TRANSLATION INTO PORTUGUESE OF QUESTIONNAIRES TO ASSESS KNEE INJURIES

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ABSTRACT

The aim of this systematic review was to review the quality of the translation and the measurement properties from questionnaires that assess injuries of the knee. We included questionnaires that were developed in foreign language and have been translated and validated into Portuguese. The databases used were CINAHL, SPORTDiscus, LILACS, PUBMED and SCIELO and the final search resulted in a total of 868 studies included, from which 16 were eligible. Most included questionnaires presented all steps expected in a translation process; however there were some deficiencies in measurement properties among the questionnaires. The VISA-P Brazil was the best questionnaire when analyzing translation process and measurement properties tested. It was the only questionnaire that tested all measurement properties investigated and presented adequate values for all of them. KOS-ADLS was the best questionnaire translated to Portuguese from Portugal. Among all, the VISA-P Brazil is the best questionnaire to be used with Brazilian Portuguese speakers when the condition is related to patellar tendinopathy and the LEFS is the best questionnaire for other general conditions of the knee. For Portuguese from Portugal, the best questionnaire is the KOS-ADLS, and like the LEFS it does not target any specific injury.

Keywords: Questionnaires. Knee. Validation studies. Translating.

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INTRODUCTION

The knee is one of the joints most affected by injuries, whether acute or chronic.[1-3] The high incidence of knee injuries is mainly due to its anatomical conformation, highly dependent on the dynamic stabilizers, and also for being a joint that is sub-mitted to constant overload. An example of this is the overload during vertical jumps. In a jump, the vertical reaction force after landing, can reach up to four times the corporal weight[4] and the knee is one of the structures responsible for transmitting mechanical energy to the superior structures, and also absorb part of it,[5] which can lead to greater predisposition to injuries. Thus, methods of diagnosis are important for detecting these lesions and to base the treatment. The most reliable methods for the diagnosis of knee injuries are imaging tests such as computerized tomography (CT), magnetic resonance imaging (MRI), ul-trasound and x-rays. However, these tests are not always easily available and are also high cost for proper monitoring during treatment. One available option for the assessment of functional status and the establishment of the degree of injury severity, helping to monitor the treatment progress has been the use of questionnaires. Associated to the recovery of the patient's perception regarding his health status, questionnaires can help quantify subjective symptoms, making assessment more precise,[6-7] in addition to their viability, by being easy to use and low cost. Some questionnaires and scales were developed to assess the functionality of the knee and other specific knee diseases.[8-13] However, most of these questionnaires were developed in English language, limiting their applicability to populations who speak English and have similar cultures to the country of origin of the instrument. For a questionnaire to be reliable in other languages, it is important to perform a cross-cultural adaptation, allowing future comparisons and interactions between different populations, permitting a better knowledge exchange between them.[14] The translation and cultural adaptation of questionnaires should be done systematically and scientifically, to ensure the equivalence between the original and the translated versions in an attempt to keep their original properties of measurements,[15] and therefore the essence of instrument.[14]

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Thus, through a systematic review we aimed to identify the questionnaires translated into Portuguese that evaluate the knee joint, as well as see which of those have better quality in the translation process and the best measurement properties.

METHODS

This systematic review was conducted following to the PRISMA recommendations (Preferred Reporting Items for Systema-tic Reviews and Meta-Analyses).[16,17]

Eligibility criteria

This systematic review included studies that aimed to make the translation and/or validation of questionnaires assessing pain and/or functionality of the knee. Studies assessing questionnaires measuring lower limb as a whole were included only if they were validated with individuals affected by disorders of the knee or presented specific data of the knee joint. The translations should have been made or developed in Portuguese. We did not adopt limit to the time of publication and neither the source language. Studies in which the instrument approached the lower limb in without specific data to the knee were excluded.

