Research Report

RELIABILITY AND VALIDITY OF MALAYALAM VERSION OF 12-ITEM COMMUNITY ATTITUDE TOWARDS MENTAL ILLNESS (CAMI-12) QUESTIONNAIRE

Meera Sujathan[1], Rekha Mathew[2], Aravind Karunakaran[1], Jaimon Plathottathil Michael[*3], Varghese P Punnoose[1]

[1]Department of Psychiatry, Government Medical College, Kottayam, Kerala
[2]Department of Psychiatry, Government Medical College, Alappuzha, Kerala
[3]Department of Psychiatry, Government Medical College, Ernakulam, Kerala
[*]Corresponding address: Assistant Professor, Department of Psychiatry, Government Medical College, Kalamassery, Ernakulam, Kerala, Pincode – 683503. Email address: jaimonpm@gmail.com

ABSTRACT

Background: Community attitude toward mental illness (CAMI) is an important determinant in the management of people with psychiatric disorders. Stigma interferes with diagnosis, treatment, and rehabilitation of all mental disorders. Even though studies have been done to evaluate knowledge, attitude, and behaviors toward psychiatric patients, no tools are available in the local language, Malayalam, for assessing CAMI. A validated and reliable Malayalam tool is an essential prerequisite for assessing the level of stigma in the local population. The objectives of our study were to assess the reliability and validity of the Malayalam version of the 12-item Community Attitude towards Mental Illness (CAMI-12) Questionnaire and to estimate the proportion of caregivers of patients with MI having a high level of stigma as per CAMI-12. **Methods:** This observational study was done in Government Medical College, Kottayam, from June 2021 to December 2021, after getting the approval of the Institutional Ethics Committee. Written informed consent was obtained from the participants before recruiting them for the study. One hundred and twenty caregivers of patients with mental illness were recruited by consecutive sampling, and they completed the Malayalam version of CAMI-12 at baseline and after four weeks. Internal consistency was assessed using Cronbach's alpha. **Results:** The Malayalam version of CAMI-12 total score and the subscales for Tolerance and Support (TS) and Prejudice and Exclusion (PE) had a high internal consistency with Cronbach's alpha values of 0.90, 0.89 and 0.90, respectively. **Conclusions:** Our study demonstrated good reliability and validity for the Malayalam version of CAMI-12. The proportion of caregivers with a high level of stigma was found to be 28.3% (95% Confidence Interval [95% CI] = 20.2-36.4%).

Keywords: Stigma, discrimination, caregivers, mental illness

INTRODUCTION

Mental Illnesses (MI) are usually characterized by clinically significant disturbances in the behavior, thoughts, cognition, and emotional regulation of individuals. Persons with MI experience distress or impairment in important areas of functioning. In 2019, one in every eight persons, or 970 million people around the world, were living with mental disorders.[1]

Access this article online:
https://kjponline.com/index.php/kjp/article/view/413
DOI: 10.30834/KJP.36.2.2023.413
Received on: 09/06/2023. Accepted on: 09/10/2023.
Web publication: 05/11/2023.
QR code:

Please cite this article as: Sujathan M, Mathew R, Karunakaran A, Michael JP, Punnoose VP. Reliability and validity of Malayalam version of 12-item Community Attitude Towards Mental Illness (CAMI-12) questionnaire. Kerala Journal of Psychiatry 2023;36(2): 83-91.

