

ORIGINAL ARTICLE

CROSS-CULTURAL VALIDATION AND RELIABILITY OF THE MALAY VERSION OF THE DEMENTIA PUBLIC STIGMA SCALE (DEPSS-M) AMONG MALAYSIAN ADULTS

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ABSTRACT

The prevalence of dementia is predicted to increase in the following decades, but dementia-related stigma continues to exist in the current society. The Dementia Public Stigma Scale (DePSS) was developed to assess this problem. However, it has not been translated and validated among the general public in Malaysia. To better understand the public stigma on dementia within the Malaysian context, we cross-culturally adapt the English version of DePSS into the Malay language. A study was conducted among Malaysian adults attending the Ministry of Health (MOH) primary care health services in Selangor, Malaysia, from May to November 2024. A forward and backward translation was performed, followed by content validation by ten local experts. A total of 35 participants were recruited for the pilot study and test-retest reliability. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were subsequently conducted on 491 participants from diverse backgrounds. The original 16-item with a 5-factor model of DePSS was reduced to 13 items with a 4-factor model in the Malay version of DePSS (DePSS-M). The revised DePSS-M demonstrated good factor loadings (0.60-0.98) with an excellent model fit on CFA ($\chi^2/df=2.98$, RMSEA=0.07, GFI=0.93, TLI=0.91, CFI=0.94). The DePSS-M also displayed sufficient convergent ($AVE \geq 0.5$) and discriminant validity (≤ 0.85) across all constructs. The reliability assessment revealed good internal consistency with acceptable Cronbach's alpha (0.78-0.85) and composite reliability (CR) (0.78-0.86). In conclusion, the DePSS-M is a valid and reliable tool that can be used to assess public stigma on dementia in Malaysia. It can also be used to inform local dementia-related policies and direct future stigma reduction strategies.

Keywords: dementia, stigma, dementia-related stigma, public stigma, validation, reliability, general public, adults

INTRODUCTION

Dementia has become a significant public health priority, with nearly 10 million new cases reported annually¹. In contrast to the stable trend in the Western countries, the prevalence of dementia in Asia is projected to triple to 67 million cases in 2050². Despite the alarming statistics, dementia-related stigma remains prevalent in today's society, contributing to significant social, health, and economic consequences^{1, 2, 3}. Stigma against people with dementia (PwD) not only delays diagnosis and treatment but also results in the concealment of diagnoses due to shame and fear^{4, 5}. In addition, more than 50% of PwD and their care partners experience discrimination, hindering their ability to fully participate in society⁶⁻⁷.

Scholars have identified three important types of dementia-related stigma: public stigma, self-stigma, and affiliated stigma^{8, 9}. Public stigma occurs when the general public internalizes the common negative stereotypes about PwD, leading to prejudices and discrimination against them. This in turn triggers self- and affiliated stigma, exacerbating the overall impact on PwD and their families. However, the majority of studies in

Malaysia have focused mainly on the clinical aspects of dementia, ignoring the impacts of social responses against PwD¹⁰. Moreover, the unavailability of locally adapted tool that explicitly measures the public stigma on dementia has also impeded the development of targeted dementia-stigma reduction strategies in Malaysia¹¹.

Based on the latest systematic review, there have been no standardized tools that can be used to assess dementia stigma among the general public over the past two decades¹². Additionally, existing tools that are currently available did not cover the entire stigma constructs, did not measure the perspectives of the general public and were not properly validated^{5, 12}. To address these limitations, the Dementia Public Sigma Scale (DePSS) had been recently developed based on the theoretical tripartite model of stigma: stereotypes (cognitive domain), prejudice (emotional domain), and discrimination (behavioural domain)^{8, 9, 13}. Nevertheless, DePSS is only available in English and was validated mainly among the Western populations. Given the differences in settings, cultures, and languages, we decided to cross-culturally adapt the English version of DePSS into the Malay language to better

understand the public stigma on dementia within the Malaysian context.

METHODOLOGY

Study Setting and Participants

A study was conducted from May to November 2024 among Malaysian adults attending the Ministry of Health (MOH) primary care health services in the Klang and Hulu Selangor districts, Selangor, Malaysia. We included Malaysians aged 18 years and above who attended health clinics either as patients, as individuals accompanying patients, as care partners of PwD, or as participants in community programmes organized by the health clinics. Participants who were voluntarily willing to participate in the study needed to be able to read, write, and speak in Malay and provide informed consent. We excluded those who were formally diagnosed with any cognitive or neurodegenerative diseases, including dementia. Based on a 10:1 subject-to-item ratio¹⁴ and an additional 20% non-responders, a minimum of 192 participants were required for factor analysis. A self-administered questionnaire was distributed in hardcopy and softcopy format (contained in the Research Electronic Data Capture, REDCap platform) depending on the participants' preference.