Search strategy

Electronic search was performed in the following databases: Pubmed, CINAHL (Cumulative Index to Nursing and Allied Health Literature) via EBSCO, SPORTDiscus via EBSCO, SciELO (Scientific Electronic Library Online) and LILACS (Latin American and the Caribbean Literature on Health Science Information). Searches were performed until March 11, 2013.The search terms and the Boolean operators (AND; OR) used were: (knee OR patellofemoral OR anterior cruciate ligament OR joelho OR femuro-patelar OR femuropatelar OR femoro--patelar OR femoropatelar OR patel* OR ligamento cruzado anterior) AND (questionnaire OR index OR scale OR score OR assessment OR evaluation OR questionario OR escala OR indice OR instrumento OR escore OR avaliacao) AND (Brazil OR Brasil OR Portuguese OR Brazilian Portuguese OR Brazilian OR Portugues OR Portugues Brasileiro). This strategy was used in all databases.

Selection of studies

After the searches, two independent evaluators conducted the selection of articles by titles and then by abstracts. Disagreements between reviewers were resolved by consensus. Where there was no consensus between the evaluators, a third reviewer was consulted to decide on the eligibility of the study. Only studies that potentially fit within the inclusion and exclusion criteria were fully analyzed. (Figure 1)

Methodological quality assessment and data extraction

For the analysis of the methodological quality of the translation and validation of the questionnaires, the included studies were evaluated regarding the translation process and the presence of measurement properties. Translation was assessed according to the guidelines of Beaton *et al*.[14] For a translation process to be considered adequate it must present five consecutive steps: translation, synthesis of translations, back translation, committee review and pre-testing. The translation process should be performed by two or more translators. In the synthesis of translations, these translators produce a consensus version out of their versions. In back-translation, other translators who had no knowledge of the original questionnaire, perform a back--translation from the target language to the original language. In the analysis of the committee, a group of experts should develop, based on the existing versions, one pre-final version of the questionnaire. In the pretest the pre-final version is tested on members of the target population.[14] One point was attributed for each step of the translation fulfilled in the studies, with a maximum score of five points for studies with the best translation processes.

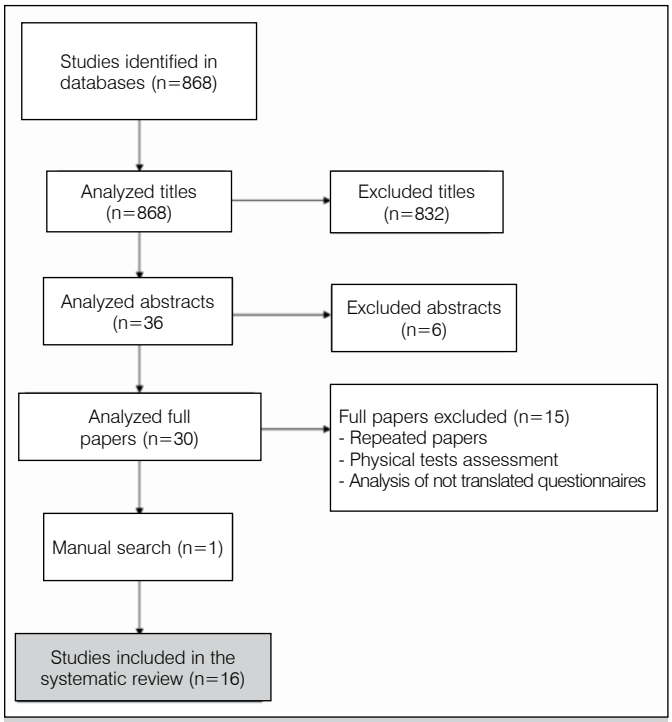

Figure 1. Flow Diagram.

Measurement properties: The criteria stipulated by Terwee et al have been followed.[15] For a questionnaire to be considered well evaluated regarding to its the measurement properties, it should be assessed for internal consistency, construct validity, reliability, floor and ceiling effect, and responsiveness. One point was awarded for each property measurement performed, with a maximum score of five points. The point was given even when the questionnaire has been evaluated in different studies. In case the same property has been measured for more than two studies only one point was attributed for the respective property. In order to satisfy the evaluation criterion, the properties of measurements should be performed as specified below, but regardless the outcome of the analysis. Internal consistency: the level of homogeneity is checked among the items or subscales of the instrument; a correlation among the items of the instrument is assessed, usually measured by Cronbach's alpha. Good internal consistency is achieved when Cronbach's alpha value is between 0.70-0.95.[15]

Construct validity: The tested questionnaire is compared with a similar questionnaire. The construct validity is highly dependent on whether the two questionnaire assess similar construct or

not.[15] Perfect correlations are not expected. Thus, poorly formulated questions may lead to an instrument to be considered not valid in the case of low correlations. This relationship is measured by Pearson correlation or Spearman correlation.[15] Correlation data was extracted from questionnaire related to pain, function, or physical condition. When questionnaires presented correlations with subscales and also with the total value, only the total value was considered.

