

Socio-demographic correlates of public stigma about mental illness: a population study on Hong Kong's Chinese population

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Abstract

Background Individuals with psychiatric disorders are often unwilling to seek help or often follow treatment regimens, fearing public stigma. This study identified the sociodemographic correlates of public stigma while accounting for mental health literacy and life satisfaction.

Methods This study analysed data for 1,514 individuals who participated in a population-based random telephone survey conducted in 2018. Sociodemographic characteristics included gender, age, education level, and occupation. Data on public stigma, mental health literacy and life satisfaction were also collected. A multiple linear regression was conducted to examine the effects of sociodemographic characteristics on public stigma. A moderation analysis was performed to investigate the role of age and education in the relationship between mental health literacy and public stigma.

Results Sociodemographic characteristics, such as female gender, older age groups, lower education, and occupation (particularly retired and homemakers), were associated with a higher public stigma. The association between public stigma and mental health literacy was the most significant among individuals aged 50 years and above and with lower education levels.

Conclusions This study showed that certain population subgroups, based on their sociodemographic profile, have higher stigma about mental illnesses. Understanding the differential effects of sociodemographic factors on public stigma is imperative to developing effective anti-stigma campaigns. Keywords public stigma, mental health literacy, sociodemographic correlates, anti-stigma campaigns

Background

Public stigma of mental illness prevents individuals with psychiatric disorders from seeking help and continuing with appropriate treatments [1–3]. Many studies have reported the effectiveness of anti-stigma programs, and a majority of these works have targeted occupational groups, such as students [4, 5], health care professionals [6, 7], teachers [8], and professionals in direct contact with individuals with mental illness [9–11]. However, these programs have reported short-term effects and have been proven to be beneficial to a limited number of people [12].

In addition to programs for specific population groups, there are major programs and initiatives for the general public that focus on reducing stigma and discrimination against patients with mental illness [9]. While both education and contact as intervention strategies have been effective in improving attitudes, research has observed differential effects for various age groups [13]. Thus, it is important to understand the specific impact of sociodemographic characteristics on public knowledge and stigma about mental illness to guide the development of future anti-stigma campaigns for the general public. However, few studies have conducted an in-depth analysis of the topic, and the findings have been largely inconsistent. For instance, researchers have suggested that the male gender is associated with a more negative attitude towards mental illness in the United States [14], Singapore [15], and the United Kingdom [16]. Some studies have found no such gender difference [17, 18]. Other studies did not find a gender difference [19, 20]. Similarly, findings on the effects of education level on mental illness stigma remain inconsistent. Lower education levels have been associated with more negative attitudes towards mental illness in Singapore [15], the United Kingdom [16] and China [21], whereas the same has been said of higher education levels for the Hong Kong Chinese population [17]. Thus, further research is needed on the impact of socioeconomic factors on mental illness stigma.

The level of mental health literacy has also been associated with public stigma [17, 21, 22]; thus, psychoeducational programs aimed at improving mental health knowledge is a key intervention strategy in anti-stigma programs [9]. However, the effect of psychoeducational programs on stigma reduction appears to be small [23] and tends to vary among populations from different socioeconomic backgrounds [13]. Therefore, studies on the impact of socioeconomic factors on public stigma should account for the level of mental health literacy. In addition to basic demographics, life satisfaction, which could be a representation of general mental wellbeing while taking life stress into consideration, is also related to mental health attitudes among the general population [18, 24]. Yet, studies that comprehensively explore these factors have been limited.

To address these gaps, this study aims to identify the sociodemographic correlates of public stigma while accounting for mental health literacy and life satisfaction. The findings contribute to the literature on population subgroups in need of destigmatising programs and can serve as a guide for future intervention designs.

Methods

Study design and procedure

This study administered a randomised telephone survey to the general population of Hong Kong from 15 January to 9 February 2018 using a computer-assisted telephone interview (CATI) system. To strengthen this study's representativeness, the sample recruitment was based on 10 gender–age strata divided according to the gender–age distribution of the general population of Hong Kong as reported in the 2016 Population By-Census [25]. To avoid selection bias, a random sampling method was adopted. The approach generated two lists of telephone numbers: the first list comprised of randomly selected numbers from telephone directories, while the second list was based on the first one and was created using the plus-minus, one-two method. Duplicated numbers were omitted, and all remaining numbers were randomly ordered in the final sample. Subjects were Cantonese-speaking Hong Kong residents aged 18 years and above. The analysis adopted the same procedure as that in Chan et al. [17, 26, 27].