Study Instrument

The DePSS is a comprehensive validated 16-item tool that consists of five domains, namely 'Fear and Discomfort,' 'Incapability and Loss,' 'Acknowledgement of Personhood,' 'Burden,' and 'Exclusion'¹³. It is scored on a seven-point scale (1=strongly disagree to 7=strongly agree) with the total scores ranging from 16 to 112. Higher scores indicate a higher degree of public stigma on dementia. DePSS had sound psychometric properties, with a reliable Cronbach's alpha (0.74-0.81) and was tested among 3,250 individuals aged 18 years and above from diverse backgrounds. Permission to use DePSS for this study has been obtained from its original developer.

Forward and Backward Translation

The original English version of DePSS was first translated into culturally appropriate Malay language by two independent professional translators based on established guidelines¹⁵. The two translated versions were then compared.

Discrepancies between the original DePSS and the best forward-translated Malay version were identified and harmonized through discussion with the translators and an expert panel. Subsequently, the finalized Malay version was back-translated into English by two other professional translators who were also experts in dementia. Reconciliation and harmonization of the back-translated English versions were conducted in comparison to the original DePSS to ensure cultural and conceptual equivalence.

Content Validity

Following translation processes, DePSS-M was examined by ten local experts from various backgrounds (Table 1). They were asked to provide a rating on the items' relevance in measuring dementia stigma and the clarity of the phrases used on a four-point scale (rating 1=not relevant/unclear, 2=somewhat relevant/somewhat clear, 3=quite relevant/quite clear, 4=highly relevant/highly clear). Ratings of 1 and 2 were considered as 'disagree' while ratings of 3 and 4 were considered as 'agree'. The Item-Content Validity Index (I-CVI) was calculated based on the expert's agreement, and items that scored a minimum of 0.78 were included in the questionnaire¹⁶. Additionally, the Scale-Content Validity Index (S-CVI) was also calculated based on the average I-CVI scores (S-CVI/Ave) and universal agreement (S-CVI/UA).

Pilot Study and Test-Retest Reliability

A pilot study was conducted among 35 participants¹⁷ who fulfilled the inclusion criteria. After the participants completed DePSS-M, face-to-face cognitive debriefing¹⁸⁻²⁰ was done to ensure that the questionnaire could be understood and correctly interpreted by the participants. They were also asked if the questions were acceptable, relevant, and feasible for them to answer²¹. The time taken to complete the questionnaire was recorded. Next, retesting of DePSS-M was conducted on the same participants after two weeks²² to assess the questionnaire's reliability using the intraclass correlation coefficient (ICC). The item-by-item and total ICC values were calculated with a confidence interval set at 95%. Internal consistency was also determined using Cronbach's alpha. An ICC²³ and Cronbach's alpha¹⁴ of 0.7 and above were considered good and acceptable.

Table 1. Personal details of experts involved in the content validation of DePSS-M.

No	Designation	Area of Specialization	Place of Work / Location	Ethnicity
1	Family Medicine Specialist	Family Health with Geriatrics Subspeciality	Klinik Kesihatan Pandamaran, MOH	Malay
2	Geriatrician	Geriatric Medicine	Universiti Malaya Medical Centre	Chinese
3	Neurologist	Neurology	Hospital Kuala Lumpur, MOH	Malay
4	Geriatric Psychiatrist	Geriatric Psychiatry	Hospital Raja Permaisuri Bainun, MOH	Malay
5	Neuropsychiatrist	Neuropsychiatry	Hospital Raja Permaisuri Bainun, MOH	Chinese
6	Public Health Medicine Specialist	Public Health	Universiti Sains Malaysia	Malay
7	Geriatric Nurse	Geriatric Medicine	Universiti Malaya Medical Centre	Malay
8	Academician	Languages and Linguistics	Universiti Malaya	Indian
9	Care partner of PwD	Dementia Care	Kuala Lumpur	Malay
10	Layperson	None	Kuala Lumpur	Malay