Reliability: it is the capacity of the instrument to be stable in its assessment when assessments are performed in different occasions under stable conditions. It is measured by the intraclass correlation coefficient (ICC). For the instrument to be considered reliable, it is suggested a minimum value of 0.70.[15] Floor and ceiling effect: evaluates the sensitivity of the instrument in both ends of the scale. For this, the number of individuals who marked minimum or maximum scores is checked. Questionnaires should avoid ceiling and floor effect and it is suggested that less than 15% of the sample scoring the lowest possible score (floor) or highest possible score (ceiling) is adequate.[15] Responsiveness: It is the instrument's ability to detect clinical changes in the same patient over a time. Participants should answer the evaluated instrument before and after treatment or at an interval that is expected to produce change in the clinical condition being assessed (longitudinal study). It is analyzed by calculating the effect size, determined by the difference between the means before and after treatment divided by the standard deviation of the first assessment.[15,18]

RESULTS

After the searches, a total of 868 titles was retrieved, of which 15 articles presented the eligibility criteria adopted and were included in the present review.[19-33] (Figure 1) One study was included after manual search since it was a dissertation that had as a purpose of translating and validating the questionnaire Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).[34] In total, 16 studies were analyzed and provided the translation of 15 questionnaires, since one of the included articles presented only validation data from already translated questionnaires. In the present review, differentiation was not carried out between the Portuguese languages adopted in Brazil or in Portugal for inclusion of translated questionnaires. It was considered that the language semantics between the two countries are very similar, carrying only cultural linguistics alterations. However, for better understanding, the analysis of translation, and presentation of the properties of measurements were presented separately according to the country of speech. In the translation analysis, the majority of the included studies presented all the stages of the process of translation. (Table 1) Concerning the properties of measurements, it was observed a general lack of analyses among the questionnaires. (Table 2) Most of the questionnaires translated into Brazilian Portuguese presented measurements of reliability and validity of the construct. In contrast, the questionnaires translated into Portuguese from Portugal were overall better tested in regards to measurement properties. In Table 3 data referring to the characterization of the questionnaires are presented.

Table 1. Translation steps fulfilled by each questionnaire according to guidelines from Beaton et al.[14]

Questionnaire	Translation	Synthesis of translations	Back translation	Analysis by Committee	Pre-test of final version	Score
Brazilian Portuguese						
ADLS- KOS[25]	✓	✓	✓	✓	✓	5
IKDC[32]	✓	✓	✓	✓	✓	5
LEFS[28]	✓	✓	✓	✓	✓	5
Lequesne[31]	✓	✓	✓	✓	✓	5
SPFD[30]	✓	✓	✓	✓	✓	5
VISA – P[29]	✓	✓	✓	✓	✓	5
WOMAC[34]	✓	✓	✓	✓	✓	5
KSS[27]	✓	✓	0	✓	✓	4
SAS – KOS[24]	✓	0	0	✓	✓	3
Lysholm[26]	✓	X	X	X	✓	2
Portuguese from Portugal						
KOS- ADLS[19]	✓	✓	✓	✓	✓	5
OKS[23]	✓	✓	✓	✓	✓	5
ICOAP[22]	✓	✓	0	✓	✓	4
KOOS[21]	✓	✓	0	✓	✓	4
KOOS-PS* [20]	✓	✓	0	✓	✓	4

✓- The step is present; X – The step is not present or has not been specified in the study; 0 – The step is present, but not in the proper way; * - Questionnaire adapted from KOOS; Lequesne - Algofunctional Lequesne Questionnaire.

