Original Article

Psychometric Properties of the Thai Tampa Scale of Kinesiophobia among Older People with Knee Osteoarthritis

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Background: Kinesiophobia is described as fear of physical movement resulting in painful injury. Older adults with knee osteoarthritis usually suffer from joint pain. Assessment of kinesiophobia is beneficial for prevention of further deterioration in performing activity. Even though, the Tampa Scale of Kinesiophobia (TSK-11) has been developed to briefly examine pain related to fear of movement in patients with chronic pain, the TSK-11 Thai version has not been examined for its validity and reliability yet.

Objective: To examine psychometric properties of the TSK-11 Thai version.

Materials and Methods: A cross-sectional study with 200 older people with knee osteoarthritis living in the northeastern part of Thailand was used in the present study. Participants were asked to complete the demographic questionnaire, the TSK-11-Thai version, the numeric rating scale (NRS), and the Pain Catastrophizing Scale (PCS) Thai version. To confirm the TSK-11 Thai version validity, construct validity was examined using confirmatory factor analysis. Pearson correlation coefficients were used to confirm the TSK-11-Thai version's convergent validities. For internal consistency reliability, Cronbach's alpha coefficients were also assessed.

Results: The results of confirmatory factor analysis indicated that a two-factor model, including somatic factor and activity avoidance, fitted with the data. The TSK11-Thai version was positively correlated with pain catastrophizing. Cronbach's alpha coefficients of the total TSK11-Thai version was at 0.77. For subscale, Cronbach's alpha coefficients of the TSK somatic factor and activity avoidance were 0.61 and 0.69, respectively.

Conclusion: The Thai version of TSK-11 has acceptable validity and reliability. The TSK-11-Thai version is suitable to use to examine pain-related fear of movement in patients with knee osteoarthritis for clinical and research purposes.

Keywords: Instrument; Knee osteoarthritis; Older people; Pain-related fear of movement; Tampa Scale of Kinesiophobia-Thai version; Psychometric properties; Validation

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Knee osteoarthritis is the most common musculoskeletal disease that causes knee pain. It was reported in the sixth National Health and Nutrition Examination Survey (NHANES) that after adjusting for age and body mass index, the prevalence of knee pain has increased by approximately 65%[1]. In Thailand, it was reported that the number of knee osteoarthritis patients increased from 241,135 cases in 2011 to 274,133 cases in 2014 or 8,250 cases per year[2]. Pain in knee osteoarthritis is considered as one type of chronic pain that causes extreme cause suffering to the patients. It has been shown that people with knee osteoarthritis who had high level of pain reported higher level of pain-related fear of movement[3], and they could have greater risk of depression[4], psychological disability[5] and could perform lower level of activities of daily living[4], physical activity[6], and physical function[5,7]. Based on the literature, assessing of pain related fear of movement is vital to prevent further deterioration in performing activity in older adults with knee

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osteoarthritis.

Pain-related fear, is a psychosocial factor that greatly impacts on health status in patients with musculoskeletal pain, especially in knee osteoarthritis[5,6]. Thus, it needs to be early assessed for pain-related fear to minimize negative consequences among this population. Several questionnaires, including the Fear Avoidance Belief Questionnaire (FABQ), the Pain Anxiety Symptom Scale (PASS), and the Tampa Scale for Kinesiophobia (TSK) have been developed to assess level of pain-related fear. The FABQ measures patients' fear or belief about physical activity and work that may affect or contribute to low back pain[8] whereas the PASS focuses on fear of pain that is related to degree of anxiety[9]. The TSK was selected for use in the present study because it was more specific to fear of movement. The TSK was originally developed in English and consisted of 17 items (TSK-17) measuring kinesiophobia, which was defined as an irrational fear of movement and perform activity due to a belief of susceptibility to injury[10]. Factor structure of the TSK-17 was examined by Vlaeyen et al[11] and they found that four factors (harm, fear of injury, importance of exercise, and avoidance of activity) accounted for 36.20% of the total variance. The convergent validity was also confirmed with positive correlations with pain catastrophizing, pain intensity level, and pain impact with the Cronbach alpha coefficients for total score of 0.77 and for subscale ranging from 0.53 to 0.71[11].