Statistical Analyses

The sociodemographic characteristics of the participants were described using frequencies and percentages. The data collected were then randomly divided into two parts : Part 1 for EFA and Part 2 for CFA. Subgroup analysis was also performed using independent sample t-test to assess the significant difference between participants with and without contact with PwD. Part 1 comprising 160 participants¹⁴ was used to conduct EFA^{24, 25} to determine the factor structure of DePSS-M. However, before proceeding with EFA, sample adequacy was assessed using the Kaiser-Meyer-Olkin (KMO) statistics (cut-off ≥ 0.7)²⁶, and data suitability for factor analysis was determined using Bartlett's test of sphericity ($p < 0.05$)^{27, 28}. EFA was subsequently conducted using Principal Axis Factoring (PAF) subjected to the promax rotation method. Reflecting the amount of variance explained by a factor, the Eigenvalues were set to 1, with visual representations using Cattell's scree plot^{29, 30}. Since factor loadings represent the correlation between item and factor³¹, items with factor loadings less than 0.40 were excluded³².

Following EFA, CFA was performed for factors' dimensionality on Part 2 data of the remaining 331 participants. Consistent partial least squares (PLSc) via the covariance-based SEM (CB-SEM) function within the Smart PLS version 4.1.0.8

software was used. This method produced parameter estimates that were comparable to other traditional CB-SEM software³³⁻³⁷. A good model fit was evaluated as $\chi^2/df < 3$, Root Mean Square Error of Approximation (RMSEA) between 0.06 and 0.08, Goodness of Fit Index (GFI) > 0.90 , Tucker-Lewis index (TLI) > 0.90 and Comparative Fit Index (CFI) > 0.90 ³⁸. Items with factor loadings ≥ 0.50 were retained³⁹. To assess reliability, a cut-off value of ≥ 0.70 was used for Cronbach's alpha and composite reliability (CR); meanwhile a cut-off value of ≥ 0.50 was used to evaluate Average Variance Extracted (AVE)^{14, 40}. The HTMT technique was used to assess discriminant validity with a cut-off value of ≤ 0.85 being accepted as having good discriminant validity⁴¹. Other analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 29.0 and Jeffreys's Amazing Statistics Program (JASP).

Ethical Approval

Ethical approval was obtained from the Medical Research and Ethics Committee (MREC) in the MOH Malaysia (NMRR ID-24-00046-CHT). The study was conducted according to the research ethical principles set out by the Helsinki Declaration.

RESULTS

Demographic Characteristics of the Participants

As seen in Table 2, the majority of the participants were female, aged between 25 and

34 years old, Malay, had secondary education, had no family history of dementia, and did not know anyone with dementia.

Table 2. Sociodemographic characteristics of the participants.

Characteristics	Total (n = 491) n (%)
Gender	
Male	190 (38.7)
Female	301 (61.3)
Age (years)	
18 - 24	76 (15.5)
25 - 34	157 (32.0)
35 - 44	131 (26.7)
45 - 54	55 (11.2)
55 - 64	57 (11.6)
65 and above	15 (3.1)
Ethnicity	
Malay	363 (73.9)
Chinese	50 (10.2)
Indian	63 (12.8)
Others	15 (3.1)
Highest Level of Education	
No formal education	7 (1.4)
Religious studies	4 (0.8)
Primary education	26 (5.3)
Secondary education	228 (46.4)
Tertiary education	226 (45.6)
Family history of dementia	
Yes	45 (9.2)
No	446 (90.8)
Know someone with dementia	
Yes	87 (17.7)
No	404 (82.3)

Content Validity

Based on the experts' comments, items 4, 5, and 10 were revised. However, the revisions were very minor. For example, in item 5, the experts suggested replacing the word "di kalangan" with "dalam kalangan" to improve the semantic and grammatical accuracy of the sentence. No new items were added. All the 16 items of DePSS-M exhibited excellent content validity and were included in the subsequent pilot study (Table 3).

Pilot Study and Test-Retest Reliability

On average, the participants took around 7 to 10 minutes to complete DePSS-M. Cognitive debriefing revealed that the items were

acceptable, relevant and easy to understand. The length and difficulty of the questionnaire were also feasible to answer without experiencing any response burden⁴². No items were reworded. The participants then retested DePSS-M after two weeks via a REDCap's link provided through their mobile number. All items were reported to have item-by-item ICC value of more than 0.7, with the lowest ICC reported for item 15 (ICC=0.75; 95%CI 0.56,0.87). The total ICC of 0.85 (95%CI 0.77,0.91) demonstrated that DePSS-M has an excellent test-retest reliability. The pilot study also revealed that DePSS-M had a good internal consistency, with a Cronbach's alpha of 0.89.