DISCUSSION

Among the studies included in this systematic review, we observed major concern on following the criteria for translation of questionnaires established by Guillemin *et al*.[35] and subsequently reviewed by Beaton *et al.*[14] In both studies the five steps that suggested to be adopted in the process of translating questionnaires and scales have been included.[15] Of the translated questionnaires that were included in the present review, only six did not show rigorously the five stages of translation. In the questionnaires addressed to Brazil, the Lysholm Knee Scoring Scale (Lysholm)[26] was the one that received the lowest score in the translation process. The authors for this study stated that the steps created by Guillemin *et al*.[35] have been followed, however, those are not specifically cited. In the translation of the questionnaire Sports Activity Scale (SAS-KOS)[24] it is not stated how the synthesis of the first version was performed and also it is not clear who was responsible for the back-translation process. However, in the translation of the Knee Society Score (KKS)[27] questionnaire, the step of back-translation was carried out by only one translator. This same step was also flawed in three questionnaires developed to Portugal: Intermittent and Constant Osteoarthritis Pain (ICOAP),[22] Knee injury and Osteoarthritis Outcome Score (KOOS)[21] and Knee Outcome Survey - Physical Function Short-form (KOOS-PS).[20] Regarding the measurement properties, the best tested questionnaire translated into Brazilian Portuguese was the Victorian Institute of Sport Assessment - Patella (VISA-P).[29] This was the only questionnaire that brought the analysis of the five properties, as suggested by

Table 2. Analysis of measurement properties according to guidelines of Terwee et al.[15]

Questionnaire	Cronbach's alpha Internal Consistency	Construct Validity P: Pearson's Correlation S: Spearman's Correlation	Reliability ICC	Ceiling and floor effects	Responsiveness effect size	Score
Brazilian Portuguese						
VISA-P[29]	0,76	Lysholm = 0,60 (P)	0,91	Absent	0,97	5
LEFS[28]	0,95	IKDC = 0,82 (P) WOMAC total = 0,87 (P) VAS = - 0,60 (P) SF-36 role physical = 0,82 (P)	0,96	Absent	X	4
IKDC[32,33]	0,93[32] 0,81[33]	SF-36 physical functioning = 0,75;[32] 0,42[33] (P) SF-36 bodily pain = 0,63;[32] 0,65[33] (P) SF-36 role physical = 0,79;[32] 0,62 [33] (P) WOMAC total = 0,85[32] (P) Lysholm = 0,89[32] (P)	0,99 [32]	Absent	X	4
WOMAC[33,34]	0,96[33]	VAS = 0,55-0,78[34] (S) HAQ = 0,72-0,90[34] (S) Lequesne = 0,73-0,91[34] (S) SF-36 physical functioning = 0,52[33] (P) SF-36 bodily pain = 0,58[33] (P) SF-36 role physical = 0,64[33] (P)	0,73-0,98 [34]	Absent [32,33]	X	4
Lysholm[26,33]	0,73[33]	VAS = - 0,60[26] (S) Lequesne = - 0,80[26] (S) SF-36 physical functioning = 0,70[26] (S); 0,41[33] (P) SF-36 bodily pain = 0,50[26] (S); 0,65 [33] (P) SF-36 role physical = 0,40[26] (S); 0,56[33] (P)	0,80-1,00 [26]	Absent [33]	X	4
ADLS-KOS[25]	0,99	SF-36 physical functioning = 0,85 (S) SF-36 bodily pain = 0,50 (S) SF-36 physical aspects = 0,46 (S) Lysholm = 0,78 (S) VAS = - 0,50 (S)	0,99	Absent [33]	X	3
Lequesne[31]	X	WOMAC physical functioning = 0,83 (P); 0,77 (S) WOMAC bodily pain = 0,80 (P); 0,72 (S) WOMAC stiffness = 0,64 (P); 0,56 (S)	0,99	X	X	2
SAS-KOS[24]	X	SF-36 physical functioning = 0,81 (S) SF-36 bodily pain = 0,40 (S) SF-36 physical aspects = 0,43 (S) Lysholm = 0,67 (S) VAS = - 0,35 (S)	0,98	X	X	2
KSS[27]	0,92-1,00	X	X	X	X	1
SPFD[30]	X	X	X	X	X	0
Portuguese from Portugal						
KOS-ADLS[19]	0,91	SF-36 physical functioning = 0,69 (S) SF-36 bodily pain = 0,55 (S) SF-36 physical aspects = 0,60 (S) VAS bodily pain = - 0,53 (S) VAS physical functioning = - 0,55 (S)	0,97	Absent	0,62	5
KOOS[21]	0,77-0,95	SF-36 physical functioning = 0,41-0,69 (S) SF-36 bodily pain = 0,57-0,66 (S) SF-36 physical aspects = 0,41-0,69 (S) VAS bodily pain = - 0,40-(- 0,53) (S) VAS physical functioning = - 0,50-(- 0,58) (S)	0,82-0,94	Absent	0,78-1,08	5
KOOS-PS[20]	0,89	KOOS = - 0,70-(- 0,92) (S) SF-36 physical functioning = - 0,58 (S) SF-36 bodily pain = - 0,69 (S) SF-36 physical aspects = - 0,51 (S)	0,85	X	0,88	4
ICOAP[22]	0,92	KOOS bodily pain = - 0,68-(- 0,81) (S) KOOS symptoms = - 0,61-(- 0,73) (S)	0,88-0,92	X	X	3
OKS[23]	0,87	SF-36 physical functioning = - 0,71 (S) SF-36 bodily pain = - 0,77 (S) SF-36 physical aspects = - 0,46 (S) VAS bodily pain = 0,44 VAS physical functioning = 0,39	0,97	X	X	3

