed their specific needs in terms of mental health education.

The high-stigmatizing group comprised mostly younger men with fewer personal relationships with PLMI. This was consistent with previous findings that women were less likely to endorse stigma than men (Corrigan & Watson, 2007). Members of this group were also less likely to hold any form of employment, and the lack of working experience in the real world may have limited the widening of their perspectives and acceptance of social diversity (Staff, Messersmith, & Schulenberg, 2009). Moreover, this group was more likely to report anger towards PLMI, blame them for their mental illness, perceive them as being dangerous, feel the need to maintain greater social distance from them, and believe they should be segregated from society.

These findings may be explained by traditional Chinese beliefs that regard mental illness as a form of personal failure and the result of inferior family upbringing (Tsang et al., 2003b) and a negative social image compounded by poor media representation (Yip, 2005). Contrary to the literature, however, this group unexpectedly reported greater levels of empathetic concern toward PLMI. One reason for this might have been the slow but expanding provision of mental health education in secondary schools (Lee, St Leger, & Cheng, 2007), which may have sparked awareness and interest among young people, especially those who have no personal relationships with PLMI, and has encouraged them to explore mental illness and its impact on individual lives. Yet, without the capacity to cope with their associated negative emotions, this desire to understand and empathize with those living with mental illness may lead to anxiety and mental strain. This was reflected in the greater reported levels of personal distress. Faced with unfamiliar anxiety generated by unguarded empathy, the respondents tended to revert back to their old way of thinking, a mechanism known as uncertainty appraisal tendencies. Hence, it was not surprising that the high-stigmatizing group held high levels of empathetic concern for the PLMI but also experienced high personal distress toward them, with stigmatizing attitudes being prevalent.

The low-stigmatizing group mainly comprised older women, with a greater proportion of them being employed full-time or part-time, and having families or friends living with mental illness. This group was less likely to become angry with or blame PLMI for their mental illness or to characterize them as being dangerous or needing to be segregated from society. This group also expressed a greater desire to provide PLMI with help and support.

Age has typically been positively associated with various kinds of stigma. This study's sample comprised undergraduate and graduate students. Our results appeared to suggest that senior university students could have broadened their horizons and widened their perspectives by attending university courses on mental health. In addition, they might have been exposed to campaigns on mental illness stigma, thereby becoming less discriminatory or

stigmatizing PLMI less than the junior undergraduates. Work experience might have also helped low-stigmatizing group members in building a more positive worldview with greater appreciation of diversity and less negative attitudes toward individual differences (Staff & Mortimer, 2007). Indeed, it is possible that the increase in familiarity with PLMI translated into fewer stigmatizing attitudes and decreased the need to maintain social distance (Barczyk, 2015). Familiarity might also explain the significantly lower levels of personal distress and empathetic concern, because those in the low-stigmatizing group might have attained a better understanding of the suffering of PLMI and developed greater tolerance for their pain without feeling anxious or afflicted. They might also have tended to adopt a wider perspective in terms of recognizing the needs and concerns of others and having a lower propensity for distress.

Although both stigma groups felt similarly high levels of pity toward PLMI, they expressed moderately high levels of need to coerce the PLMI into treatment. Such ambivalence might have reflected both a shared concern for the health and well-being of the PLMI and a deep apprehension over their capacity to seek and adhere to psychiatric treatments, given the dearth of adequate and accessible mental health services in Hong Kong. The findings from this study underscore the importance of mental health promotion by targeting the communal tension thwarting the expansion of community-based psychiatric services. They further imply that individuals' sense of pity or sympathy may not translate into feelings of compassion that fuel helping actions. Instead, the ability to recognize others' negative experiences and endure the personal distress arising from such empathetic understanding seems to play a critical role in promoting mental health inclusion. The apparently intricate connections between emotion, empathy, and helping behavior may prove pivotal in lifting the veil of ignorance to ensure equality and justice in public mental health.

