

Musculoskeletal Health Questionnaire: translation, cultural adaptation and validation of the Italian version (MSK-HQ-I)

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SUMMARY

Background: Skeletal muscle disorder refers to a pathological condition and/or pathology, (e.g. osteoarthritis, inflammatory disorders, and muscular, articular or bone disorders) that involve all the skeletal muscle districts of the body. Musculoskeletal pain (MSD or MSK) is the biggest cause of disability.

Objective: The purpose of this study was to translate, culturally adapt and validate an Italian version of the Musculoskeletal Health Questionnaire (MSK-HQ-I) by administering the questionnaire to a sample of 250 individuals with musculoskeletal disorders through a cross-sectional study.

Methods: Participants enrolled in this study were those aged 18 and older with pathological diagnoses reporting skeletal muscle disorders. International guidelines were used to translate and culturally adapt the MSK-HQ-I tool. Internal consistency and test-retest reliability of the scale have been evaluated using Cronbach's alpha and Intraclass Correlation Coefficient (ICC), respectively. To assess concurrent and construct validity, the 12-Item Short Form Survey (SF-12), the EuroQol five-dimension (EQ-5D-3L), the Visual Analog Scale (VAS) and the MSK-HQ-I were administered together. The Pearson's correlation coefficient was also calculated.

Results: All the MSK-HQ-I items were identical or similar to the original English version of the MSK-HQ developed in the United Kingdom. The mean MSK-HQ-I score in this study was 37.39 ± 9.35 . Cronbach's α was 0.871 ($p < 0.01$) and ICC was 0.963 ($p < 0.01$). The correlation with the SF-12 mental score was 0.319 ($p < 0.01$) and with the SF-12 physical score was 0.703 ($p < 0.01$). The correlation with the EQ-5D-3L score was 0.674. The correlation with the EQ-5D-3L VAS score was 0.537. Finally, the correlation with the Visual Analog Scale (VAS) was -0.656 ($p < 0.01$).

Conclusions: The MSK-HQ-I has shown consistent results for reliability and validity. The scale will be useful for medical doctors, researchers and physiotherapists to evaluate and control musculoskeletal disorders among the Italian population.

KEY WORDS

Validation studies; musculoskeletal disorders; reliability; validity

INTRODUCTION

Musculoskeletal Disorders (MSD or MSK) refers to injuries and disturbances impacting the human body's movement and/or musculoskeletal system (i.e. muscles, tendons, ligaments, nerves, discs, blood vessels, etc.) (1) Skeletal muscle disorder refers to a pathological condition and/or pathology (i.e. osteoarthritis, inflammatory disorders, and muscular, articular or bone disorders) that involves all the skeletal

muscle districts of the body. Finding preventative measures to minimize the impact of these disorders on an individual's quality of life can be very challenging (2).

Globally, the occurrence of MSK is 1.30% and peaks with individuals aged 50-69 (3.24%). The percentage value for the prevalence of MSK is 17.78%, showing a trend proportional to age. Relevant cases of MSK in children aged 0 to 5 years were not considered, in this study. Percentages of

relevant cases of MSK in those aged between 5 to 70+ were as follows: between 5 and 14 years (1.36%); between 15 and 49 years (16.42%); between 50 and 69 years (36.06%); and, aged 70 and older (44.07%). The most interesting data emerged from analysing the population by age related to the numbers of years spent with a disability (YLDs). Our findings showed MSK to be the third leading cause of disability in the world male population and first in the female population (3).

In Italy, the incidence of MSK is 2.30% and peaks with individuals aged 50-69 (3.81%). Similar to the global prevalence of MSK, the percentage value of MSK in Italy is 17.78%. Again, relevant cases of MSK in children aged 0 to 5 were not considered. Percentages of relevant cases of MSK in individuals aged between 5 to 70+ were as follows: between 5 and 14 years (1.72%); between 15 and 49 years (23.53%); between 50 and 69 years (40.37%); and, aged 70 and older (47.13%). Once again, the most interesting data emerged from analysing the population by age related to the YLDs. While skeletal muscle disorders were the third leading cause of disability in the global male population, in Italy these disorders were the leading cause in both the male and female populations (3).