However, the responsiveness of TSK-17 has been questioned due to poor psychometric properties. The confirmatory factor analysis (CFA) of the TSK-17 was examined in patients with osteoarthritis[12] and chronic low back pain and also fibromyalgia[13,14], and the results indicated that the 13 items with two factors, namely activity avoidance (8 items) and somatic focus (5 items) provided the best fit compared to the 17 items with four factor model[12,13]. In addition, the TSK were further validated in English speaking patients with chronic low back pain and six items were removed due to being psychometrically poor[15]. Therefore, the shortened version of TSK with 11 items, namely TSK-11 was introduced.

Other researchers also examined the TSK-11 English factor structure and the results showed that it was the best fit with two-factors model and was invariant across Dutch, Swedish, and Canadian patients with chronic musculoskeletal pain[14] compared to the TSK-17, and across patients with heterogeneous chronic pain compared to the TSK-13[16]. Regarding convergent validity, the TSK-11 had a strong positive correlation with: (a) pain intensity[15], (b) pain severity[16], (c) pain interference[16], (d) disability[14,15], and (e) depression[16]. Negative correlation was also found between the TSK-11 and (a) pain acceptance, and (b) stair climbing and sit-stand, demonstrating its divergent validity[16]. With respect to reliability, the TKS-11 had excellent test-retest reliability (ICC 0.81, SEM 2.54)[15] and good internal consistency reliability with Cronbach alpha coefficient ranged from 0.64 to 0.80[14-16].

The TSK was translated using forward translation[17,18], back translation[19-23], and back translation with cognitive debriefing[24] into several target languages, including Dutch[18], Swedish[23], Portuguese[21], Norwegian[22], Chinese[25], Spanish[17], Persian[20], Japanese [24], and Thai[19], and validated in patients with chronic low back pain[11,18,21,23], disc herniation[22], neck pain[20], knee osteoarthritis[19], chronic musculoskeletal pain[24,25], chronic heterogeneous pain[17], and acute musculoskeletal (back, neck or upper extremity) pain[17]. However, the TSK-11 demonstrated the better factor structure compared to the TSK-17 in Spanish and Chinese versions. The principal component analysis (PCA) showed that 2-factor solution for the TSK-11 accounted for 48.37% in chronic pain sample and 50.01% in acute pain sample[17]. The CFA indicated a good fit of the TSK-11 two-factor model[25]. Then, Larsson et al[26] subsequently examined the TSK-11 Swedish version in older people with heterogeneous chronic pain using the CFA, and the results indicated that a one or two-factor model were possible.

Regarding convergent validity, positive correlations were also found between the translated TSK-11 and (a) catastrophizing[17,24], (b) anxiety[17], (c) average pain[25], (d) pain intensity[26], (e) pain interference in daily activities and social activities[25], and (f) activity dependence[26]. Negative correlation was found between the TSK-11 and (a) functional status[17], and (b) physical activity[26] which confirmed its divergent validity. Moreover, known-group validity was confirmed with patients with depressive symptom and with or without somatic symptom[24].

With respect to reliability, the translated TSK-11 indicated acceptable internal consistency reliability with Cronbach alpha coefficients from 0.67 to 0.92 for the total score[17,24-26], and from 0.60 to 0.85 for activity avoidance[25,26], and from 0.56 to 0.74 for somatic factor[25,26]. One study[26] examined test-retest reliability with a correlation of 0.75. From the literature, it was confirmed that the TSK-11 was a valid and reliable measure to translate to

target language for use to assess pain related to fear worldwide.

To date, the previous studies only tested the translated TSK-11 in adult patients[17,24,25]. Although, one study[26] tested the TSK-11 in older people, it was done with unspecific chronic pain. Knee pain resulting from knee osteoarthritis symptoms may represent different levels of pain-related fear of movement. Thus, it is necessary to have an instrument to test the level of kinesiophobia or fear on functioning in this population. Even though, the Thai version of TSK-17 was validated in older people with knee osteoarthritis, factor structure of the Thai version of TSK has not been examined yet[19]. The results in a previous study indicated that 6 items in the original TSK-17 were poor psychometric properties, in which item-total correlations were demonstrated less than 0.20 with deviation of response trends from a pattern of normal distribution[15]. Further testing using CFA is needed to test the structure that identify method effects and evaluation of factor invariance[27]. Using CFA could evaluate whether the instrument represented the same construct across different culture could be generalized to other chronic pain samples.

Objective

The purpose of the present study was to examine the TSK-11 Thai version psychometric properties in older people with knee osteoarthritis.

Materials and Methods

Study design

The authors used a secondary data analysis of a cross-sectional descriptive study, examining factors influencing health status in older people with knee osteoarthritis[28] which was conducted between 2016 and 2017.