Table 3a. The summary of content validation of DePSS-M.

Item Number	Item	Number of agreement	I-CVI	UA
1	I am afraid of people with dementia. Saya takut dengan orang yang mengalami demensia.	10/10	1	1
2	I feel confident around people with dementia. Saya berasa yakin apabila berada dalam kalangan orang yang mengalami demensia.	10/10	1	1
3	I am comfortable touching people with dementia. Saya selesa menyentuh orang yang mengalami demensia.	10/10	1	1
4	It is possible to enjoy interacting with people with dementia. Adalah tidak mustahil untuk terhibur apabila berinteraksi dengan orang yang mengalami demensia.	9/10	0.9	0
5	I feel relaxed around people with dementia. Saya berasa selesa berada dalam kalangan orang yang mengalami demensia.	10/10	1	1
6	People with dementia can enjoy life. Orang yang mengalami demensia boleh menikmati kehidupan.	10/10	1	1
7	People with dementia can feel when others are kind to them. Orang yang mengalami demensia boleh merasai kebaikan apabila orang berbuat baik kepada mereka.	10/10	1	1
8	People with dementia are a burden to their family. Orang yang mengalami demensia adalah beban kepada keluarga mereka.	10/10	1	1
9	People with dementia are a burden on the healthcare system. Orang yang mengalami demensia adalah beban kepada sistem penjagaan kesihatan.	9/10	0.9	0
10	People with dementia are very much like children. Orang yang mengalami demensia sering berkelakuan seperti kanak-kanak.	10/10	1	1

Abbreviations: I-CVI, Item-Content Validity Index; UA, Universal Agreement; S-CVI/Ave, Scale-Content Validity Index based on average method; S-CVI/UA, Scale-Content Validity Index based on universal agreement.

Table 3b. The summary of content validation of DePSS-M.

Item Number	Item	Number of agreement	I-CVI	UA
11	People with dementia are incapable of making any personal decisions. Orang yang mengalami demensia tidak berupaya untuk membuat sebarang keputusan peribadi.	10/10	1	1
12	People with dementia are no longer themselves because they have dementia. Orang yang mengalami demensia bukan lagi diri mereka sendiri kerana mereka telah mengalami demensia.	10/10	1	1
13	People with dementia should always be supervised. Orang yang mengalami demensia perlu sentiasa dipantau.	10/10	1	1
14	I would ignore people with dementia. Saya tidak akan mempedulikan orang yang mengalami demensia.	10/10	1	1
15	I would exclude people with dementia from activities. Saya tidak akan melibatkan orang yang mengalami demensia dalam sebarang aktiviti.	10/10	1	1
16	People with dementia are unpredictable. Orang yang mengalami demensia tidak boleh dijangka.	10/10	1	1
		S-CVI/Ave	0.98	
		S-CVI/UA		0.88

Abbreviations: I-CVI, Item-Content Validity Index; UA, Universal Agreement; S-CVI/Ave, Scale-Content Validity Index based on average method; S-CVI/UA, Scale-Content Validity Index based on universal agreement.

Exploratory Factor Analysis

The KMO statistics was 0.78, while the Bartlett's test of sphericity was highly significant ($\chi^2/df=1106.479$, $df=120$, $p<0.001$). EFA on 16 items of DePSS-M extracted four factors based on Eigenvalues of 1 (Table 4). The graphical display of the scree plot also supported the 4-factor model. No items were removed, as all the factor loadings were above 0.4. Factor 1 ('Social Discomfort'), consisting of 4 items explained 13.5% of the variance. Factor 2 ('Incapability and Loss') with 5 items explained 18.3% of the variance. Factor 3 ('Acknowledgement of Personhood') included 2 items and explained 9.3% of the variance. Meanwhile, Factor 4 ('Burden and Exclusion') represented 5 items and explained 12.7% of the variance. The total variance explained by these four factors was 53.8%, which was greater than the recommended value of 50%⁴³.