In Italy, MSK problems affect 22% of the population who experience long-term muscle, bone and joint problems, such as rheumatism and arthritis. The prevalence of self-reported musculoskeletal diseases with a previous diagnosis by a physician was 40.8% for men and 48.0% for women. (4) Editors of *A Report of the Task Force on Epidemiology of the International Association for the Study of Pain* observed that most adult individuals had one or more fast episodes of musculoskeletal pain associated with trauma or overcharge (2). Frequent or chronic musculoskeletal problems were also usually observed. The editors further noted that the prevalence of one or another can change in different studies depending on the various measure systems employed (4).

The percentage values mentioned above are useful for estimating the overall impact of musculoskeletal pain, even if symptoms are greatly influenced by factors of age and gender⁵. Less common was the risk of disability among the primary care population where the frequency of disability was 37% versus 22% in the musculoskeletal population.

Data collected from an epidemiological study of the working population in the United States reported that 7.2% of workers had lost two or more hours of work in the previous week because of back pain, arthritis, or other musculoskeletal conditions (including elapsed time at work without working because of pain). The average work time lost was between five to five-and-a-half hours per week. The estimated annual cost of production time lost because of back

pain, arthritis and other musculoskeletal pain was approximately \$41.7 billion in 2002 (5).

An annual survey, *Aspects of Daily Life*, published by the National Institute of Statistics (Istat, 2013), showed that the Italian population suffered from arthritis (16.4%) and osteoporosis (7.4%), resulting in the most widespread chronic disease in Italy. These diseases increase with age and are varied by gender. Reports of Italians aged 75 and older showed that 68.2% of women and 48.7% of men suffered from osteoarthritis and/or arthritis, while osteoporosis was reported by 49% of women and 11.1% of men (6).

A Patient-Reported Outcome (PRO) is a health outcome reported directly reported by the patient, unlike other outcomes reported by health professionals (e.g. physician-reported outcome or nurse-reported outcome) (7). PRO methods, such as questionnaires, are used in clinical trials or other clinical settings to enhance understanding of efficiency and effectiveness of treatments (8). There are some scales used worldwide in order to measure and evaluate MSDs. These scales include: the EuroQol five-dimension (EQ-5D-3L, EQ-5D-5L) (9); Oxford Hip Scores; Oxford Knee Scores; Oxford Shoulder Scores (10–12); the Keele MSK-PROM; the 12-Item Short Form Survey (SF-12) (13); and, the Visual Analog Scale Pain (VAS) for pain (9–13). The Musculoskeletal Health Questionnaire (MSK-HQ), developed in the United Kingdom, is a patient-reported outcome created to evaluate outcomes in individuals with different musculoskeletal disturbances, rigidity and pain (14). MSK-HQ presents 14 items used to measure people with MSK health conditions over a duration of two weeks, from the initial clinical visit to the follow-up visit (14).

The purpose of this project was to translate and culturally adapt the Musculoskeletal Health Questionnaire (MSK-HQ) into Italian (MSK-HQ-I) and analyse its psychometric properties among the Italian population.

METHODS

This study was conducted by a research group composed of medical doctors and rehabilitation professionals from Sapienza University of Rome, Tor Vergata University of Rome, and from the Rehabilitation & Outcome Measure Assessment (R.O.M.A.) association. In the last few years, R.O.M.A. association has dealt with the validation of many outcome measures in Italy (15–26)

We received permission from Oxford Innovation, one of the developers of the original MSK-HQ, to use the English MSK-HQ scale in order to validate it in Italian (27). Following the guidelines of the *Translation and Cultural Adaptation of Patient Reported Outcomes Measures – Principles of*

Good Practice, the original MSK-HQ was translated from English to Italian (28).

Translation and cultural adaptation

First, the original English version of the MSK-HQ (14) was translated into Italian by an English-speaking Italian physiotherapist and two native-English speaking students. The results were then synthesized by an independent native-English speaking student who had not been involved in the previous translation. Next, three Italian translators translated the questionnaire back into English without having seen the original version. Finally, the original English version and the re-translated English version were compared to adapt the Italian translation for Italian culture. A focus group composed of two physiotherapists and a proof reader, all familiar with both English and Italian, checked the final translation and corrected any remaining spelling, diacritical, grammatical or other errors. They reworded and reformulated some items to reduce any differences from the original English version.