Sample and setting

Using a convenience sampling, the samples were older people whose age was 60 years or older living in the northeastern part of Thailand. The inclusion criteria were: (a) being diagnosed with knee osteoarthritis by presenting knee pain with at least two of clinical knee osteoarthritis symptoms (crepitation during knee movement, knee joint stiffness <30 minutes, and bony enlargement)[29], (b) no cognitive impairment (a Mini-Cog score ≥3)[30], (c) be able to understand the Thai language, and (d) willing to participate in the present study. The exclusion criteria were: (a) diagnosed with mental health disorder, such as depression, (b) received knee osteoarthritis treatment such as steroid injection within three months, and (c) history of knee replacement surgery or knee injury.

According to Kline's recommendation[31], a minimum sample size for the Structural Equation Model analysis should be at least 200 cases. Therefore, 200 participants were randomly selected from the total of 220 in the original study[28] to ensure the number of participants were adequate for using SEM analysis. To avoid selection bias, 200 participants were randomly selected by a computer using random numbers[32].

Measures

Demographic Questionnaire was designed by the researcher to obtain information on participants' age, gender, body mass index (BMI), side of knee pain, pain duration, knee pain treatment, underlying diseases, and frequency of exercise. The response option was a check list for possible answer and short answer.

The Numeric Rating Scale (NRS) was used to measure pain intensity level[33]. Participants were asked to give a number from 0 (no pain) to 10 (worst pain). Higher score indicated more severity of pain. When testing in older people, the NRS indicated good internal consistency with a Cronbach coefficient of 0.88 and factor analysis confirmed its construct validity[34].

The Tampa Scale of Kinesiophobia (TSK-11)-Thai version was used to measure fear of movement. Eleven items of the TSK-11 composed of somatic factors (5 items) and activity avoidance (6 items). Each item was rated on a four points Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) with the possible score ranged from 11 to 44. Higher scores indicated a higher level of fear when performing activities. The TSK-11 was translated into Thai using committee approach combined with cognitive interviews[35]. For committee translation, three expert nurses who were fluent in Thai and English independently translated the TSK-11 from English to Thai. One item that could not reach agreement was sent to an adjudicator for making judgment and linguistically validated. The first draft of the TSK-11 Thai version was then pilot tested in 15 older people with knee osteoarthritis. Next, the final draft of the TSK-11 Thai version was revised based on participants' recommendation.

The Pain Catastrophizing Scale-Thai version (PCS-Thai) was used to measure pain catastrophizing. The PCS consisted of three dimensions: (a) rumination (4 items), (b) magnification (3 items), and (c) helplessness (6 items), rated on a 5-point Likert scale ranging from 0=not at all to 4=all the time. The total

score ranged from 0 to 52. Higher scores represented a higher level of catastrophizing. The PCS-Thai was positively associated with pain intensity level and negatively associated with health status. In addition, three factors accounted for 65.97% of variance, which confirmed its construct validity. The Cronbach's alpha coefficients for the total PCS and subscales ranged from ranged from 0.76 to 0.91[36].

Ethical consideration

The Institutional Review Board (IRB) (ID 03-59-77) reviewed and gave approval to conduct the present study. Participants were informed about the study's objectives and their right to withdraw from the study without negative consequences. The results were reported as overall scores without identifiable information.

Procedure

After IRB approval, nurses who were working at the Tambon Health Promoting Hospitals set up the meeting with potential participants at hospitals or participants' homes. The authors informed potential participants about purpose of study and approached potential participants following the inclusion criteria. When participants agreed to participate and completed a consent form, the authors read a set of questionnaires item by item and response options. All answers were recorded in the questionnaire. Then, participants received a souvenir gift and pamphlet regarding knee osteoarthritis.

Data analysis

Data were analyzed using Stata 13 and Mplus statistical software (student version). The content validity index for scales (S-CVI) and the content validity index for items (I-CVI) were calculated and the S-CVI and I-CVI should be greater than 0.90 and 0.78, respectively[37]. Descriptive statistics were used to examine demographic data and study variables. Pearson product coefficients were used to examine convergent validities. Construct validity was confirmed through CFA using Mplus statistical software. CFA was a suitable analytical method for the theoretical understanding of a factor model[27]. The Kaiser-Meyer-Olkin test and Bartlett's test of sphericity were performed to examine whether data and sample sizes were adequate for factor analysis. A scree plot and the theory of fear avoidance model were used to determine appropriateness for number of factors. Then, a two-factor model (TSK-AA and TSK-SF) were tested using CFA. To test the model fit, the goodness of fit index including the root mean square error of approximation (RMSEA), the standard root mean square residual (SRMR), and the comparative fit index (CFI) were calculated to evaluate the fit index. The RMSEA value of less than 0.08, SRMR value of less than 0.08, and CFI value between 0.80 and 0.89 represented an acceptable model fit[38]. The Cronbach's alpha coefficients were calculated to confirm its internal consistency reliability for the total items and for each subscale.

