



## Original Article

# Psychometric Properties of the Persian Version of the Thai Internalized Stigma Scale among Elderly Nursing Home Residents

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## ABSTRACT

### Article history

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**Introduction:** The Thai version of the Internalized Stigma of Living in a Care Home Scale (TIS-LCH) was developed to assess internalized stigma among older adults. This study aimed to validate the Persian translation of the TIS-LCH for use among elderly residents in Iranian nursing homes.

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**Methods:** A forward-backward translation process was conducted to ensure the accuracy of the English-to-Persian adaptation. A total of 260 elderly individuals from nursing homes in Tabriz, Iran, were selected via convenience sampling in 2024. Internal consistency and test-retest reliability were assessed using Cronbach's alpha and the intra-class correlation coefficient (ICC), respectively. Content validity was evaluated by a panel of ten multidisciplinary experts. Face validity was examined both qualitatively and quantitatively by ten literate elderly individuals. Construct validity was assessed using confirmatory factor analysis (CFA). Discriminant validity was evaluated through known group comparisons (men vs. women) using independent t-tests, with significance set at  $p < 0.05$ .

**Results:** The scale demonstrated strong internal consistency (Cronbach's alpha = 0.94), with acceptable content validity (CVI = 0.95; CVR = 0.91). Five items were revised based on qualitative face validity, and all items surpassed the impact score threshold ( $> 1.5$ ) in the quantitative assessment. CFA results supported a 21-item version of the scale after removing five items with low factor loadings. Model fit indices were acceptable (CMIN/df = 2.81, GFI = 0.85, CFI = 0.82, RMSEA = 0.084). Discriminant validity indicated higher internalized stigma scores in women (mean difference = 2.60).

**Conclusion:** The Persian version of the TIS-LCH is a reliable and valid instrument for measuring internalized stigma among elderly individuals in nursing homes. While the scale shows promising psychometric properties, further validation across different populations and settings is recommended to ensure its broader applicability and cultural relevance.

**Keywords:** Psychometrics, Validation, Stigma, Aging, Nursing home, Validity, Reliability

## Introduction

As individuals age, the need for care in various settings often increases, involving both formal caregivers and informal support systems (1). Nursing homes have significantly expanded in recent years to meet these needs (2), represent one type of facility that officially offers care for older adults across different levels of need. However, the transition to these care centers can present numerous psychological, emotional, and financial difficulties for the elderly, often leading to increased dependence (3). The quality of life for older adults is closely tied to their living environment (4), making the shift from a familiar home, surrounded by family, to a nursing home a potentially disruptive and life-altering experience. Studies suggest that elderly individuals in nursing homes frequently experience poorer mental health and diminished life satisfaction compared to those living at home (5).

Additionally, nursing home residents often report increased loneliness, reduced social support, and a higher prevalence of depression (3, 6, 7). Consequently, this demographic is at a heightened psychological risk, which is compounded by the societal stigma associated with aging and institutionalization (8).

Stigma is generally understood as the attribution of negative characteristics to individuals based on a condition that society deems undesirable. This process leads to the differentiation of the individual, as society imposes specific labels and definitions upon them. Moreover, stigma manifests as a form of self-labeling, where an individual internalizes these negative perceptions and feels psychologically or physically alienated from their surroundings (1, 9).

Internalized stigma manifests as feelings of worthlessness, social withdrawal, and disconnection from society (10). Individuals experiencing internalized stigma may struggle to feel a sense of belonging or place within society (11, 12). Therefore, recognizing that the relocation of elderly individuals to nursing homes can be an unavoidable reality, it becomes crucial to implement interventions that mitigate the development of stigma and cultivate a sense of belonging upon their arrival and throughout their stay in these facilities. Addressing this significant issue requires the development of tools and methodologies capable of identifying internalized stigma among the elderly, thereby enabling the delivery of appropriate and tailored interventions.