Community attitude towards mental illness (CAMI) is an important determinant in the management of people with psychiatric disorders. Studies have found that low rates of help-seeking for mental health are mainly due to poor knowledge regarding mental illnesses,[2] which includes information about psychiatric disorders, symptoms, and treatments for MI.[3] The attitudes to persons with MI range from acceptance[4] and tolerance[5] to negativity and fear.[6] A positive attitude towards MI is a supportive and open-minded behavior that helps a person with psychiatric problem to live in the community gracefully. On the other hand, when attitudes are negative, it will lead to discrimination, avoidance, and social exclusion.[7] The negative attitude towards MI is stigma. Stigma is defined as "a set of negative attitudes and beliefs that motivate individuals to fear, reject, avoid, and discriminate against people with mental illness".[8] It results in reduced autonomy and self-efficacy[9] and interferes with the diagnosis, treatment, and rehabilitation of all mental disorders. Stigmatization of mental illness is one of the factors leading to long duration of untreated illness. Three components of stigma, proposed by Corrigan and Watson, are stereotype, prejudice, and discrimination.[10,11] It has a negative influence on recovery and outcome. Stigma and discrimination faced by the families of persons with mental illness are key risk factors for mental ill health.[8] Mental health service providers could do much to prevent or reduce the stigma experienced by patients and caregivers. Studies have shown that more knowledge regarding MI leads to low stigma.[12,13]

Previous studies have shown that contact with a person having MI influences the behaviors, emotions, and attitudes of others.[14,15] Interpersonal contact with patients with MI may help develop positive attitudes, change in beliefs, and reduce misconceptions about patients.[14] But the community holds negative views about the dangerousness of persons with MI and prefers to maintain a social distance despite having regular contact with them.[15] A study conducted by Angermeyer et al. (2006) showed that a large part of the community is not able to recognize a specific psychiatric disorder, and the majority of the public considers people with MI to be in need of help.[16] A worldwide study conducted in 229 countries showed that in developed countries, only 7% to 8% of respondents had stigma towards persons with MI, compared to 15% or 16% in developing countries,[17] where people stigmatize, fear, and distance themselves from patients with MI.

A community-based cross-sectional study conducted in India using a semi-structured interview schedule for perception about mental illness and a 34-item Opinion about Mental Illness for Chinese Community (OMICC) scale showed that the community showed a negative attitude for pessimistic prediction, restrictiveness, and stereotyping domains on OMICC scale.[18] Another descriptive study using the Short Version of the Orientation Toward Mental Illness Scale (OMI) from India among college students found that the majority of the participants had a negative attitude towards the methods of treatment and held the perception that the family is the main source for seeking help regarding MI.[19] Another explanatory mixed-method study conducted in India among 395 participants aged between 18 to 65 years regarding rural community attitude towards mental health revealed that the major barriers to mental healthcare were the denial of mental illness by patients due to fear of social stigma, lack of availability of mental health services and faith on religious healers.[20] A descriptive cross-sectional study conducted in India among 300 relatives of patients with MI, using the public perceptions of mental illness questionnaire, indicated that there is a poor understanding regarding the nature of mental illness, its implications for social integration, and management among the general public.[21]

A study from Kerala aimed at exploring the stigma in the Indian context by considering the

experience of patients, caregivers and community members found that the experiences similar to that of stigma in Europe and the United States were elicited, but local dimensions specific to the Indian context were observed to be important. Further, unlike the 'self-stigma' identified in the US, participants were more likely to see stigma as a collective problem which could reflect badly on the family group as a whole.[22] A cross-sectional exploratory survey among 708 college students from Kerala, using a 16-item checklist with yes or no response options that the authors developed, found that amongst the college-going population there is considerable stigma about MI and there are prejudices and misinformation about the treatment of mental health problems.[23] Another cross-sectional study among 200 medical students in Kerala using Attitude towards Mental Illness (AMI) questionnaire found that their attitude towards mental illness was not appropriate.[24] The fact that MI is deemed to be a stigma even by medical students brings forth the need for awareness and education. A recent study from a medical college in Kerala regarding the attitude of doctors towards mental illness revealed that 63% of doctors had a negative attitude.[25]

The prevalence of mental disorders in Kerala is nearly 9%.[26] Despite high literacy rate in Kerala, there is a significant delay in seeking treatment for mental illness.[27] A study regarding the burden of MI in Kerala has found that the number of individuals with mental illness in Kerala increased from 272 persons per lakh to 400 persons per lakh in the time period of 2002 to 2018.[28]

Even though studies have been done among the caregivers and college students to evaluate the knowledge, attitude and behaviors towards patients with MI, the tools for assessing the community attitude towards MI are not available in the local language, Malayalam. A validated and reliable Malayalam tool is an essential prerequisite for assessing the level of stigma towards MI.