Participants

According to previous validations of the MSK-HQ (14), this study included outpatients aged 18 or older affected by referring musculoskeletal diseases. All participants were informed about the study and gave consent in advance of participation (29,30).

Participants who met the study inclusion criteria were scheduled for two testing sessions following the Consensus-Based Standards for the Selection of Health Status Measurement Instruments (COSMIN) checklist (31). Reliability and validity of the culturally adapted scale was also assessed.

Instruments

EQ-5D is a standardised health status test developed by the EuroQol Group to provide a simple, generic measure of health for clinical and economic appraisal (32). EQ-5D provides a simple descriptive profile and a single index value for health status that can be used in the clinical and economic evaluation of health care. It is applicable to a wide range of conditions, treatments and surveys. The 5 dimensions of the EQ-5D are: mobility, self-care, habitual activities, pain/discomfort, and anxiety/depression. Each dimension has 3 levels: No problem, some problems, and serious problems (32). The EQ VAS records the health status of the interviewees on an analogue scale whose extremes correspond to a better or worse state of health, this information can be used as a measure of health outcomes as perceived by individual interviewees.

SF-12 is a generic measure with no specific target for age or disease. SF-12 was developed to provide a shorter, more effective alternative to SF-36 that would maintain reasonable validity in light of the limitations of SF-36 being too long to be used in studies with large samples (33). SF-12 contains twelve questions; the answers generate composite physical and mental health scores (PCS and MCS, respectively) from 0 to 100, where a score of 0 indicates the lowest level of health and 100 indicates the highest level of health. Answers to the twelve questions are weighed and summarized to provide easily interpreted data on two scales (physical health and mental health) for an overall quality of life evaluation.

Pain VAS is a one-dimensional measurement of pain intensity, widely used in various adult populations, including those with rheumatic diseases. Pain VAS is a continuous scale, represented on a horizontal (HVAS) or vertical (VVAS) line, usually 10 centimetres (100 mm) in length, supported by verbal descriptors, one for each extreme symptom (34).

Statistical analyses

The MSK-HQ-I was administered by two physiotherapists. The internal consistency of the MSK-HQ-I was examined using Cronbach's alpha which should be at least 0.7 as an indicator of the satisfactory homogeneity of the items within the total scale (33) The MSK-HQ-I was administered by the same professionals twice in one week to a representative random group of the population.

To measure the test-retest reliability, the Intraclass Correlation Coefficient (ICC) was calculated and the scale was considered stable with an ICC of > 0.70.

Construct and concurrent validity have been evaluated using Pearson's correlation analysis to determine the association between the MSK-HQ-I and the Italian version of the EQ-5D-3L (9), the SF-12 (13) and to evaluate the pain using VAS.

The significance level has been set for p-value less than or equal to 0.05. All statistical analyses were performed using version 23.00 of IBM – SPSS software.

RESULTS

Translation and cultural adaptation

The translated scale was developed and all the new results were similar or equal to the original version. However, some of the examples used to describe free time activities required adaptation to the Italian culture to improve comprehensibility and applicability.

Some expressions, idioms and speech not common to Italians were considered immaterial for the Italian survey.

Therefore, some parts were deleted or modified to get the scale in Italian, as explained in the introduction and as reported in items, 1, 2 and 8 in Appendix 1. Consult the following link:

[https://process.innovation.ox.ac.uk/clinical/p/arthritis-research-uk-musculoskeletal-health-questionnaire-\(msk-hq\)/questionnaire/1](https://process.innovation.ox.ac.uk/clinical/p/arthritis-research-uk-musculoskeletal-health-questionnaire-(msk-hq)/questionnaire/1) (35)

Participants

In June 2018, three hundred ambulatory patients were recruited for the survey by primary care doctors in Rome. The questionnaires were administered in the three different locations: the orthopaedic and physiatric clinic of the Sapienza University of Rome; the orthopaedics ambulatory of Tor Vergata Polyclinic; and, the rehabilitation centre S. Maria Della Pace-Fondazione Don Carlo Gnocchi ONLUS. Two hundred and fifty people met the inclusion criteria and were enrolled in the study (mean age \pm standard deviation (SD) = 40.64 \pm 16.71). Fifty individuals were excluded based on either low compliance in completing the questionnaire or not having a correct pathological diagnosis. The MSK-HQ-I was administered beginning in June 1, 2018. The demographic characteristics of the participants are identified in **Table I**, and the mean \pm SD of the MSK-HQ-I are identified in **Table II**.