One such instrument developed in this area is Thai Version of Internalized Stigma of Living in a Care Home (TIS\_LCH), created by Tosangworn et al., in Thailand. This 26-item tool assesses the internal stigma experienced by older adults residing in nursing homes. The Thai adaptation of the Internalized Stigma of Mental Health Illness (ISMI) Scale was adapted for use in care home settings, representing the first evaluation of its reliability and validity within Thailand. Given the lack of alternative instruments designed to assess internalized stigma specifically among nursing home

residents, and considering that existing tools have primarily focused on different populations, this particular scale was selected. Additionally, psychometric evaluations of this instrument have not been conducted in other languages (13). The final scale is comprised of five subscales: alienation, stereotype endorsement, discrimination experience, social withdrawal, and stigma resistance. Consequently, given the increasing elderly population in Iran and the anticipated rise in the need for nursing home care, the standardization of the Iranian version of this internalized stigma assessment tool for older adults living in nursing homes has been undertaken.

## Methods

### Scale preparation steps

#### Translation and adaptation

A systematic approach was employed to translate the TIS\_LCH in accordance with international standards, ensuring the fidelity of the translation process (14). Two bilingual experts in social science and gerontology independently translated the scale into Persian. Their translations were harmonized through discussion, then back-translated by two native English speakers unfamiliar with the original. A review panel resolved discrepancies and finalized the translated version.

#### Face validity

Ten literate elderly individuals evaluated the qualitative aspects of the scale, including clarity simplicity and understandability of the questionnaire items. For the quantitative evaluation of face validity, these participants also rated the comprehensiveness of each scale item on a 5-point Likert scale, where 'not at all comprehensive' was the lowest score and 'completely comprehensive' was the highest. The impact score for each item was then calculated using the formula (percentage frequency  $\times$  comprehensiveness), with scores above 1.5 considered acceptable. For quantitative face validity, the item impact score was calculated using SPSS version 24 based on the frequency and importance ratings.

#### Content validity

Ten experts in gerontology, psychology, and health education assessed the scale for relevance, clarity, and simplicity. The Content Validity Ratio (CVR) and Content Validity Index (CVI) were calculated using Lawshe's and Waltz's methods, respectively.

#### Internal consistency, reliability, and stability

Cronbach's alpha and the intra-class correlation coefficient (ICC) were used to determine internal consistency and test-retest reliability. Twenty participants selected using convenience sampling based on inclusion criteria and completed the questionnaire

twice over a two-week interval. All analyses were conducted using SPSS version 24. Cronbach's alpha values  $\geq 0.70$  and ICC values  $\geq 0.75$  were considered acceptable (15, 16).

#### *Discriminant validity*

Known group comparisons were made between male and female participants using independent t-tests. Analysis was performed in SPSS version 24.

#### *The construct validity*

Confirmatory factor analysis (CFA) was used to determine the construct validity. CFA was conducted using AMOS version 24 to assess model fit. Fit indices included the comparative fit index (CFI), incremental fit index (IFI), the root means square error of estimation (RMSEA), and the goodness of fit index (GFI). If indices IFI, GFI, and CFI were between 0 to 1, and the values obtained were closer to one, the suitability of the model to data was better. RMSEA values between 0.08 to 0.1 showed moderate fitness and lower than 0.08 showed a good fit model (17). The sample size for CFA was determined by applying the principle of tenfold the number of items in the questionnaire, which included 26 questions. As a result, 260 elderly individuals from five nursing homes in Tabriz city were chosen through a convenience sampling method.

#### *Ethical considerations*

All participants provided written informed consent. The study was approved by the Ethics Committee of Tabriz University of Medical Sciences (IR.TBZMED.REC.1402.647).

#### *Inclusion criteria*

Including: age 65 years and older, having literacy in reading and writing or the ability to understand Persian sentences, not having cognitive problems (assessment by Abbreviated Mental Test (AMT)), living in a nursing home for at least one year, having consent to participate in the study, ability to speak and ability to answer, not suffering from psychotic disorder (medical record).

#### *Exclusion criteria*

The unwillingness of the elderly to participate in the study.

#### *Tools*

##### *Abbreviated Mental Test (AMT-10)*

Based on the inclusion criteria, which included the absence of cognitive impairment, the AMT questionnaire was used. Each question in the questionnaire was assigned one point, and individuals scoring 8 or below were excluded due to cognitive impairment. (18, 19).