X = Measurement property not tested. HAQ: Health Assessment Questionnaire; IKDC = International Knee Documentation Committee; Lequesne = Lequesne Algofunctional Questionnaire; SAS-KOS = Sports Activity Scale.

Table 3. Characterization of the questionnaires.

Study	Questionnaire	Characteristics	Description	n	Injury
Brazilian Portuguese					
Nigri et al.[25]	ADLS-KOS	Nonspecific. Symptoms and function in activities of daily living	17 questions. Score entre 0 and 100 (0 = worst condition; 100 = best condition)	53	Ligament injury, meniscal injury, cartilage injury, patellar luxation and tendinopathy
Metsavaht et al.[32]	IKDC	Nonspecific. Symptoms and function	10 questions. Score entre 0 and 100 (0 = worst condition; 100 = best condition).	117	Osteoarthrosis, meniscal injury, ACL injury, PPS, tendinopathy, patellar fracture, tibial fracture, ACL injury, and arthroplasty
Silva et al.[27]	KSS	Nonspecific. Symptoms	10 questions. Score between 0 and 200 (100 for function and 100 for symptoms; 0 = worst condition; 100 = best condition)	70	Primary osteoarthrosis with posterior arthroplasty
Marx et al.[31]	Lequesne	Specific. Functionality in osteoarthritis	10 questions. Score between 0 and 24 (0 = best condition; 24 = worst condition).	42	Osteoartritis
Peccin et al.[26]	Lysholm	Nonspecific. Symptoms	8 questions. Score between 0-100 (100-95: excellent; 94-84: good; 83-65: regular; below 64: bad).	50	Osteoarthrosis, meniscal injury, ACL injury and chondral injury
Gonçalves et al.[24]	SAS-KOS	Nonspecific. Symptoms and function in sports activities	11 questions. Score between 0 and 55 (0 = worst condition; 55 = best condition)	23	Nonspecific knee conditions
Aquino et al.[30]	SPFD	Specific. Symptoms da SDPF	13 questions. Score between 0 and 100 (0 = worst knee condition; 100 = best condition).	X	(validation not performed)
Wageck et al.[29]	VISA-P	Specific. Severity of SDPF	8 questions. Score between 0 and 100 (0 = worst knee condition; 100 = best condition).	52	SDPF
Fernandes[34]	WOMAC	Specific. Life Quality in osteoarthrosis	24 questions. Score between 0 and 96 (0 = best condition; 96 = worst condition).	42	Osteoarthrosis
Metsavaht et al.[28]	LEFS	Non Specific. Functionality	20 questions. Score between 0 and 80 (0 = worst condition; 100 = best condition)	87	Osteoarthritis, ACL injury, meniscal injury, tendinopathy, arthroplasty, patellar fracture, PCL injury and chronic laxity
Metsavaht et al.[33]	WOMAC Lysholm IKDC	Already presented	Already presented	57	Osteoarthritis
Portuguese from Portugal					
Gonçalves et al.[19]	KOS-ADLS	Nonspecific. Symptoms and function in activities of daily living	17 questions. Score between 0 and 100 (0 = worst condition; 100 = best condition)	168	Osteoarthritis
Gonçalves et al.[22]	ICOAP	Specific. Pain due to osteoarthritis	11 questions. Score between 0 and 100 (0 = no pain; 100 = extreme pain)	97	Osteoarthritis
Gonçalves et al.[21]	KOOS	Non Specific. Functionality	42 questions. Score between 0 and 100 in each one of five subscales (pain, other symptoms, function in sports, function in daily life and life quality. 0 = worst condition; 100 = best condition)	223	Osteoarthritis
Gonçalves et al.[20]	KOOS-PS	Non Specific. Functionality	7 questions. Score between 0 and 100 (0 = best condition; 100 = worst condition)	85	Osteoarthritis
Gonçalves et al.[23]	OKS	Specific. Symptons and function in total knee arthroplasty	12 questions. Score between 12 and 60 (12 = best condition; 60 = worst condition).	80	Primary Osteoarthrosis that lead to arthroplasty