Reliability

The MSK-HQ-I has a good degree of internal consistency, with a Cronbach's α of 0.871 ($p < 0.01$) **Table III**. A randomized subgroup of the population ($n = 57$) was involved in the test-rest reliability procedures. Regarding test-retest reliability the MSK-HQ-I was reliable with an ICC of 0.955 ($p < 0.01$) and 1 ($p < 0.01$) in each domain, as reported in **Table IV** and **Table V**.

Validity

The Italian version of the SF-12 (PCS), SF-12 (MCS), EQ-5D-3L, and Pain VAS was also administered to the population. The Pearson's correlation coefficient of each scale is reported in Table 6. The Pearson's correlation coefficient indicates that the MSK-HQ-I has good validity.

DISCUSSION

The MSK-HQ-I is now translated and adapted to the Italian culture. The survey takes about ten minutes to complete and has an easily understood method for scoring and reading results (14). The MSK-HQ-I is suit-

Table I - Descriptive characteristics of the sample

	Sample 250
Average age (DS)	40.64 (16.71)
Gender male (%)	125 (50)
Place of injury *	
Upper Limbs n (%)	73 (29.2)
Trunk n (%)	166 (66.4)
Lower limbs n (%)	96 (38.4)
Head n (%)	19 (7.6)
Profession n (%)	
Students	48 (19.2)
Health professional	21 (8.4)
Sedentary worker (employee)	60 (24)
Non-sedentary worker (manual and active activities)	60 (24)
Retired	18 (7.2)
Housewife	12 (4.8)
Freelancer	19 (7.6)
Unemployed	10 (4)

*a patient can have multiple injuries places.

Tabella II - Scores of MSK-HQ-I

	Min.	Max.	Mean	Std. Deviation
item 1	0	4	2,11	,975
item2	0	4	2,74	1,151
item 3	0	4	2,86	1,109
item 4	0	4	3,27	,988
item 5	0	4	2,40	1,138
item 6	0	4	2,55	1,097
item 7	0	4	2,85	1,049
item 8	0	4	3,37	1,034
item 9	0	4	2,83	1,222
item 10	0	4	2,53	1,069
item 11	0	4	2,75	1,012
item 12	0	4	2,54	1,209
item 13	0	4	2,46	1,144
item 14	0	4	2,14	1,058
Giorni attività fisica	0	7	2,38	2,122
TOTAL MSK-HQ-IT	6	56	37,39	9,359

Table III- Alpha Cronbach if item is deleted

	Medium scale if the item is deleted	Scale variance if the item is deleted	Correct item-total correlation	Quadratic multiple correlation	Cronbach Alpha if the item is deleted
item 1	35,29	75,443	0,659	0,532	0,857
item2	34,66	75,029	0,562	0,508	0,861
item 3	34,54	75,326	0,572	0,425	0,861
item 4	34,13	76,131	0,606	0,431	0,860
item 5	35,00	76,679	0,481	0,383	0,866
item 6	34,85	73,985	0,655	0,589	0,856
item 7	34,55	74,168	0,680	0,578	0,855
item 8	34,03	75,867	0,589	0,483	0,860
item 9	34,57	73,218	0,615	0,539	0,858
item 10	34,87	75,558	0,585	0,395	0,860
item 11	34,65	77,256	0,521	0,368	0,863
item 12	34,86	85,186	0,041	0,407	0,890
item 13	34,94	80,643	0,273	0,439	0,877
item 14	35,26	72,914	0,748	0,636	0,852