All interviews were conducted anonymously by experienced interviewers. The calls were made on weekdays between 18:30 and 22:30 and on weekends and holidays as per appointments arranged with the subjects. If more than one member in a household was available for the interview, the member with the most recent birthday was selected. Only respondents who answered at least 90% of the questions were considered a successful case. To minimise sampling bias, data collected by interviewers who failed to achieve a response rate of 40% from their assigned contact list were eliminated from the final sample. Overall response rate was calculated as the number of successful cases divided by the sum of successful cases plus effective rejection by confirmed eligible participants and incomplete cases. The expected response rate was at least 50% [28]. Every number was called five times before it was dropped as an unsuccessful contact. On-site monitoring and voice recording were used to ensure data quality.

Data collection

Data were collected for demographic characteristics, such as gender, age, education level, and occupation. Life satisfaction was measured using a single item on a 11-point Likert scale, where 0 denotes “completely dissatisfied” and 10 is “completely satisfied” [29].

Public stigma was measured using the Chinese version of the Reported and Intended Behaviour Scale (RIBS) [5, 30]. To reduce the duration of the survey, only four items on intended behaviours towards mental illness were administered. Each item is rated on a 5-point Likert scale, where 1 denotes “strongly agree” and 5 is “strongly disagree”. Higher RIBS scores indicate greater public stigma of mental illness. The internal consistency of the four items adopted in this analysis was 0.85 in a previous research [30] and 0.83 for this study.

Mental health literacy was measured using the Mental Health Knowledge Schedule (MAKS) [31]. To reduce the duration of the survey, only six items on stigma-related knowledge, such as help seeking, recognition, support, employment, treatment, and recovery, were administered. Besides, the choices of response to each item were changed from the Likert scale to the binary scale which reflects true or false response. This decision was also supported by an earlier study which found that the true or false method was a more accurate method of checking knowledge about mental health than the Likert scale [31]. Higher MAKS scores indicate better mental health literacy.

Data analysis

Statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS) v.26. Descriptive statistics were computed. A multiple linear regression analysis was performed to identify significant correlates for RIBS. Only significant variables in a univariate linear regression were incorporated in the multiple linear regression models. All sociodemographic variables were tested against RIBS with MAKS and life satisfaction as covariates.

To explore if the relationship between MAKS and RIBS is dependent on age and education level, a moderation analysis was performed using the PROCESS macro in SPSS (model 1) [32]. The independent and outcome variables for the analysis were mental health literacy measured by MAKS and public stigma estimated by RIBS. The moderator variable for the analysis was a three-group categorical variable combined with age and education level. All respondents under the age of 50 years received a minimum of secondary education. Thus, group 1 included respondents who were younger than 50 years and with a secondary or higher education. Groups 2 and 3 included respondents aged 50 years and above. Respondents in the former group completed only their primary education, while those in the latter group received a secondary or higher education.

Results

Of the 2,694 eligible subjects, a total of 1,514 were interviewed successfully (a response rate of 56.2%). The sample showed a similar demographic profile to that of Hong Kong's total population in 2016 (Table 1). The mean scores for life satisfaction, MAKS, and RIBS were 7.03 (standard deviation [S.D.] = 1.81), 3.99 (1.32), and 9.74 (9.00), respectively.

Table 1
Demographic data of the sample.