A 12-item scale was derived from the Community Attitudes towards the Mental Illness (CAMI) scale developed by Taylor and Dear in 1981. CAMI is used to measure community attitudes towards persons with mental illness. The questionnaire consists of forty attitudinal statements about mental illness. The participants specify how much they agree or disagree with each statement based on a 5-point Likert scale.[29] The CAMI-12 scale includes a subset of the original statements that assess the levels of mental health-related stigma and tolerance. It was first used in a survey evaluating the Time to Change social marketing campaign.[30] Factor analysis was done on these 12 attitude statements in 2004, and two internally reliable subscales were generated.[31] The identification of these two subscales was consistent with another study, which ran a factor analysis on the 27-item version of the CAMI questionnaire used in the National Attitudes to Mental Illness survey.[32] These 12 items were grouped into the two subscales: Prejudice and Exclusion (PE) and Tolerance and Support (TS), with six questions in each subscale.[33] Factor analysis of CAMI-12 showed that Cronbach's alpha was 0.836 for Prejudice and Exclusion and 0.729 for Tolerance and Support towards people with mental illness.[33] A study of the CAMI-12 Chinese version has found that the construct validity and cross validity were appropriate, and the internal consistency of the total score and the subscales were acceptable with Cronbach's alpha of 0.76, 0.75, and 0.81, respectively.[34] As the CAMI-12 has good psychometric properties in terms of reliability and validity, its Malayalam version will be helpful for the assessment of stigma in studies from Kerala. The items of the CAMI-12 questionnaire are listed in Table 1.

Our study aimed to assess the reliability and validity of the Malayalam version of the 12-item Community Attitude towards Mental Illness (CAMI-12) Questionnaire and to estimate the proportion of caregivers of patients with MI having a high level of stigma towards MI as per

CAMI-12.

MATERIALS AND METHODS

This observational study was done in the Department of Psychiatry, Government Medical College, Kottayam, a tertiary care centre in India from June 2021 to December 2021. Institutional Ethics Committee permission from Government Medical College, Kottayam was taken before starting the study (IRB No.56/2021). The authors confirm that all the procedures contributing to this study comply with the ethical standards. Written informed consent was obtained from all the participants before recruiting them for the study.

As the study was a questionnaire validation study, a respondent to item ratio of 10:1 was taken for sample size calculation.[35,36] The questionnaire had 12 items and hence a minimum sample size of 120 was taken. The study population was constituted by caregivers of both male and female patients with mental illness attending the outpatient and inpatient services at the Department of Psychiatry, Government Medical College, Kottayam, during the study period. The study sample included primary caregivers – aged more than 18 years – of both outpatients and inpatients with any mental illness for a duration of more than or equal to two years, attending the Department of Psychiatry, who have been staying with the patients for more than one year. Those caregivers with physical disability and a history of psychiatric disorders were excluded.

Community Attitude Towards Mental Illness – 12-item Questionnaire (CAMI-12):

The 12-item scale derived from the original Community Attitudes toward the Mental Illness (CAMI) scale was translated to Malayalam.[29] The initial translation of the questionnaire to Malayalam was done by two independent translators whose mother tongue was Malayalam. One translator was given sufficient information to understand the purpose of CAMI-12, while the other was blinded. The two translations were then contrasted with each other. The translations were then back-translated to English by another translator whose mother tongue was Malayalam, who had previous experience in translation and was fluent in both spoken and written English. This was done as the service of a translator whose mother tongue was English couldn't be obtained. The back translator was also blinded to the concept of CAMI-12. A panel constituted by the principal investigator, the translators, and experts with vast experience in Psychiatry decided on the final version.