Results

The mean age of 200 participants was 69.09 (SD 6.19) years and approximately 73% of participants were female. Regarding BMI, the mean BMI was 23.85 (SD 4.20) kg/m², and the BMI were categorized as underweight (BMI <18.5 kg/m²), normal (BMI 18.5 to 22.9 kg/m²), overweight (BMI 23 to 24.9 kg/m²), and obese (BMI ≥25 kg/m²) as 7.5%, 37.50%, 19%, and 36%, respectively. Most participants (52.50%) had knee pain on 1 knee side with moderate pain intensity level with a score of 6.40 (SD 2.35). The knee pain duration was 3.99 (SD 4.42) years. Approximately 74% received knee pain treatment, including pain medication (74%), quadriceps muscle exercise (31.50%), and resting (18.50%). Regarding underlying diseases, 28% had hypertension followed by diabetes (16%), chronic kidney disease (3%), and heart disease (2%). With respect to frequency of exercise, most participants (45.50%) performed exercise >3 times a week, whereas only 9.50% did not exercise. The mean score for study variables were 30.21 (SD 3.95) for the TSK-11 Thai version, 6.40 (SD 2.35) for the NRS, and 25.03 (SD 10.39) for the PCS.

Content validity

The S-CVI of the TSK-11 Thai was 0.93 and the I-CVI for each item ranged from 0.81 to 1.00. The average of the I-CVI was 0.82.

Convergent validities

Table 1 indicated a moderate positive correlation between the total score of TSK-11 Thai version and the total PCS ($r=0.34$, $p<0.01$). The TSK-SF and TSK-AA also had a positive correlation with the PCS-rumination, the PCS-magnification, and the PCS-helplessness ($r=0.22$ to 0.33, $p<0.01$). However, the correlations among the total TSK-11, TSK-SF, TSK-AA and pain intensity level were not statistically significant.

Table 1. Correlations among the TSK-11 Thai version, pain intensity, and pain catastrophizing

Measures	TSK subscale		TSK-11 total
	Somatic factor	Activity avoidance	
Pain catastrophizing (PCS)	0.35*	0.26*	0.34*
Rumination	0.32*	0.22*	0.30*
Magnification	0.29*	0.22*	0.29*
Helplessness	0.33*	0.24*	0.32*
Pain intensity (NRS)	0.04	0.05	0.06

* p<0.01

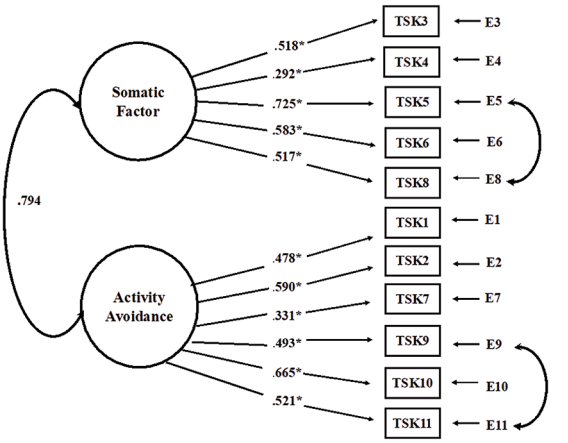

Figure 1. Confirmatory factor analysis of the two-factor model for the TSK11 Thai version, model fit statistics: χ^2=103.858, df=49, p<0.001; RMSEA=0.075; SRMR=0.064; and CFI=0.871.

χ^2=chi-square likelihood ratio statistic; df=degree of freedom; RMSEA=root mean square error of approximation; SRMR=standard root mean square residual; CFI=comparative fit index

Construct validity

The Kaiser-Meyer-Olkin test was 0.77 and Bartlett's test of sphericity was significant (χ^2=466.34, df=55, p<0.001), indicating that sample size was adequate for factor analysis. Using a CFA, factor loading for the TSK-11 somatic factor and the TSK-11 activity avoidance ranged from 0.29 to 0.73 and from 0.33 to 0.67, respectively (Figure 1). As shown in Figure 1, the fit statistics, including RMSEA of 0.075, SRMR of 0.064, and CFI of 0.871 indicated acceptable fit for TSK-11 Thai version with two-factor model.