		Current study		Total population in 2016 ^a	
		N	%	N	%
Gender	Male	719	47.5	2,846,845	47.5
	Female	795	52.5	3,152,235	52.5
Age group	18–19	35	2.3	155,498	2.6
	20–24	112	7.4	435,956	7.3
	25–29	119	7.8	462,040	7.7
	30–34	90	5.9	496,676	8.3
	35–39	146	9.6	489,828	8.2
	40–44	120	7.9	521,292	8.7
	45–49	159	10.5	538,903	9.0
	50–54	141	9.3	625,605	10.4
	55–59	116	7.7	617,468	10.3
	≥ 60	472	31.2	1,655,814	27.6
Education ^b	Primary or below	300	19.8	1,272,280	20.6
	Secondary	716	47.4	2,858,359	46.2
	Tertiary	496	32.8	2,053,696	33.2
Occupation	Workers	575	38.0	n/a	
	Mid-level ^c	242	16.0		
	Senior Management ^c	89	5.9		
	Retired	279	18.4		
	Homemakers	158	10.4		
	Students	73	4.8		
	Others	98	6.5		

^a Total population excluding foreign domestic helpers in By-Census 2016 in Hong Kong

^b Data include participants aged 15–17, segregated data from age 18 are not available.

SD = Standard deviation; n/a = data not available.

^c Mid-level includes office managers and professionals; Senior management includes unit heads, senior professionals, chief executive officers and directors

After controlling for life satisfaction and mental health literacy, the female gender ($B = -0.438$, $S.E. = 0.032$), older age groups ($B = 0.154$, $S.E. = 0.052$), retirement ($B = 1.880$, $S.E. = 1.120$), and homemakers ($B = 1.237$, $S.E. = 0.373$) were positively associated with

higher public stigma. Higher education ($B = -0.980$, $S.E. = -1.329$) was positively associated with lower public stigma. These significant factors accounted for 16.4% of the variance of the total RIBS score (Table 2).

Table 2
Linear regression on RIBS.

	Univariate linear regression			Multiple linear regression				
	<i>B</i>	95%CI for <i>B</i>		<i>SE</i>	<i>B</i>	95%CI for <i>B</i>		<i>SE</i>
		<i>LCI</i>	<i>UCI</i>			<i>LCI</i>	<i>UCI</i>	
<i>Independent variables</i>								
Female (ref.: male)	0.565**	0.156	0.974	0.208	0.438*	0.032	0.844	0.207
Age group	0.332***	0.262	0.402	0.036	0.154**	0.052	0.256	0.052
Education	-1.367***	-1.645	-1.088	0.142	-0.980***	-1.329	-0.632	0.178
Workers #	-0.650**	-1.071	-0.229	0.214	0.413	-0.222	1.047	0.324
Mid-level #	-0.954**	-1.511	-0.397	0.284	0.228	-0.500	0.956	0.371
Senior management #	-0.700	-1.569	0.168	0.443	<i>Excluded</i>			
Retired #	2.200***	1.684	2.716	0.263	1.880***	1.120	2.640	0.387
Homemakers #	1.328***	0.661	1.995	0.340	1.237**	0.373	2.101	0.440
Student #	-1.847***	-2.797	-0.897	0.484	-0.29	-1.425	0.846	0.579
<i>Covariates</i>								
Life satisfaction	-0.157**	-0.270	-0.044	0.058	-0.156**	-0.263	-0.048	0.055
MAKS	-0.535***	-0.689	-0.382	0.078	-0.824***	-0.976	-0.672	0.078
				Constant	13.817***	12.151	15.483	0.849
				<i>F</i> [model df, error df]	29.258 [10, 1493]			
				<i>p</i>	< .001			
				Model R^2	0.164			
Note. Model = "Enter" method in SPSS Statistics; <i>B</i> = unstandardised regression coefficient; CI = confidence interval; <i>LCI</i> = lower CI; <i>UCI</i> = upper CI; <i>SE B</i> = standard error of the coefficient; R^2 = coefficient of determination.								
# The reference group was the others. * $p < .05$; ** $p < .01$; *** $p < .001$								

Further analyses were conducted to investigate whether age and education level moderate the association between MAKS and RIBS by controlling for gender, retirement, homemakers, and life satisfaction. The differences in age and education showed significant main effects on the association (Group 2: $B = 6.582$, $S.E. = 1.216$; Group 3: $B = 3.241$, $S.E. = 0.695$) (Table 3). Figure 1 depicts the significant interaction effect of age and education level on the relationship between public stigma and mental health literacy ($F(2,1496) = 8.809$, $\Delta R^2 = 0.010$). Compared with that in Group 1 (younger and higher education; $B = -0.436$, $S.E. = 0.121$), the association between public stigma and mental health literacy was the most significant in Group 2 (older and lower education; $B = -1.403$, $S.E. = 0.229$), followed by that in Group 3 (older and higher education; $B = -0.952$, $S.E. = 0.118$).