##### *Internalized Stigma of Living in a Care Home (TIS-LCH)*

The TIS-LCH was designed by Suhathai Tosangworn et al. in 2017 and has 26 items, which was

designed based on a 29-item questionnaire to assess internal stigma. It has a 4-part Likert scale; I strongly disagree, I disagree, I agree and I strongly agree (I strongly disagree =1 and I completely agree =4). Higher scores indicate more internal stigma (13).

#### **Result**

Five items were revised during qualitative face validity assessment. In the quantitative face validity assessment, all items achieved an impact score higher than 1.5, and retained.

Content validity was confirmed with a CVI of 0.95 and CVR of 0.91. I-CVI, S-CVI and CVR items are listed separately in Table 1. The CVR results indicated that all items were equal to or greater than the Lawshe table number (0.62). This indicated that essential and important questions were used in this instrument (20).

Discriminant validity analysis showed significantly higher stigma scores among women (mean =  $2.60 \pm 0.47$ ) compared to men (mean =  $2.32 \pm 0.35$ ,  $p < 0.001$ ). (Table 2)

The results of the present study showed that married people experience less TIS\_LCH and also indicated that an increase in literacy levels correlates with a decrease in stigma levels. (Table 2)

The internal consistency of total score (Cronbach's alpha 0.94) was acceptable and for the subcomponents, it was in the range of 0.96 to 0.98, which indicated the desirable reliability of the TIS\_LCH\_IR instrument. (Table 3)

Moreover, The ICC for the overall questionnaire was 0.90, which ranged from 0.92 to 0.96 for the different subcomponents of the questionnaire, which was within the desired range. (Table 3)

This study included 260 respondents for CFA, of which 134 (51.5%) were males. Among all the respondents, 60.8% were primary school and less and 38.5% were single. (Table 4)

In the initial CFA model, the fit indices did not meet the desired thresholds, indicating that the model required revision. Specifically, the initial model yielded CFI = 0.738, GFI = 0.804, RMSEA = 0.088, and  $\chi^2/df = 3.00$ , suggesting a moderate to poor fit. To improve the model, two main modifications were applied: Item reduction: Based on factor loadings less than 0.30, five items (Items 7, 8, 9, 22, and 23) were excluded from the model. Addition of error covariance: Modification indices and theoretical justification guided the inclusion of covariance between the following error terms to improve model fit: (e1 and e4, e4 and e5, e14 and e16, e15 and e16, e22 and e23, e22 and e26, e23 and e25.)

After these revisions, the model was reassessed and the revised CFA model showed improved fit indices: CMIN/df = 2.81, GFI = 0.85, CFI = 0.82, and RMSEA = 0.084, indicating an acceptable model fit. The revised 21-item version of the Persian TIS\_LCH scale demonstrated construct validity and was found to be suitable for use among elderly nursing home residents. (Table 5, Figure 1)

Table1. Standardized regression weights of items

| Items | Standardized regression weights<br>(before deleting items) | Standardized regression<br>weights after deleting items) | I-CVI | S-CVI/Ave | CVR |
|-------|------------------------------------------------------------|----------------------------------------------------------|-------|-----------|-----|
| 1     | 0.77                                                       | 0.78                                                     | 1     |           | 1   |
| 2     | 0.57                                                       | 0.57                                                     | 1     |           | 1   |
| 3     | 0.63                                                       | 0.66                                                     | 1     |           | 0.8 |
| 4     | 0.82                                                       | 0.83                                                     | 1     |           | 0.8 |
| 5     | 0.71                                                       | 0.70                                                     | 1     |           | 1   |
| 6     | 0.57                                                       | 0.59                                                     | 1     |           | 1   |
| 7     | -0.10                                                      | -                                                        | 1     |           | 1   |
| 8     | 0.03                                                       | -                                                        | 1     |           | 1   |
| 9     | 0.007                                                      | -                                                        | 1     |           | 1   |
| 10    | 0.75                                                       | 0.73                                                     | 1     |           | 0.8 |
| 11    | 0.47                                                       | 0.48                                                     | 1     |           | 1   |
| 12    | 0.38                                                       | 0.41                                                     | 0.9   |           | 1   |
| 13    | 0.45                                                       | 0.39                                                     | 0.9   | 0.953     | 1   |
| 14    | 0.56                                                       | 0.55                                                     | 0.9   |           | 0.8 |
| 15    | 0.64                                                       | 0.61                                                     | 0.9   |           | 1   |
| 16    | 0.56                                                       | 0.58                                                     | 0.9   |           | 1   |
| 17    | 0.77                                                       | 0.79                                                     | 0.9   |           | 0.8 |
| 18    | 0.83                                                       | 0.81                                                     | 1     |           | 1   |
| 19    | 0.76                                                       | 0.78                                                     | 0.9   |           | 0.6 |
| 20    | 0.54                                                       | 0.49                                                     | 0.9   |           | 0.6 |
| 21    | 0.40                                                       | 0.41                                                     | 0.8   |           | 1   |
| 22    | 0.19                                                       | -                                                        | 0.8   |           | 0.6 |
| 23    | 0.09                                                       | -                                                        | 1     |           | 1   |
| 24    | 0.33                                                       | 0.34                                                     | 0.9   |           | 0.8 |
| 25    | 0.67                                                       | 0.67                                                     | 1     |           | 1   |
| 26    | 0.90                                                       | 0.90                                                     | 1     |           | 1   |