The findings from this study are consistent with the literature, in which unfamiliarity with mental illness is found to be a major cause of social stigma and discrimination

(Callaghan, Shan, Yu, Ching, & Kwan, 1997), further suggesting that personal distress indirectly affects empathy (Hassenstab, Dziobek, Rogers, Wolf, & Convit, 2007). To reduce the emotional distance between the public and PLMI and instill compassion in mental health inclusion, one must foster empathy by widening one's perspective and cultivating attitudinal and behavioral change. Mental health education and promotional initiatives that facilitate knowledge transfer and community dialogue can build authentic understanding between all members of society. Widening the public's perspective on PLMI is one momentous step toward activating social responsibility and promoting citizenship (Faulks, 2000).

Individuals in different stigmatizing groups may, however, require different avenues and levels of engagement to generate positive attitudinal and behavioral change. The low-stigmatizing group in this study might have benefited from direct interactions and personal engagements with PLMI through community partnership and outreach programs given that they already possessed the aptitude to endure others' negative experiences. Alternatively, those in the high-stigmatizing group were more prone to distress when they learned about another's suffering. They might have benefited more from indirect engagements and mediated strategies such as art-based dialogue and other creative connecting mediums promoting safe emotional engagement and informed citizen participation to reduce stigma, widen perspectives, and enhance empathy (Potash & Ho, 2011).

Limitations and Future Directions

This study has a number of limitations. First, it is limited by the convenience sample of university students, which might not have been representative of the general public's views within the community. Given that university students tend to have greater knowledge of mental illness than the general public (Siu, Shek, & Lai, 2012), our sample's homogeneity could have underestimated the composition of the high-stigmatizing group. Despite this limitation, two distinct groups of individuals were identified with different demographic

characteristics and varying degrees of stigmatizing attitudes toward PLMI. This in-depth examination of cluster patterns in mental illness stigma supported the greater understanding of community group characteristics and informed the development of tailored and target-specific stigma-reduction interventions such as those described in the preceding section. Further application of FMA in the study of mental health stigma is thus recommended.

Second, it is important to note that all students in the study sample, except those from the department of sociology, majored in a helping or a medical profession. Because of their professional ethics, it can be argued that our results may be skewed and focused on those with a more favorable view on mental illness. However, repeated research in Hong Kong has reported that health and mental health workers still hold stigmatizing attitudes on mental illness (Chien, Yeung, & Chan, 2014; Mak et al., 2015). Hence, while our findings may well reflect mental health perceptions among current generation of helping professionals, future studies can use purposive sampling for a more detailed comparative analysis of mental illness stigma between individuals of different education focus and professional training.

A third limitation of this study was the use of the short form (AQ-9) rather than the full version of the AQ (AQ-27). Although the AQ-9 measured the exact nine domains of blame, anger, pity, help, danger, fear, avoidance, segregation, and coercion as the AQ-27, with strong reliability and consistency (Corrigan et al., 2003; Corrigan & Watson, 2002), the full version might have provided richer findings. Thus, future research may consider using the AQ-27 to assess mental illness stigma. Finally, the AQ-9 adopted in this study used a vignette that focused solely on schizophrenia without considering other forms of mental illness. This limitation could be addressed in future research by including a wider spectrum of mental illness vignettes to more fully and comprehensively assess the public's attitudes toward mental health issues.

Conclusion

To reduce discrimination and infuse mental health practice and policy with transformative change, we must first distinguish and understand the complex and nuanced patterns of individual social stigma within the communities. Without such understanding, efforts to expand and enhance psychiatric services may prove futile, given that education and citizenship go hand-in-hand in cultivating a more accepting and inclusive society. Henceforth, initiatives to address mental health stigma must recognize the intricate ties between knowledge, emotion, attitudes, and behavior while using a wider spectrum of education and advocacy strategies in addition to creative connection mediums such as arts to facilitate compassion and equality for PLMI.