Internal consistency reliability

The Cronbach alpha coefficient for the total TSK-11 in Thai version was 0.77. For subscales, the Cronbach alpha coefficient of the TSK-11 somatic factor and the TSK-11 activity avoidance were 0.61 and 0.69, respectively. Moreover, as shown in Table 2, the range of item to total correlations for the total TSK-11 were from to 0.27 to 0.52. The Cronbach's alpha, if item was deleted, ranged from 0.75 to 0.78.

Discussion

The purpose of the present study was to examine the TSK-11 Thai version psychometric properties in older people with knee osteoarthritis. The authors examined the factor structure of the TSK-11 Thai version in chronic pain population, older people with knee osteoarthritis. The results indicated that the TSK Thai version was best represented by 11 items with a two-factor model. In addition, positive correlations were found between the TSK-11 Thai version and pain catastrophizing, representing its convergent validity.

Table 2. Corrected item-total correlations and Cronbach's alpha if item deleted from the TSK-11

Item	Corrected item-total correlations	Cronbach's alpha if item deleted
1. I am afraid that I might injury myself if I exercise	0.42	0.76
2. If I were to overcome it, my pain would increase	0.49	0.75
3. My body is telling me I have something dangerously wrong	0.42	0.76
4. People aren't taking my medical condition seriously enough	0.27	0.78
5. My accident has put my body at risk for the rest of my life	0.50	0.75
6. Pain always means I have injured my body	0.48	0.75
7. Simply being careful that I do not make any unnecessary movements is the safest thing I can do to prevent my pain from worsening	0.28	0.77
8. I wouldn't have this much pain if there weren't something potentially dangerous going on in my body	0.40	0.76
9. Pain lets me know when to stop exercising so that I don't injure myself	0.45	0.75
10. I can't do all the things normal people do because it's too easy for me to get injured	0.52	0.75
11. No one should have to exercise when he/she is in pain	0.47	0.75

The Cronbach alpha coefficients for the total TSK-11 Thai version was 0.77.

The TSK-11 Thai version demonstrated good content validity, which indicated the relevance of content represented in each item, measuring construct of interest[39]. In the present study, three bilingual experts in pain management, one bilingual expert in older adults, and one bilingual expert in psychiatric nursing examined appropriateness of content as well as linguistics of the TSK-11 Thai version. This process could help to ensure cultural appropriateness as well as content and semantic equivalence of the translated instrument[40].

For convergent validity, there was a positive correlation between pain-related fear and pain catastrophizing. The present study results were consistent with the results in the previous studies[17,24] and supported the evidence of convergent validity of the TSK-11 Thai version. It is argued that pain catastrophizing could be a precursor of pain related fear of movement[41]. When negative appraisal of pain, including pain catastrophizing, magnify peoples' belief on pain sensation so they feel helplessness to face with pain, their perception on harm could contribute to development of fear of physical movement due to vulnerability to pain[42].

Surprisingly, the correlation between pain intensity level and pain-related fear of movement was not significant. The results in the present study contradicted with the results in the previous studies[15,19,26] in which pain related fear of movement was statistically significant positively related with pain intensity level. According to the fear-avoidance model[43], people with high level of pain intensity and pain experience will contribute fear of movement which could then lead to increase level of disability, due to avoidance to perform activities. In the present study, participants had moderate pain level, which could possibly be because most participants (74%) took pain medications. In addition, compared to a previous study[26] conducted in older people, the pain duration for the present study sample was lower (mean 3.99 versus 10.20 years). It is possible that when pain intensity level was not too severe and was not experienced for so long, it may not relate to fear in performing activities. Thus, the relationship between these two variables may not exist.

Rather than exploratory factor analysis (EFA), CFA was used to understand factor structure in the present study. This method is suitable for use to test theory construct and already established[27]. The present study results also confirmed that the TSK-11 is not only proper to assess pain-related fear in older adults with heterogeneous pain[26], but also reliable for use in older adults with knee osteoarthritis. A two-factor structure was tested in the present study. The results indicated that a two-factor model indicated acceptable fit. The present study results were congruent with the results in the previous studies[14,16,26] in which kinesiophobia was based on two sub-constructs, which were somatic focus and activity avoidance. Also, a moderate correlation (r=0.56) was found between TSK-somatic focus and TSK-activity avoidance, which was similar to the previous studies (r=0.47 to 0.64)[14,16,26]. Although, these two conceptually similar concepts are distinct, they should not be highly correlated with each other. Therefore, construct overlapping was not an issue for the TSK-11 Thai version.