ACL = Anterior cruciate ligament; PCL = Posterior cruciate ligament; Lequesne = Algofuncional Lequesne questionnaire; PPF = Patellofemoral pain syndrome

Terwee et al.,[15] proving to be the most rigorously tested across all questionnaires available for Brazil. The questionnaire Scoring of Patellofemoral Disorders (SPFD)[30] has not been translated and tested for any of the measurement properties. However, the KSS[27] questionnaire showed only values for internal consistency, receiving a score of one. The questionnaires Lower Extremity Functional Scale (LEFS),[28] International Knee Documentation Committee (IKDC)[32,33] WOMAC,[33, 34] and Lysholm[26,33] did not receive the maximum score only because they did not present responsiveness analysis of these questionnaires. Overall, the questionnaires translated to Brazilian Portuguese were better tested than the questionnaires targeting Portuguese from Portugal. The questionnaires Knee Outcome Survey - Activities of Daily Living Scale (KOS-ADLS)[19] and KOO-PS[21] were tested regarding all measurement properties. The KOOS-PS[20] questionnaire did not present data on the ceiling and floor effect. The Oxford Knee Score (OKS)[23] and ICOAP[22] questionnaires besides not presenting data on the ceiling and floor effect, also did not present data on responsiveness.

It is important for a questionnaire the homogeneity among its

questions or subscales. The questions should have the same measurement purpose.[15] Thus, the internal consistency by means of Cronbach's alpha index becomes necessary. It is an indicator of a good internal consistency values between 0.70 and 0.95 for Cronbach's alpha. Values below 0.70 show that the questions are not related. However, values above 0.95 may indicate that some questions are measuring one single outcome and are therefore redundant.[15] Of the questionnaires in Brazilian Portuguese that presented values of Cronbach's alpha were the VISA-P[29], LEFS[28] and IKDC[32,33] and were those that presented the appropriate values for internal consistency. The Lysholm[26,33] questionnaire showed a level below suggested, which may indicate a lack of correlation between questions. However, WOMAC,[33.34] Scale Activities of Daily Living (ADLS--KOS)[25] and KSS[27] had values above 0.95, which may suggest that there is a certain degree of redundancy among questions. Thus, a review of its questions could be made in order to improve its internal consistency. Regarding the questionnaires in Portuguese from Portugal, all showed adequate levels of internal consistency.