Confirmatory Factor Analysis

The initial model (Model 1) indicated a lack of model fit, with all the measurement models not meeting acceptable cut-off points ($\chi^2/df=3.62$, RMSEA=0.09, GFI=0.88, TLI=0.85, CFI=0.88) (Table 5). The factor loadings for all items were more

than 0.5 except for items 1 and 15 (0.41 and 0.43, respectively). Following the removal of these two items in the modified model (Model 2), RMSEA, GFI and CFI improved despite the χ^2/df persistently being above 3 and TLI being less than 0.90. The factor loadings for the remaining 14 items in Model 2 were all above 0.5, with the lowest factor loading reported for item 14 with 0.56. The final model (Model 3) (Figure 1) indicated the best fit after removal of item 14, where all measurement models met the recommended threshold ($\chi^2/df=2.98$, RMSEA=0.07, GFI=0.93, TLI=0.91, CFI=0.94). This final model also revealed a lower AIC ($\Delta AIC= -191.206$) and BIC ($\Delta BIC= -214.019$), indicating a significant improvement of model fit when compared to the initial Model 1. In addition, the reliability assessment of the final model of 13 items suggested a good internal consistency with Cronbach's alpha ranging from 0.78 to 0.85 and CR between 0.78 and 0.86. The average variance extracted showed that each factor had an adequate convergent validity with AVE values of more than 0.5. Based on the HTMT technique, all four factors had good discriminant validity, as all values were below 0.85.

Table 4. Factor loadings based on promax rotation for 16-items of DePSS-M.

Item	Factor 1	Factor 2	Factor 3	Factor 4
Q5	0.861			
Q2	0.766			
Q3	0.707			
Q4	0.442			
Q11		0.840		
Q12		0.793		
Q10		0.737		
Q16		0.696		
Q13		0.672		
Q7			0.888	
Q6			0.696	
Q8				0.932
Q9				0.755
Q14				0.516
Q1				0.446
Q15				0.419

Table 5. Goodness-of-fit statistics of each model and model comparison for DePSS-M.

Model	χ^2/df	RMSEA	GFI	TLI	CFI
Model 1	3.62	0.09	0.88	0.85	0.88
Model 2	3.16	0.08	0.91	0.89	0.92
Model 3	2.98	0.07	0.93	0.91	0.94