The 12 statements assessing CAMI were phrased in both positive and negative directions. These 12 items were grouped into the two subscales: Prejudice and Exclusion (PE) and Tolerance and Support (TS) with six questions in each subscale.[33] Positive views were expressed by agreement with 'Tolerance and Support' items and disagreement with 'Prejudice and Exclusion' items. A 5-point Likert scale was used to rate the respondent's degree of agreement or disagreement. This was scored as 0 for 'disagree strongly,' 25 for 'disagree slightly,' 50 for 'neither agree nor disagree,' 75 for 'agree slightly,' and 100 for 'agree strongly.' Scoring of negative statements was done in reverse so that in every case, a higher score indicated a more positive attitude. A sixth option of 'Don't know' was provided but was excluded from calculating the mean score.[33] The mean score of positive and negative statements were calculated. The total stigma score was also calculated. The 25th percentile of the total stigma scores of the 120 participants were calculated. The participants with a total score more than the 25th percentile were considered to have low stigma, and those caregivers whose total score was less than the 25th percentile to have high stigma.

One hundred and twenty caregivers of patients with MI, satisfying the inclusion and exclusion criteria, attending OPD or IP care in the Department of Psychiatry were recruited by

Table 1: CAMI-12 Questionnaire

Please read the items carefully. Indicate your choice with a 'x' mark on the corresponding column.

Item no.	Item	0	1	2	3	4
1	One of the main causes of mental illness is a lack of self-discipline and will-power					
2	There is something about people with mental illness that makes it easy to tell them from normal people					
3	We need to adopt a far more tolerant attitude toward people with mental illness in our society					
4	People with mental illness don't deserve our sympathy					
5	I would not want to live next door to someone who has been mentally ill					
6	It is frightening to think of people with mental problems living in residential neighbourhoods					
7	Mental illness is an illness like any other					
8	Virtually anyone can become mentally ill					
9	The best therapy for many people with mental illness is to be part of a normal community					
10	People with mental health problems are far less of a danger than most people suppose					
11	People with mental health problems should not be given any responsibility					
12	Most women who were once patients in a mental hospital can be trusted as babysitters					

0 – agree strongly, 1– agree slightly, 2 – neither agree nor disagree, 3 – disagree slightly, 4 – disagree strongly
Items 1, 2, 4, 5, 6, 11 – Prejudice & Exclusion; items 3, 7, 8, 9, 10, 12 – Tolerance & Support

consecutive sampling into the study. The nature of the study was explained to the caregivers. A written informed consent was obtained from all the participants. The sociodemographic details were recorded in a semi-structured proforma, and they were asked to complete the Malayalam version of CAMI-12. All the participants were asked to come for regular follow-up with their patient relatives and were asked to complete a retest of CAMI-12 after four weeks. This retest was done to assess the reliability of the scores over a four-week period. This period was considered sufficient to balance between recollection bias and unwanted change.[37] The data were recorded and tabulated in Microsoft Excel.

Statistical analysis was done using R Software version 4.3.0 for Windows, which is a freely available software for statistical analysis. The socio-demographic characteristics are represented in frequency and percentages. Internal consistency of Malayalam CAMI-12 was assessed using Cronbach's alpha.[38] A high Cronbach's alpha shows a good correlation between the items. A Cronbach's alpha of 0.70-0.95 indicates good internal consistency.[39] The reliability between the CAMI-12 total scores and subscale scores TS and PE were assessed by Intraclass Correlation Coefficient (ICC). The ICC values range from 1 (totally reliable) to 0 (totally unreliable).[40]

RESULTS

A total of 120 subjects were recruited for the study. All the participants were assessed at baseline and after four weeks. There were no dropouts in the study subjects on follow-up. The mean age of the participants was 49 years, with a Standard Deviation (SD) of 12.9 years. The mean CAMI-12 total score at baseline was 52.95 (SD=12.12). The average time to complete the CAMI-12 Questionnaire was about 10 minutes. The majority of caregivers were parents, out of