In order to check the construct of an instrument it is necessary to check its correlation to similar instruments, preferably those considered "gold standard". Many questionnaires do not present the same construct, thus it is important to consider that when analysing the outcomes related to construct validity. The differences in construct can lead to regular to low correlations, however, with well-defined hypotheses, even correlations considered low may be positively relevant for the validity of the construt.[15] All questionnaires translated into Brazilian Portuguese and Portuguese from Portugal presented data on the construct validity, except KSS[27] and SPFD,[30]. However, not every questionnaire clearly defined their hypotheses, which makes it difficult the analysis of construct validity presented. Thus, of the questionnaires translated to Brazilian Portuguese, only the VISA--P[29] correctly set hypotheses and presented results accordingly (moderate correlation with the Lysholm). The questionnaire LEFS[28] also presented hypotheses; however, the direction of its hypothesized correlations was not indicated (positive or negative). The results though confirmed the hypotheses (moderate to high correlation with the physical functioning of the The Short Form Health Survey – (SF -36), IKDC, WOMAC and Visual Analogue Scale [VAS]). In the questionnaires translated to Portuguese from Portugal, with the exception of the KOS--DLS,[19] all of studies properly defined hypothesis. The KOOS-[21]questionnaire confirmed the hypothesis that its subscales would reasonably correlate with the equivalent in the SF-36 and also in VAS. The questionnaire OKS[23] also confirmed its hypothesis that it would present at least one reasonable negative correlation with SF-36 to function and pain, and a weak negative correlation with SF-36 to physical functioning, and a weak positive correlation with VAS for pain and function. The questionnaire ICOAP[22] also confirmed its hypothesis that it was negatively correlated with the KOOS for pain and symptoms. Likewise, the KOOS-PS[20] questionnaire also confirmed its hypothesis. In this questionnaire, it was hypothesized that KOOS-PS[20] would present a good negative correlation with the KOOS to function in activities of daily living and sports activities, and at least one reasonable negative correlation with SF-36 to role physical, physical functioning, and pain. For the use of a questionnaire in clinical practice, the results presented should be reliable, regardless the time of evaluation. Reliability refers to the extent the instrument reproduces similar results within a time interval in which clinical changes are not expected. In this regard, all questionnaires translated into Brazilian Portuguese that investigated reliability showed a very high reliability (ICC above 0.90).[36] The WOMAC[33,34] and Lysholm[26,33] questionnaires presented values slightly lower, however were considered highly reliable (ICC between 0.70 and 0.89)[36] since both assessed reliability independently from its items or subscales. The questionnaires in Portuguese from Portugal also showed very high reliability. The questionnaires are useful not only to diagnose but also to show different degrees of severity. Thus, evaluating ceiling and floor effect is necessary.[15] In the questionnaires translated into Brazilian Portuguese and Portuguese from Portugal, in which this verification was performed, there were no ceiling and floor effects. Also , it is important to investigate whether the instrument is sensitive enough to detect clinical changes. Only the VISA-P[29] questionnaire, among those translated into Brazilian Portuguese, had responsiveness analysis performed and showed high responsiveness (effect size above 0.8).[18] Among the questionnaires translated into Portuguese from Portugal that investigated responsiveness, KOOS[21] and KOOS--PS[20] showed high responsiveness. The KOS-ADLS[19] questionnaire and some subscales of KOOS[21] showed moderate responsiveness (effect size between 0.5 and 0.79).[18] Of the 15 questionnaires included in this review, only four carried out the analysis of responsiveness. The lack of such analysis from the questionnaires is perhaps related to the time required for this analysis. Furthermore, it is indicated that these patients undergo a treatment period in order to show clinical changes and thus test the ability of the questionnaire to detect these changes. Probably due to these difficulties, the responsiveness is the property that has been far less tested among the questionnaires.

FINAL CONSIDERATIONS

In general, the translation processes of the analyzed questionnaires were performed appropriately. However, it was detected that most questionnaire were not submitted to all most important measurement property testing. Among the questionnaires systematically evaluated for the translations and measuring properties, the VISA-P showed the best results when compared to other questionnaires translated into Brazilian Portuguese. Being specific for evaluating the patellofemoral pain syndrome, the best questionnaire to assess knee disorders in general was the LEFS, although it did not present data regarding responsiveness. In the questionnaires translated into Portuguese from Portugal, the KOS-ADLS questionnaire was considered the best, as it fulfilled the five stages of translation and was also tested for all measurement properties. An appropriate translation process and test regarding measurement properties are needed for greater consistency and reliability of an instrument. Thus, there is a need for future studies to test the measurement properties of instruments already translated and also keep in mind this need in future translations.

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