Table 3
Moderation effects of mental health literacy on the association of age and education groups with public stigma.

Variables	95%CI for <i>B</i>			
	<i>B</i>	<i>LCI</i>	<i>UCI</i>	<i>SE</i>
MAKS	-0.436***	-0.675	-0.198	0.121
Group 2 (ref.: group 1)	6.582***	4.196	8.968	1.216
Group 3 (ref.: group 1)	3.241***	1.879	4.604	0.695
MAKS x group 2	-9.668**	-1.474	-0.460	0.259
MAKS x group 3	-0.516**	-0.847	-0.185	0.169
Constant	10.827	9.509	12.145	0.672
<i>F</i> [model df, error df]	29.067 [9, 1496]			
<i>p</i>	< .001			
Model <i>R</i> ²	0.149			
Note. The model was adjusted for gender, retirement, homemakers, and life satisfaction variables. <i>B</i> = unstandardised regression coefficient; CI = confidence interval; <i>LCI</i> = lower CI; <i>UCI</i> = upper CI; <i>SE B</i> = standard error of the coefficient; <i>R</i> ² = coefficient of determination.				
* <i>p</i> < .05; ** <i>p</i> < .01; *** <i>p</i> < .001.				

Discussion

This study explored the sociodemographic correlates of the public stigma of mental illness using a large representative sample of the Chinese population in Hong Kong. The findings highlighted that the female gender, older age groups, and lower education levels are associated with significantly higher stigma about mental illness. There was no evidence of differential public stigma among populations of various occupations; however, retired individuals and homemakers are likely to have higher public stigma. The strength of the association between mental health literacy and public stigma varied by age and education level, suggesting that the effect of destigmatising programs through improved mental health literacy might vary with different age groups and educational backgrounds. People aged 50 years and above with lower education levels indicated the strongest link between mental health literacy and public stigma.

The finding that individuals with lower education levels are likely to show more negative stigmatising attitudes is consistent with those of previous research [33, 34]. However, this conclusion is in contrast with that of a previous study on Hong Kong's Chinese population [17], which suggested that higher education levels are associated with more stigmatising attitudes towards psychosis. It is possible that the relationship between education level and the stigma of psychosis differs from that between education level and other mental illnesses. While it is generally believed that individuals with higher education levels possess better mental health literacy [35, 36], the association of mental health literacy with the public stigma of psychosis and general mental health illness may be different. In the context of psychosis, it has been consistently reported that an improved biological understanding of psychosis is related to worsening public stigma [37]. A local study showed that improving knowledge about the nature of psychosis rather than its symptoms and treatment can improve public stigma about psychosis [17]. On the other hand, improving knowledge about general mental illness is related with reduced public stigma [9]. In other words, basic mental health literacy generally acquired by individuals with higher education levels is related to a better attitude towards general mental illnesses. However, the biological understanding about psychosis, which also tends to be acquired by individuals with higher education levels, worsens attitudes towards psychosis.

This study, to the best of our knowledge, is the first to report a positive association between age and the public stigma of mental illness among a Chinese population. It further evidence that such a relationship is closely related to educational level and mental health literacy. While nearly half of Hong Kong's population is older than 50 years, one-third possesses only primary education. The

moderation analysis revealed that this group has the strongest positive correlation between mental health literacy and the public stigma of mental illness. Thus, future destigmatising programs should target individuals aged 50 years or above with low education levels. This also possibly explains the little or no effect of mental health education on adolescent attitudes reported in a study by Pinto-Foltz, Logsdon (38). Younger generations are more likely to have acquired basic mental health literacy. Potential generational differences in cultural beliefs are another factor that could explain the age effect on the stigma of mental illness. This argument is supported by an earlier study that highlighted generational differences in family and gender values among the Chinese population [39]. Further research is needed to explore the effect of variation in culture beliefs among different generations on public stigma comprehensively. These findings suggest that destigmatising interventions should adopt different approaches for various generations. Improving mental health literacy could be a more effective approach for older people with lower education levels. This study's results could guide the development of future targeted anti-stigma campaigns.