Table 2. Discriminate validity of TIS\_LCH\_IR by using gender, educational level and marital status

| Variables         |                   | Mean | SD   | Sig       |
|-------------------|-------------------|------|------|-----------|
| Gender            | Female            | 2.60 | 0.35 | p < 0.001 |
|                   | Male              | 2.32 | 0.47 | p < 0.001 |
| Educational level | Primary school    | 2.53 | 0.44 | p < 0.001 |
|                   | Diploma           | 2.45 | 0.37 | p < 0.001 |
|                   | Masters and Ph.D. | 2.18 | 0.38 | p < 0.001 |
| Marital status    | Single            | 2.40 | 0.43 | p < 0.001 |
|                   | Married           | 2.25 | 0.33 | p < 0.001 |
|                   | Widow             | 2.58 | 0.40 | p < 0.001 |
|                   | Divorced          | 2.62 | 0.49 | p < 0.001 |

Table 3. Cronbach's alpha and ICC for each subscale of the questionnaire

| Sub-scales of the questionnaire        | Cronbach's alpha | ICC  |
|----------------------------------------|------------------|------|
| Sub-scale of alienation                | 0.96             | 0.93 |
| Sub-scale of stereotype endorsement    | 0.96             | 0.92 |
| Sub-scale of discrimination experience | 0.98             | 0.96 |
| Sub-scale of social withdrawal         | 0.96             | 0.93 |
| Sub-scale of stigma resistance         | 0.98             | 0.96 |
| Overall questionnaire                  | 0.94             | 0.90 |

Table 4. The sociodemographic characteristics of the respondents

| Variables                                 | n                       | %   | Mean |
|-------------------------------------------|-------------------------|-----|------|
| Gender                                    | Female                  | 126 | 48.5 |
|                                           | Male                    | 134 | 51.5 |
| Educational level                         | Primary school and less | 158 | 60.8 |
|                                           | Secondary               | 31  | 11.9 |
|                                           | Diploma                 | 43  | 16.5 |
|                                           | Masters and Ph.D.       | 28  | 10.8 |
| Marital status                            | Single                  | 93  | 38.5 |
|                                           | Married                 | 49  | 18.8 |
|                                           | Widow                   | 76  | 22.5 |
|                                           | Divorced                | 42  | 29.2 |
| Number of children                        | No children             | 163 | 62.7 |
|                                           | 1-2                     | 53  | 20.4 |
|                                           | 3 ≥                     | 45  | 17.4 |
| Length of stay in the nursing home (Year) | 1-5                     | 203 | 78.1 |
|                                           | 6-10                    | 48  | 18.5 |
|                                           | >10                     | 9   | 3.5  |

Table 5. Goodness-of-fit indicators of models for the total participants

| Groups | CMIN/DF | GFI  | CFI  | NFI  | IFI  | RMSEA |
|--------|---------|------|------|------|------|-------|
| Total  | 2.81    | 0.85 | 0.82 | 0.85 | 0.83 | 0.084 |

Notes: GFI= goodness of fit index [good fit:  $\geq 0.9$ ]; CFI = Comparative Fit Index [good fit:  $\geq 0.9$ ]; IFI= the Incremental Fit Index [good fit:  $\geq 0.9$ ]; NFI = Normative Fit Index [good fit:  $\geq 0.9$ ] RMSEA = Root Mean Square Error of Approximation [good fit:  $< 0.08$ ; fair fit:  $0.08-0.10$ ]

## Discussion

The aim of the present study was to assess the psychometric properties of the Persian version of the TIS-LCH-IR among Iranian elderly residents in nursing homes. The results support both conceptual distinctness and statistical goodness of the adapted instrument.