In regards to factor loading, the CFA indicated that all items were loaded on intended factors. However, the item-total correlation coefficient for item 4 "People are not taking my medical condition seriously enough" and item 7 "Simply being careful, that I do not make any unnecessary movements is the safest thing I can do to prevent my pain from worsening" were lower than 0.30. The authors' possible explanation could be due to different cultural perception regarding pain-related fear of movement. Most Thai older adults thought that knee pain is typically due to age related change in older adults. Participants in the present study were young older adults who were able to regularly perform exercise. Therefore, these two items may not strongly fit with somatic factor that refers to pain as a harmful signal to tell the body that it has got injury, whereas, activity avoidance includes items measuring fear to perform activities that may cause pain[44]. According to Devon et al[39], item-total correlations should be higher than 0.30 to represent construct validity. Therefore, in the future study, these two items should be used with caution or probably need to be revised in order to provide appropriateness for use in cross-cultural context.

In the present study, the Cronbach alpha coefficients for the entire scale of the TSK-11 Thai version was 0.77, which was higher than TSK-11 Chinese (∞=0.67)[25], but lower than Swedish (∞=0.87)[26], Japanese (∞=0.92)[24], and English (∞=0.80)[16] versions. The Cronbach alpha coefficients ranged from 0.00 (no internal consistency reliability) to 1.00 (perfect internal consistency with no measurement errors[32]. Ideally, the Cronbach alpha coefficients should be 0.80 to demonstrate 80%

reliable of instrument and 20% of measurement errors[32]; although Cronbach alpha coefficients of 0.70 was acceptable for a new scale[45]. In the present study, the Cronbach alpha coefficient for the total TSK-11 Thai version was acceptable, reflecting items measuring the same concept fit together[39].

Considering for each subscale, the Cronbach alpha coefficients of the TSK-11 somatic factor and activity avoidance Thai version were higher than TSK-11 Chinese (∞=0.56 for somatic factor and ∞=0.60 for activity avoidance)[25], but was lower than the Swedish (∞=0.74 for somatic factor and ∞=0.85 for activity avoidance)[26], and the English (∞=0.71 for somatic factor and ∞=0.75 for activity avoidance)[16]. The inconsistent results might be because the TSK-11 was tested in different pain populations. Although, the TSK-11 was newly translated and used in Thailand, the Cronbach alpha coefficients of the TSK-11 somatic factor and activity avoidance Thai version were higher than 0.60. The instrument with the reliability coefficients less than 0.60 indicates limited consistency with high random error[32].

The Cronbach coefficients for the total TSK11 Thai version in the present study was lower than the TSK-17 Thai version[19]. It is possible because the TSK11 consists of 11 items whereas the TSK-17 includes 17 items. The measure which consists of the higher number of items usually has the higher level of the Cronbach coefficients[32]. Both versions are reliable for use to assess the pain-related fear of movement; although a shorter or fewer- item questionnaire could be preferable and friendlier to use in older people due to reduce performing time[15,26]. Longer items could induce boredom and lack of attention to respond, which may lead to reduce the accuracy of information obtained from the participants.

Some limitations in the present study should be noted. Because the results were only obtained from the older people with knee osteoarthritis using convenient sampling and the majority of samples (73%) were female, the results had limitations in terms of generalizability. Therefore, the TSK-11 should be tested in other types of chronic pain, using probability sampling method. In addition, without test-retest reliability, the stability over certain period of time for the TSK-11 Thai version remains unknown. The authors did not assess the association between pain-related fear and physical function of the participants including time to get up and ready for testing, a key indicator of disability, which limited the explanation of divergent validity. Future study should further examine, whether there is a correlation between the TSK-11 and the physical function.

Conclusion

From the psychometric properties examination, the TSK-11 Thai version is valid and reliable for use to examine pain related fear of movement in older people with knee osteoarthritis. Nurses and other healthcare providers should use this scale to assess pain related fear of movement in patients with pain. The information obtained will be helpful to prevent negative consequences resulting from pain related fear of movement.

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Conflicts of interest

The authors declare no conflict of interest.

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