Table 2: Socio-demographic characteristics of participants at baseline

Variables		Frequency (%) (N = 120)
Gender	Males	37 (30.8)
	Females	83 (69.2)
Marital status	Unmarried/ separated/ divorced	33 (27.5)
	Married and living together	87 (72.5)
Education	<10th Class	39 (32.5)
	>10th Class	81 (67.5)
Occupation	Employed	72 (60.0)
	Unemployed	48 (40.0)
Domicile	Rural	85 (70.8)
	Urban	35 (29.2)
Relation	Parents	67 (55.8)
	Siblings	18 (15.0)
	Spouse	35 (29.2)
Stigma	Low stigma	86 (71.7)
	High stigma	34 (28.3)
Diagnosis of patients	Substance use disorders	30 (25.0)
	Psychotic disorders	20 (16.7)
	Mood disorders	63 (52.5)
	Other disorders	7 (5.8)

which 51 (42.5%) were mothers, while 18 (15%) were brothers. Out of the 120 participants 34 (28.3%; 95% CI = 20.2-36.4%) were having a high level of stigma towards MI. The socio-demographic characteristics of the participants at baseline are depicted in Table 2.

The Malayalam version of CAMI-12 total score had a high internal consistency with Cronbach's alpha value of 0.90. The internal consistency of the Malayalam version of the two subscales with Tolerance and Support (TS) and Prejudice and Exclusion (PE) were excellent, with Cronbach's alpha values of 0.89 and 0.90, respectively.

The test-retest reliability of the CAMI-12 Malayalam version was assessed with re-administration after four weeks. The intraclass correlation of the total score was 0.89, and for the subscales, TS and PE were 0.88 and 0.91, respectively.

DISCUSSION

The sociodemographic findings of our study are consistent with the findings of the Indian study, which investigated the knowledge, attitude, and practices of the general population towards the mentally ill.[21]

The Malayalam version of CAMI-12 total score and the subscales Tolerance and Support (TS) and Prejudice and Exclusion (PE) had a high internal consistency with Cronbach's alpha values of 0.90, 0.89, and 0.90, respectively. The study of the CAMI-12 Chinese version has found that the construct validity and cross validity were appropriate, and the internal consistency of the total score and the subscales were acceptable with Cronbach's alpha of 0.76, 0.75, and 0.81, respectively.[41] The original version of CAMI-40 total score had a Cronbach's alpha of 0.876.[29] Factor analysis of CAMI-12 showed that the Cronbach's alpha was 0.836 for prejudice and exclusion and 0.729 for tolerance and support towards people with mental illness.[30] Another study that explored the 26-item CAMI also showed good reliability for tolerance and support for community care with a Cronbach's alpha value of 0.84.[32] Another study on the Chinese version of SF-CAMI consisting of 20 items with three subscales: Benevolence, Fear, and Exclusion, and Support and Tolerance showed that the Cronbach's alpha of the total scale for both samples was 0.82 for medical students and 0.85 for primary healthcare workers.[34]

The Malayalam version of CAMI-12 had good test-retest validity. The study on the Chinese version of SF-CAMI also had an acceptable test-retest reliability. It was found that the intraclass correlation coefficient was 0.62 for medical students and 0.60 for primary healthcare workers.[34]

Our study has found that 28% of participants had high levels of stigma towards people with mental illness, and this finding is consistent with other Indian studies as well as studies from Kerala.[18-24]

Our study was conducted in a tertiary care setting and would have resulted in a Berksonian bias as majority of the patients attending our centre are having severe MI. The re-administration of CAMI-12 at four weeks may have contributed to a recall bias.

Conclusions

Our study demonstrated a good reliability and validity for the Malayalam version of CAMI-12. The proportion of caregivers with high level of stigma is 28%. The Malayalam version of CAMI-12 can be used in various strata of the community, including health professionals, teachers, engineers, advocates, and students from various streams to assess the attitude toward MI. Future studies on these individuals will help us to formulate various awareness sessions for the community regarding psychiatric disorders.

Conflicts of interest: The authors declare no conflicts of interest.