On face validity, older respondents gave feedback that led to the restructuring of five items to make them more relevant and clearer. On quantitative testing, the items all read above the acceptable impact threshold, that is, the respondents rated them as being easy to comprehend and important.

Content validity was established by an expert panel across several disciplines. The results were highly favorable, with a CVI of 0.95 and a CVR of 0.91. These suggest that the items validly measure the construct of internalized stigma in this population.

Discriminant validity was established through contrast between known groups. The results indicated that women strongly internalized stigma at a much higher proportion than men. The findings of the present study agree with other earlier studies, such as those

conducted by Economou and Dessie (21, 22), but some others, such as Masoudnia or Sohrabi, found no gender differences (23, 24). These variations can be attributed to variation in study populations and settings. In the present study, the gender difference observed is consistent with the instrument's sensitivity to known social and psychological differences.

Marital status also appeared to exert a strong influence. The unmarried older participants had lower levels of internalized stigma, most likely due to the emotional understanding and acceptance that typically define long-term unions. Similarly, it has been discovered in studies conducted in Indonesia, where unmarried women report higher levels of stigma (25).

In the present study, the elderly who had a higher level of education experienced less internal stigma. In an object study, higher education level, family income, and Conner-Davidson Resilience Scale (CD-RISC) scores were associated with lower levels of internalized stigma (26). Dessie et al.'s review study showed that factors such as older age, social support, more education, and higher socioeconomic status reduce internal stigma. In contrast, factors such as depression,

living in rural areas were significantly associated with high risk of internalized stigma (22). But the results of the present study were in conflict with the study of Hartini et al. (25). It seems that higher literacy can act as a protective factor due to decision-making and correct reaction to problems. Therefore, it is expected that the elderly who have a higher level of literacy experience less internalized stigma.

In terms of reliability, the scale was performing very well. Internal consistency was great (Cronbach's alpha = 0.94), and test-retest reliability was also great ( $r = 0.90$ ), better than the original scale's reliability estimates.

CFA established the structural validity of the measure. After deleting five of the items with low factor loadings, the 21-item final version had satisfactory fit indices (CMIN = 2.81, GFI = 0.85, CFI = 0.82, RMSEA = 0.084). The indices are not ideal, but they do constitute evidence that the model is well-enough fitting for use in the target population.

## Conclusion

The results of the current research suggest that caution is warranted when utilizing the TIS\_LCH scale, which is grounded in confirmatory validity rather than content validity or reliability. Internalized stigma has the potential to detrimentally impact the well-being of residents in nursing homes, possibly resulting in diminished self-esteem, increased social isolation, self-harm, and depression. The translation and validation of this questionnaire into Persian will provide caregivers, nursing home administrators, and policymakers focused on aging with the tools necessary to evaluate internalized stigma among elderly nursing home residents and to periodically monitor their condition. This initiative will aid in mitigating the negative consequences associated with internalized stigma and in the development of preventive programs to address these adverse effects.

## Study limitations

One of limitation of the study is that it was conducted on elderly people living in a nursing home in one city, which may not be generalizable to all elderly people living in nursing homes, and it is better to repeat it in other cities and countries.

Because the questionnaire was in Farsi, the elderly who did not understand Persian were excluded from the study. Therefore, it is recommended to repeat the study where there is no sample size limitation and the native language is exclusively Persian.

## Conflict of interests

The authors reported no potential conflict of interest.

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## Author contributions

FF and LS designed the study. FF collected survey data. FF, SN, MF, LJ and KA analyzed and presented the statistical results. FF, SN, LS, MF LJ, and KA were major contributors in writing the manuscript. FF, SN edited the manuscript. All authors read and approved the final manuscript.

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