The findings of gender effects on the public stigma of mental illness are consistent with those of prior local research, which suggested a relationship between the female gender and more negative stigmatising attitudes in the Chinese population [17, 18]. However, the results contrast with those of studies on other ethnicities, which indicated an association between the male gender and more negative attitudes [14, 40, 41]. These differences can be explained by varying cultural beliefs about mental health stigma. The Asian population is reportedly more susceptible to their cultural beliefs in terms of mental health stigma [42]. Among the Chinese, for example, the public stigma of mental illness is often shaped by cultural meanings embedded in Confucianism, wherein the pejorative aetiological belief in mental illness is more strongly associated with the centrality of "face" [43], fear, shame, cognitive impairment, social community, consensus, and sanction [44]. Further, women are at the lower end of the Confucian hierarchy and are expected to behave exemplarily and obey without complaint, leading to a potentially increased sense of the aforementioned negative perception of mental illness among Chinese women.

While life satisfaction was not the main focus of the correlates under examination, this study is among the few to report an association between life satisfaction and public stigma. To this effect, research has shown that life satisfaction is positively associated with all five stages in Maslow's hierarchy of needs [45]. This association suggests that individuals with better life satisfaction are more likely to adopt a self-actualising attitude and thus seek knowledge about mental health and adopt a more positive attitude towards mental illness. The present findings, however, are not in line with those of Crowe and Kim [24], who reported no evidence of an association between life satisfaction and stigma. Nevertheless, the authors selected the attitude towards mental health treatment as the outcome variable, which is an indicator of intended help-seeking behaviour. Such behaviours are considered 'safety needs' according to Maslow's hierarchy of needs, and the safety needs stage has a weaker correlation with life satisfaction than the self-actualisation stage [45].

To the best of the authors' knowledge, this is the first population study on the sociodemographic correlates of general mental illnesses in a Chinese population. However, the results should be carefully interpreted in view of their limitations, the first of which being the commonly reported limitations of a telephone survey [17, 18]. Second, the use of only six items on stigma-related mental health knowledge from MAKS to assess mental health literacy might have limited the cross-comparison of MAKS scores between studies. However, since this study focused on public stigma, the adopted approach was more effective for capturing stigma-related mental health knowledge. Third, since the survey length was limited to ensure a higher response rate, many potential confounding variables were not captured. Future studies could include sociodemographic factors, such as family structure, marital status, and income, to formulate a better model to explain the sociodemographic characteristics possibly related to the public stigma of mental illness.

Conclusions

According to the World Health Organization (46), the public sees the problem of mental health as the lack of 'vocal and powerful constituency', and this perception limits the extent of resources invested in the destigmatisation of mental illness. This study identified sociodemographic factors, namely the female gender, older age groups, lower education levels, retirement, and homemakers, related to poorer attitudes about mental illness. Further, older individuals with lower education levels have significantly lower mental health literacy and higher stigma. Thus, improving mental health knowledge among this population could effectively reduce public stigma. A profile-specific, anti-stigma psychoeducational program could be more cost effective in reducing the public stigma about mental illnesses.

The findings of this study further emphasised the need to understand the differential effect of sociodemographic factors on public stigma to guide the development of effective anti-stigma campaigns.

Abbreviations

CATI: computer-assisted telephone interview; RIBS: Reported and Intended Behaviour Scale; MAKS: Mental Health Knowledge Schedule; SPSS: Statistical Package for Social Sciences (SPSS); S.D.: standard deviation; B: unstandardised regression coefficient; S.E.: standard error

Declarations

Ethics approval

The study protocol was approved by the Institutional Review Board of the University of Hong Kong/Hospital Authority Hong Kong West Cluster (UW17-540). The study was conducted according to the relevant guidelines and regulations.

Informed consent

All respondents provided verbal informed consent for their participation.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Authors' contributions

LLHL, YNS and SKWC formulated the research question. LLHL, YNS, SKWC, CLMH, EHML, and EYHC designed the study. MYS and CC provided statistical support. LLHL, YNS and SKWC contributed to the writing of the article. CLMH, EHML, WCC and EYHC critically reviewed the article draft. All authors have approved the manuscript.