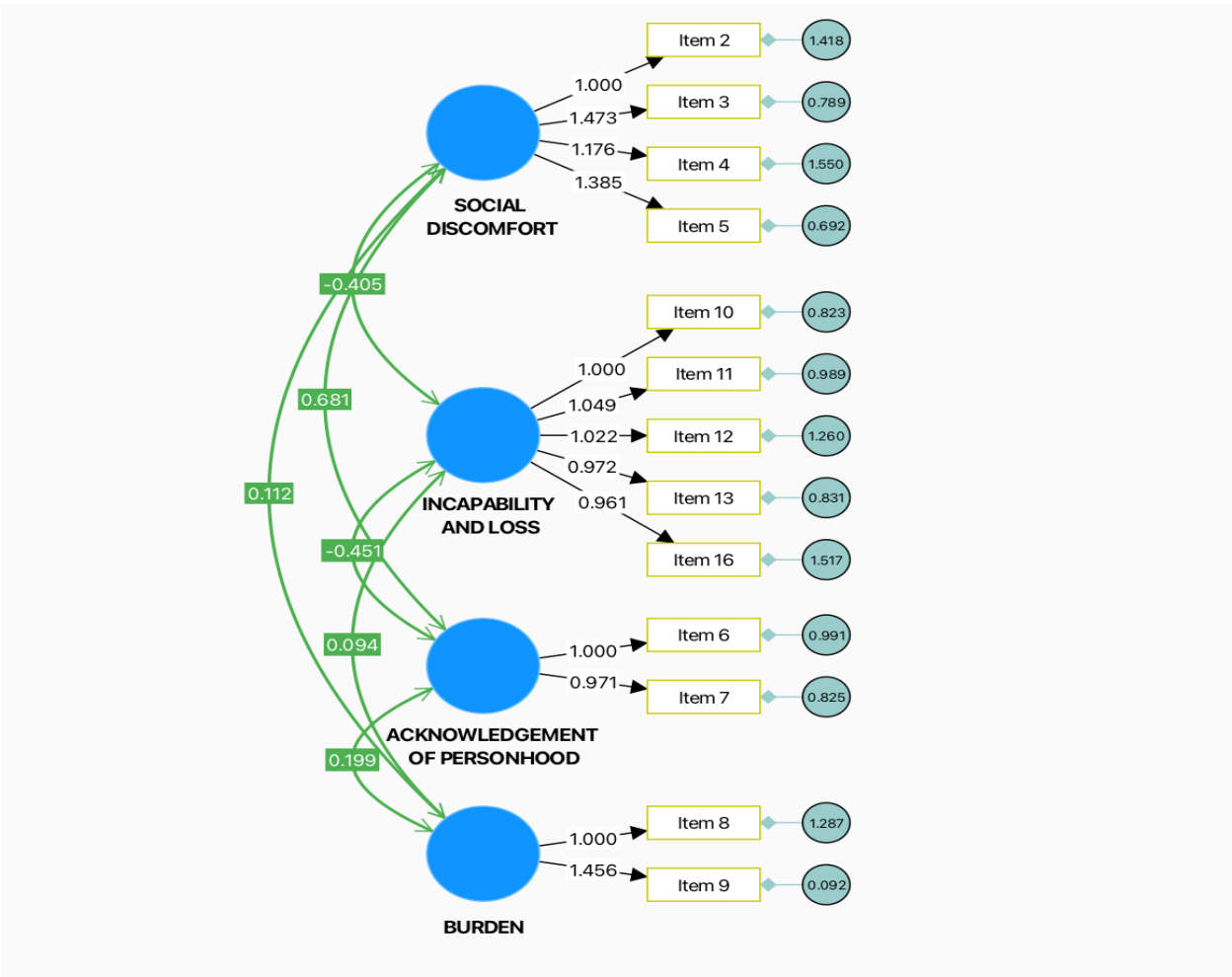


Figure 1 : Confirmatory Factor Analysis path diagram for the final 4-factor model with 13 items of DePSS-M.

DISCUSSION

The results of this study revealed that the Malay version of DePSS (DePSS-M) was a valid and reliable tool to measure dementia stigma among Malaysian adults. In contrast to the original study¹³, the EFA and CFA in this study reported a reduced 4-factor model with 13 items.

Unlike the original study¹³, most participants in this study were younger, had no family history of dementia, or knew anyone with dementia. This makes the findings a better reflection of the general public. Further subgroup analysis comparing participants with and without contact with PwD demonstrated a statistically significant difference, with lower stigma scores among those in contact with PwD. This finding proved that DePSS-M was robust enough in discriminating the groups, supporting its validity. This finding was also consistent with previous studies which revealed that people who have cared for or have personal connections with PwD had a lower stigma^{44, 45}.

The I-CVI and S-CVI scores suggested that all items in DePSS-M were highly relevant and clear to all the experts. The pilot study further highlighted the quality of the items, as all 35 participants agreed that the questionnaire was easy to comprehend. This suggested that the translated items align with the cultural nuances, in tandem with excellent test-retest reliability and internal consistency.

In EFA, we found that the items were grouped into 4 distinct factors - 'Social Discomfort', 'Incapability and Loss', 'Acknowledgement of Personhood', and 'Burden and Exclusion'. Item 4 ('It is possible to enjoy interacting with people with dementia') was reassigned from the original 'Acknowledgement of Personhood' construct to Factor 1, 'Social Discomfort'. With a strong factor loading of 0.65, this reassignment reflects how the public feels when interacting with PwD, rather than acknowledging their identity as individuals. Lack of knowledge and misconceptions about dementia among Malaysians^{46, 47}, may drive negative emotions towards PwD. Additionally, the high burden experienced by the local care partners, particularly those managing PwD with behavioural and psychological symptoms⁴⁸, may unintentionally reinforce unfavourable public perception. By reassigning item 4 alongside items 2, 3, and 5, Factor 1 is further improved, enhancing its clarity in measuring the emotional domain of dementia stigma.

Factor 2, 'Incapability and Loss' and Factor 3, 'Acknowledgement of Personhood', identified by this study, contain items that reflect common stereotypes about PwD, aligning with the cognitive domain of public stigma on dementia^{8, 9}. The items within these two factors remained highly stable and mirrored their corresponding

constructs in the original DePSS. This strongly suggests that public perceptions of dementia are consistent across cultural boundaries. Participants from the original study in Australia and this local study in Malaysia may have exhibited similar stereotypes, viewing PwD as incapable and incompetent^{6, 49, 50}. Additionally, media representations including newspapers, television and local websites from both settings may have reinforced these negative stereotypes across different cultural contexts^{49, 51, 52}.