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Table 1: Descriptive Statistics of the Attribution Questionnaire Items

| Item | <i>M</i> (<i>SD</i>) | Skewness | Kurtosis |
|-------------|-----------------------------|-----------------|-----------------|
| Pity | 6.8 (1.4) | -0.65 | 0.81 |
| Danger | 4.6 (1.9) | 0.11 | -0.69 |
| Fear | 4.3 (1.7) | 0.19 | -0.77 |
| Blame | 2.7 (1.6) | 0.93 | 0.61 |
| Segregation | 3.4 (1.8) | 0.71 | 0.31 |
| Anger | 1.8 (1.1) | 1.51 | 1.98 |
| Help | 6.2 (1.6) | -0.25 | 0.01 |
| Avoidance | 3.4 (1.6) | 0.34 | -0.46 |
| Coercion | 4.8 (2.0) | -0.07 | -0.54 |

Table 2: Fit Statistics of the Factor Mixture Models for Stigma toward People Living with Mental Illness

| Model | Description | LL^a | # | BIC | Entropy |
|-------------------|--------------------------|-----------------------|----------|------------|----------------|
| 1-class, 1-factor | | | | | |
| 1 | Normal distribution | -3,095.1 | 24 | 6,319.4 | — |
| 2 | Skew-normal distribution | -3,090.3 | 25 | 6,315.2 | — |
| 3 | <i>t</i> distribution | -3,064.9 | 25 | 6,264.5 | — |
| 2-class, 1-factor | | | | | |
| 4 | Normal distribution | -3,057.7 | 33 | 6,293.1 | .892 |
| 5 | <i>t</i> distribution | -3,030.9 | 35 | 6,250.4 | .883 |
| 3-class, 1-factor | | | | | |
| 6 | Normal distribution | -3,029.3 | 42 | 6,284.7 | .875 |
| 7 | <i>t</i> distribution | -2,998.6 | 45 | 6,239.6 | .948 |

Notes: LL = log likelihood, # = free parameters, BIC = Bayesian information criterion.

Table 3: Profiles of the Two Latent Classes (Model 10) of Attitudes toward People Living with Mental Illness