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Figures

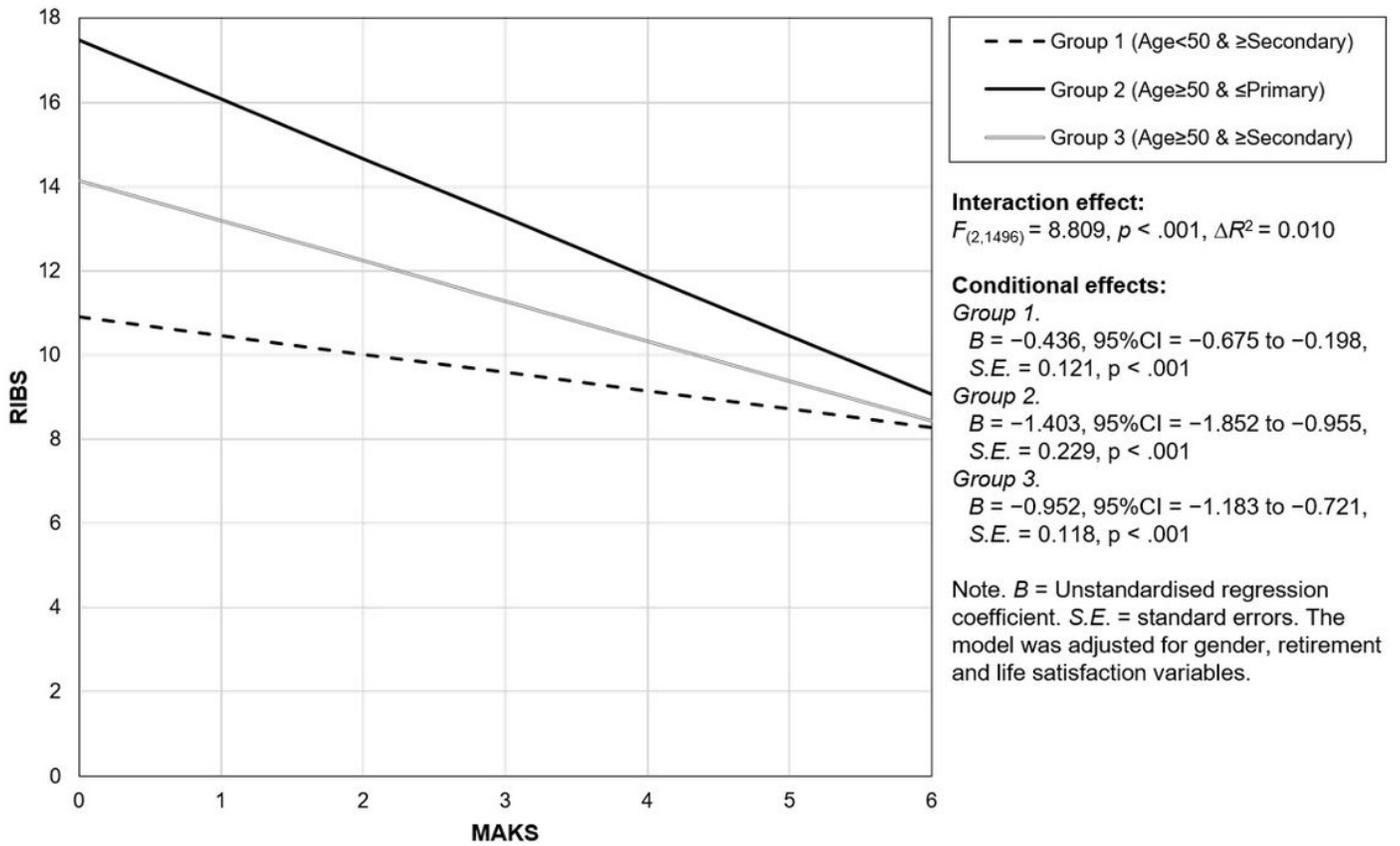


Figure 1

Plot of the moderation effect of mental health literacy on the association of age and education groups with public stigma.