Tabella IV - Inter reliability analysis

	Test mean±SD	Re-Test mean±SD	ICC	IC 95% Lower- Upper Bound	Sig
item 1	1,96±0,778	1,95±0,811	,958 ^a	,929 ,975	0,001
item2	2,89±1,113	2,93±1,083	,986 ^a	,976 ,992	0,001
item 3	2,88±1,226	2,89±1,205	,982 ^a	,970 ,989	0,001
item 4	3,23±1,086	3,25±1,057	,992 ^a	,987 ,995	0,001
item 5	2,30±1,149	2,33±1,107	,986 ^a	,977 ,992	0,001
item 6	2,42±1,209	2,44±1,195	,994 ^a	,990 ,996	0,001
item 7	2,75±1,106	2,75±1,106	1,000 ^a	1,000 1,000	
item 8	3,30±1,101	3,30±1,068	,985 ^a	,974 ,991	0,001
item 9	2,81±1,231	2,81±1,231	,976 ^a	,960 ,986	0,001
item 10	2,75±0,912	2,75±0,872	,955 ^a	,925 ,973	0,000
item 11	2,58±0,905	2,60±0,923	,968 ^a	,947 ,981	0,000
item 12	3,00±1,150	2,98±1,157	,980 ^a	,966 ,988	0,000
item 13	2,91±1,199	2,89±1,191	,994 ^a	,990 ,996	0,000
item 14	2,00±0,886	2,00±0,886	,977 ^a	,962 ,987	0,001
tot MSK-HQ-IT	37,79±8,635	37,88±8,534	,989 ^a	,982 ,994	0,001

able for health studies and physical activity surveys for the majority of Italian population. The results of this study prove the MSK-HQ-I is a reliable and valid tool for assessing the MSK Italian population.

During the administration of the scale, some relevant details about the psychometric characteristics and statistics were observed. For example, osteoarthritis was common in people over 60 and much less common among young indi-

Tabella V - Intra reliability analysis

	Test mean±SD	Re-Test mean±SD	ICC	IC 95% Lower- Upper Bound		Sig
item 1	1,96±0,778	1,98±0,790	,986 ^a	,976	,992	0,000
item2	2,89±1,113	2,86±1,093	,986 ^a	,976	,992	0,000
item 3	2,88±1,226	2,84±1,207	,988 ^a	,980	,993	0,000
item 4	3,23±1,086	3,19±1,076	,985 ^a	,975	,991	0,000
item 5	2,30±1,149	2,35±1,094	,966 ^a	,942	,980	0,000
item 6	2,42±1,209	2,42±1,209	1,000 ^a	1,000	1,000	
item 7	2,75±1,106	2,74±1,094	,993 ^a	,988	,996	0,000
item 8	3,30±1,101	3,26±1,094	,986 ^a	,976	,992	0,000
item 9	2,81±1,231	2,81±1,231	1,000 ^a	1,000	1,000	
item 10	2,75±0,912	2,75±0,912	1,000 ^a	1,000	1,000	
item 11	2,58±0,905	2,58±0,905	1,000 ^a	1,000	1,000	
item 12	3,00±1,150	2,98±1,126	,979 ^a	,965	,988	0,000
item 13	2,91±1,199	2,91±1,199	1,000 ^a	1,000	1,000	
item 14	2,00±0,886	1,98±0,896	,989 ^a	,981	,993	0,000
tot MSK-HQ-IT	37,79±8,635	37,67±8,536	,998 ^a	,996	,999	0,000

Tabella VI - Costruct validity

	EQ VAS	EQ TOT	VAS	SF-12 PCS	SF-12 MCS
MSK-HQ-IT	0.537**	0.674**	-0.675**	0.703**	0.319**

**p<0.01

viduals, as was expected. However, some chronic musculoskeletal painful conditions, such as pain from temporomandibular joint disorders, decreased after 45 years of age.

Considering these differences in case definitions, it appears that the prevalence of definite musculoskeletal pain is slightly present (2% or less for fibromyalgia, rheumatoid arthritis and epicondylitis), while back pain is extremely common (affecting 30-40% of adults at all ages). As well, our study revealed that 37% of the population experienced pain symptoms connected with the spine. Furthermore, we detected the general population to experience certain conditions at the following rates: arthrosis (15%), tendinitis (9%), osteoporosis (6%), and diabetes (4%). These conditions represent an important risk factor for developing MSK.