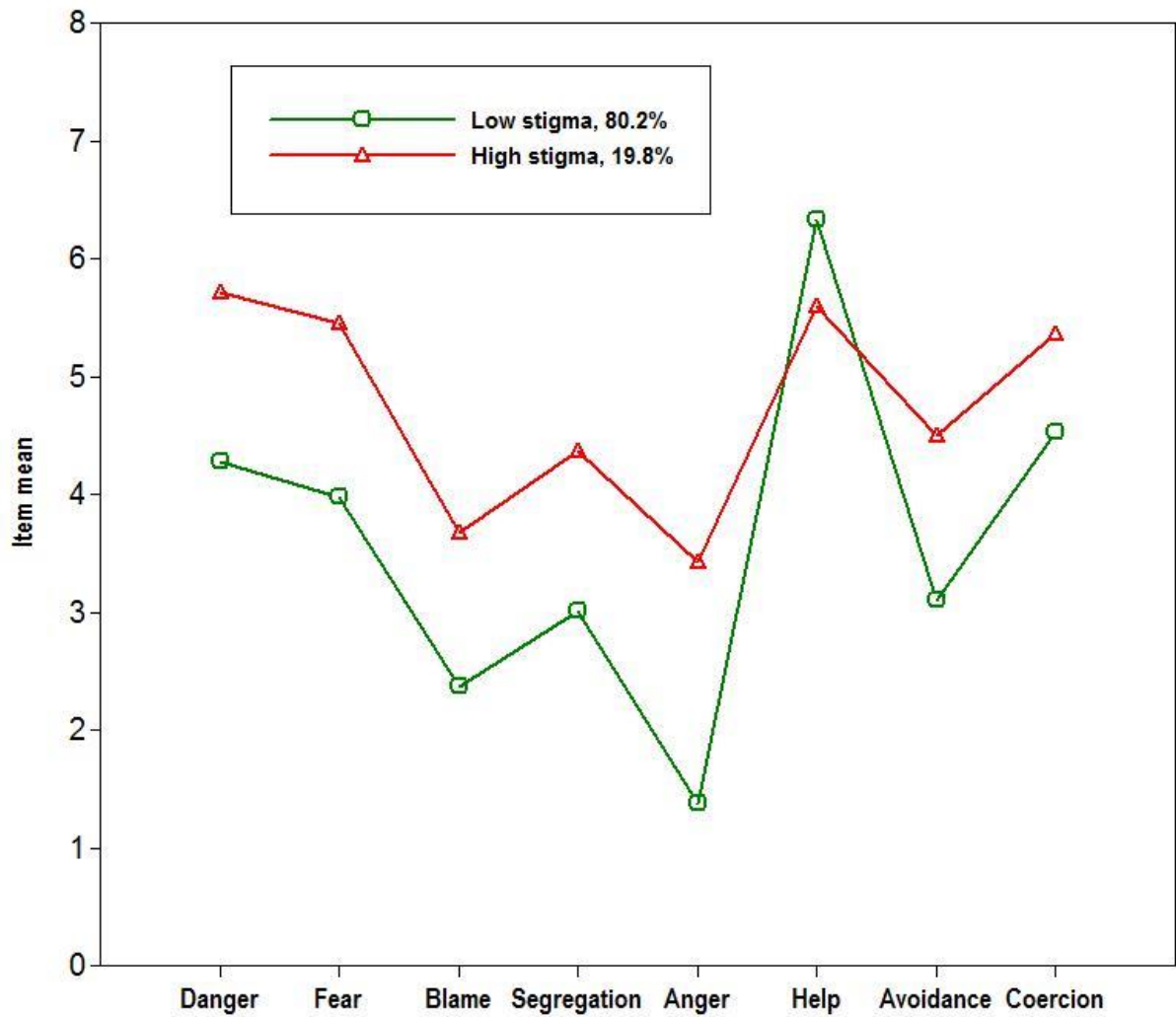
| Characteristic | Low-Stigma Class | High-Stigma Class | Statistics ^a |
|-----------------------------------|---|--|-------------------------------|
| | <u><i>n</i> = 175</u> <u>(80.2%)</u> | <u><i>n</i> = 43</u> <u>(19.8%)</u> | |
| | % (<i>SE</i>) | % (<i>SE</i>) | |
| Gender—male | 27.5 (3.4) | 60.4 (14.4) | $\chi^2 = 4.68, p = .03^*$ |
| Have family members with MI | 20.7 (3.3) | 13.1 (9.3) | $\chi^2 = 0.48, p = .49$ |
| Have friends with MI | 27.3 (3.4) | 14.6 (6.2) | $\chi^2 = 3.08, p = .08$ |
| Have full-time/part-time work | 24.1 (3.3) | 6.2 (7.1) | $\chi^2 = 4.80, p = .03^*$ |
| Monthly household income (in HKD) | | | $\chi^2 = 1.81, p = .61$ |
| 0–10,000 | 13.7 (2.7) | 18.5 (6.6) | |
| 10,001–20,000 | 21.0 (3.1) | 24.1 (7.6) | |
| 20,001–30,000 | 23.2 (3.3) | 27.0 (7.9) | |
| >30,000 | 42.1 (3.8) | 30.4 (7.8) | |
| | <u><i>M</i> (<i>SE</i>)</u> | <u><i>M</i> (<i>SE</i>)</u> | |
| Age (years) | 23.0 (0.5) | 19.9 (0.3) | $\chi^2 = 27.9, p < .01^{**}$ |
| Social distance | 21.8 (0.3) | 25.4 (0.6) | $\chi^2 = 28.3, p < .01^{**}$ |
| Personal distress | 1.51 (0.05) | 1.81 (0.11) | $\chi^2 = 6.25, p = .01^{**}$ |
| Perspective taking | 2.62 (0.05) | 2.42 (0.10) | $\chi^2 = 3.49, p = .06$ |
| Empathic concern | 1.60 (0.05) | 1.88 (0.12) | $\chi^2 = 4.76, p = .03^{**}$ |

^aComparison was done using stepwise distal outcome method.

Notes: *SE* = standard error; MI = mental illness.

***p* < .01. **p* < .05.

Figure 1: Response Profile Plot for the Attribution Questionnaire Items in the 2-Class t Distribution Mixture Model



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