Source of funding: Nil

REFERENCES

1. GBD 2019 Mental Disorders Collaborators. Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet Psychiatry 2022;9:137-50.
2. Drake RE, Bond GR, Essock SM. Implementing evidence-based practices for people with schizophrenia. Schizophrenia Bull 2009;35:704-13.
3. Wei Y, McGrath PJ, Hayden J, Kutcher S. Mental health literacy measures evaluating knowledge, attitudes and help-seeking: a scoping review. BMC Psychiatry 2015;15: 291. doi: 10.1186/s12888-015-0681-9.
4. Angermeyer MC, Holzinger A, Carta MG, Schomerus G. Biogenetic explanations and public acceptance of mental illness: systematic review of population studies. Br J Psychiatry 2011;199: 367-72.
5. Parra F. Social tolerance of the mentally ill in the Mexican American community. Int J Soc Psychiatry 1985;31:37-45.
6. Brockington IF, Hall P, Levings J, Murphy C. The community's tolerance of the mentally ill. Br J Psychiatry 1993;162: 93-9.
7. Kobau R, Zack MM. Attitudes toward mental illness in adults by mental illness-related factors and chronic disease status: 2007 and 2009 Behavioral Risk Factor Surveillance System. Am J Public Health 2013;103: 2078-89.
8. Corrigan PW, Watson AC. Understanding the impact of stigma on people with mental illness. World Psychiatry 2002;1:16-20.
9. Corrigan PW, Shapiro JR. Measuring the impact of programs that challenge the public stigma of mental illness. Clin Psychol Rev 2010;30:907-22.
10. Yvon F, Prouteau A. Towards an understanding of stigma: what is the stereotype associated with schizophrenia. Sante Ment Que 2017;42:125-31.
11. Lyons M, Ziviani J. Stereotypes, stigma, and mental illness: learning from fieldwork experiences. Am J Occup Ther 1995;49:1002-8.
12. Henderson C, Robinson E, Evans Lacko S, Corker E, Rebollo-Mesa I, Rose D, et al. Public knowledge, attitudes, social distance and reported contact regarding people with mental illness 2009–2015. Acta Psychiatr Scand 2016;134 Suppl 446:23–33.
13. Hansson L, Stjernsward S, Svensson B. Changes in attitudes, intended behaviour, and mental health literacy in the Swedish population 2009–2014: an evaluation of a national antistigma programme. Acta Psychiatr Scand 2016;134 Suppl 446:71–9.
14. Vezzoli R, Archiati L, Buizza C, Pasqualetti P, Rossi G, Pioli R. Attitude towards psychiatric patients: a pilot study in a northern Italian town. Eur Psychiatry 2001;16:451–8.
15. Phelan JC, Link BG. Fear of people with mental illnesses: the role of personal and impersonal contact and exposure to threat or harm. J Health Soc Behav 2004;45:68–80.
16. Angermeyer MC, Dietrich S. Public beliefs about and attitudes towards people with mental