Factor 4 combined two constructs of 'Burden' and 'Exclusion' from the original DePSS. This suggests that the participants in this study did not see a clear distinction between the two, unlike participants in Australia¹³. Perceiving PwD as a burden to the family (item 8) and healthcare system (item 9) may lead to their exclusion from society. However, unlike Western countries, collectivist societies like Malaysia conform to social norms that guide their behaviours^{53, 54}. As a result, explicit discriminatory behaviours such as ignoring and rejecting PwD (items 14 and 15) may be less openly expressed because those actions would be considered disrespectful. Similar to other Asian communities, the strong filial piety in Malaysia often pressured families to manage PwD at home rather than placing them in formal care institutions⁵⁵⁻⁵⁷. The embarrassment of having family members with dementia often encourages the family to conceal the diagnosis from the public⁶. This contributes to not only social invisibility, but discourages help-seeking from formal healthcare services. Previous research had also confirmed such discriminatory behaviours imposed on PwD by their families⁵⁸⁻⁶⁰. This form of social avoidance reinforces hidden exclusion rather than explicit abandonment.

Furthermore, as burden and exclusion were seen as interconnected experiences⁶¹, this clearly supports the merging of 'Burden' and 'Exclusion' as a single construct. These findings suggest that local dementia awareness campaigns should be reframed to align with collectivist values, which prioritizes family unity, shared responsibilities and community support^{53, 62}. Intergenerational programmes and involvement from the community and religious leaders in dementia-related interventions should be encouraged. Additionally, family-friendly dementia incentives could also be initiated to reduce hidden exclusion of PwD.

The CFA conducted demonstrated good model fit with robust reliability, comparable to the original study. The HTMT values, which fell below the recommended threshold, signify distinct constructs and provide assurance that DePSS-M would be able to effectively capture the different domains of dementia stigma. Moreover, the removal of items 1, 14, and 15 with low factor loadings reflects the contextualized

understanding of dementia stigma within the Malaysian context.

A major strength of this study includes rigorous translation processes and reviews from various expert panels. Given the role of Malaysia as a home to diverse ethnicities and cultures⁶³, it is important to ensure that the tool used to measure public stigma on dementia is not only reliable, but also culturally and conceptually accurate. The translation into Malay, the national language of Malaysia⁶⁴, also allows this tool to reach a wider segment of the local population. In comparison to previous study which require substantial adaptation processes⁶⁵, DePSS-M underwent pilot study with excellent statistical parameters, and no item modification was needed. In addition, unlike the original DePSS study¹³, the majority of the participants did not know anyone with dementia, making the findings more generalizable to the general public. The involvement of participants with no contact with PwD was meaningful as the actual baseline of public stigma on dementia among the community-dwelling Malaysian adults could be captured. Although the two items that directly measure the behavioural domain were removed, focusing on the cognitive and emotional domains of dementia stigma may help bypass social desirability bias in the Malaysian context. The removal of these items truly reflected the values within collectivist societies, which dismissed explicit rejection. This subsequently minimized the likelihood of the participants providing socially acceptable responses, which could affect the true estimates of public stigma on dementia. As a result, this validated DePSS-M could be more effective in detecting nuanced stigma, even among participants with no contact with PwD. Furthermore, the removal of these items was backed up by the strong psychometric properties of DePSS-M.

However, this study is not without its limitations. The study participants were dominated by females and Malays. Since women assumed more caretaking roles, the burden of care might have influenced the way they perceived PwD, leading to greater stigma^{66, 67}. Although Malays constitute the largest ethnic group in Malaysia, having more Malays in the study might have influenced the understanding and interpretations of the items. Furthermore, most participants were relatively educated, excluding those with lower literacy. Future research should, therefore, widen the recruitment strategy to include different ethnicities and those with lower literacy who might have more stigma towards PwD⁶⁸. Although this study was able to detect the difference between participants with or without contact with PwD, future research could benefit from stratified sampling to enhance the generalizability of the study findings.

CONCLUSION

The 13-item DePSS-M is a valid and reliable tool for assessing public stigma around dementia among adults in Malaysia. Aligned with Malaysia's Dementia Action Plan 2023 - 2030¹¹, this tool can be widely used to inform dementia-related policies and evaluate the effectiveness of existing and future dementia stigma-reducing interventions.

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