illness: a review of population studies. Acta Psychiatr Scand 2006;113:163–79.
17. Seeman N, Tang S, Brown AD, Ing A. World survey of mental illness stigma. J Affect Dis 2016;190:115–21.
18. Salve H, Goswami K, Sagar R, Nongkynrih B, Sreenivas V. Perception and attitude towards mental illness in an urban community in South Delhi - a community based study. Indian J Psychol Med 2013;35:154-8.
19. Chowdhury A, Gupta K, Patel AK. Attitude, belief and perception toward mental illness among Indian youth. MAMC Journal of Medical Sciences 2019;5:83-8.
20. Jena S, Zieger A, Boge K, Salunkhe G, Schomerus G, Patel K, et al. Public attitudes toward psychiatric hospitals: a rural-urban comparative public survey in Odisha state, India. Front Psychiatry 2021;12:745604. doi: 10.3389/fpsyt.2021.745604.
21. Sneha CR, Reddy MM, Nongmeikapam M, Narayana JS. Awareness and attitude toward mental illness among a rural population in Kolar. Indian J Soc Psychiatry 2019;35:69-74.
22. Raghavan R, Brown B, Horne F, Kumar S, Parameswaran U, Ali AB, et al. Stigma and mental health problems in an Indian context. Perceptions of people with mental disorders in urban, rural and tribal areas of Kerala. Int J Soc Psychiatry 2023;69: 362-9.
23. Abraham N, Cherkil S, Das N, John TR, Deepak KS. Mental health awareness among young adults in a metro city in Kerala. International Journal of Indian Psychology 2022;10: 894-900.
24. Soltan MR, Soliman SS, Dawoud ME. A study of anxiety, depression and stress symptoms among Fayoum medical students during COVID-19 lockdown, Egypt. Egypt J Neurol Psychiatr Neurosurg 2021;57:123. doi: 10.1186/s41983-021-00377-2.
25. Varma NN, Sreekumar S, Varghese PJ. Attitude towards mental illness among doctors working in a tertiary care centre: A cross-sectional Study. Kerala Journal of Psychiatry 2023;36:50-8.
26. Shaji KS, Raju D, Sathesh V, Krishnakumar P, Punnoose VP, Kiran PS, et al. Psychiatric morbidity in the community: A population based-study from Kerala. Indian J Psychiatry 2017;59:149-56.
27. Office of the Registrar General & Census Commissioner, India (ORGI). Sample registration system (SRS) – bulletin 2020 volume 55-I. New Delhi: Govt. of India;2022. [cited 2023 May 26]. Available from: https://censusindia.gov.in/nada/index.php/catalog/42687.
28. Joseph J, Sankar DH, Nambiar D. The burden of mental health illnesses in Kerala: a secondary analysis of reported data from 2002 to 2018. BMC Public Health 2021;21:2264. doi: 10.1186/s12889-021-12289-0.
29. Taylor SM, Dear MJ. Scaling community attitudes toward the mentally ill. Schizophrenia Bull 1981;7:225-40.
30. Sampogna G, Bakolis I, Evans-Lacko S, Robinson E, Thornicroft G, Henderson C. The impact of social marketing campaigns on reducing mental health stigma: results from the 2009-2014 Time to Change programme. Eur Psychiatry 2017;40:116-22.
31. Craig R, Fuller E, Mindell J, editors. Health Survey for England 2014: Health, social care and lifestyles. Leeds: The Health and Social Care Information Centre; 2014.
32. Evans-Lacko S, Corker E, Williams P, Henderson C, Thornicroft G. Effect of the Time to Change anti-stigma campaign on trends in mental-illness-related public stigma among the English population in 2003-13: an analysis of survey data. Lancet Psychiatry 2014;1:121-8.
33. Ilic N, Henderson H, Henderson C, Evans-Lacko S, Thornicroft G. Attitudes towards mental illness. Leeds: The Health and Social Care Information Centre; 2014.
34. Tong Y, Wang Z, Sun Y, Li S. Psychometric properties of the Chinese version of short-form Community Attitudes toward Mentally Illness scale in medical students and primary healthcare workers. Front Psychiatry 2020;11:337. doi: 10.3389/fpsyt.2020.00337.

35. Tsang S, Royse CF, Terkawi AS. Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. Saudi J Anaesth 2017;11(S1):S80-9.
36. Nunnally JC. Psychometric theory. 2nd ed. New York: McGraw-Hill;1978.
37. Marx RG, Menezes A, Horovitz L, Jones EC, Warren RF. A comparison of two time intervals for test-retest reliability of health status instruments. J Clin Epidem 2003;56:730-5.
38. Cronbach LJ. Coefficient alpha and the internal structure of tests. Psychometrika 1951;16:297-334.
39. Terwee CB, Bot SD, de Boer MR, van der Windt DA, Knol DL, Dekker J, et al. Quality criteria were proposed for measurement properties of health status questionnaires. J Clin Epidemiol 2007;60:34-42.
40. Deyo RA, Diehr P, Patrick DL. Reproducibility and responsiveness of health status measures. Statistics and strategies for evaluation. Control Clin Trials 1991;12 (Suppl 4):142S-58S.
41. Kuo YP, Hung JT, Huang TW, Hsu PC, Su HC, Lin CLE. Developing and testing the validity and reliability of the Chinese version attitudes toward mental illness scale in a sample of senior high school students. Hu Li Za Zhi 2014;61:48-56.