Other symptoms affecting the population included knee pain, which was experienced by 10-15% of the population, and neck and shoulder or temporomandibular joint pain

and widespread chronic pain, experienced by 15-20% of the population. Cervical, shoulder, knee and back ache is about one and a half times more common in women than men (7).

In addition to gender and age, other factors may significantly increase the individual risk of developing constant musculoskeletal pain. For example, degenerative diseases (rheumatoid arthritis and osteoarthritis) increase the risk of pain in the joints; however, not all osteoarthritis is painful. Psychological factors, like depression, also affect the response. As well, behavioural problems in adolescents are often related to the risk of pain attack. Some results even suggest that there are some genetic characteristics that could increase the risk of an attack, even for musculoskeletal pain disorders. On a daily basis, people with musculoskeletal disease have problems performing daily life activities and can experience much fatigue because, over time, the effects of MSK escalate and become comparable to a real disability.

While our findings show various pains and disturbances, we found only a few inflammatory diseases and arthritis. As well, we found only a few minor disturbances at articulations, like wrists and ankles. Interestingly, our research also revealed that, out of the total of 250 participants, 40% of the group experienced only MSK problems with no other comorbidity. This important finding provides

evidence that, in a population of people suffering from pain, as many as 40% do not suffer from other pathology, thereby isolating the cause of disability to the musculoskeletal symptoms.

In addition to the costs of reduced productivity among working people who experience painful musculoskeletal problems, there is also the consideration as to the cost for benefits to those who cannot work due to muscle pain.

Finally, we can realize some results reported by the participants are suitable to evaluate the effects of these disorders. There are several Measures for different MSK (14) condition, because solving problems about individual's health and well-being isn't easy notably for multi pain district associated.

Comparison with other studies

It appears that the MSK-HQ-I has strong measurement properties that are reliable and valid for both research and practice fields (14).

While the overall mean MSK-HQ scores in previous studies were 28.62 (9.61) from a possible range of 0–56 (14), the mean MSK-HQ-I score in this study was 37.39 (9.36). As in other studies, the MSK-HQ-I scores were not significantly different between men and women.

In the original MSK-HQ validation study, the author of the research calculated Cronbach's alpha (0.88). The value for Cronbach's alpha in the current study is slightly lower (0.871), which could be due to the rigorous cultural adaptation process that was involved in translating the examples used to describe leisure activities.

As in other studies, we included the SF-12, EQ-5D-3L, Pain VAS, to determine the association between scores. The correlation between scales was discussed in the original MSK-HQ article (12) and subsequent papers.

Limitations of the study

There are some limitations in our exclusion of neo surgery patients and individuals under the age of 18. In our opinion, expanding the study to include a wider population of all people with various health and living conditions would increase our database and could improve results.

We agree with the authors of the MSK-HQ-I that the MSK-HQ also contains potential limitations. The current study only compared the Italian version of the SF-12, EQ-5D-3L (13,17), and Pain VAS to studies about aches pains and stiffness in daily life activities. Therefore, other objective measures should be considered to provide more precise estimates of physical activity and reduce errors related to these issues.

CONCLUSIONS

In conclusion, the MSK-HQ-I is a valid and reliable tool for the evaluation and measurement of musculoskeletal health levels in the Italian population. The present study can guide Italian physiotherapists and other health and rehabilitation professionals. This scale may also be useful to clinicians and researchers who have been charged with evaluating and managing the physical activities of the Italian adult population.

APPENDIX 1

INTRODUCTION

Il seguente questionario è riferito ai sintomi delle articolazioni, dei muscoli, della schiena e del collo, come indolenzimento, dolori e/o rigidità.

Cortesemente si prega di prestare particolare attenzione ai problemi di salute per i quali si è cercato un trattamento attraverso questo servizio.

1. Dolore/rigidità durante il giorno. Quanto sono stati intensi i suoi soliti dolori muscolari e/o di rigidità durante il giorno, nelle ultime 2 settimane?

2. Dolore/rigidità durante la notte. Quanto sono stati intensi i suoi soliti dolori muscolari e/o di rigidità durante la notte, nelle ultime 2 settimane?

8. Bisogno di aiuto. Quanto spesso ha avuto bisogno dell'aiuto degli altri (inclusi familiari, amici o assistenti) a causa dei suoi sintomi muscolari e/o articolari nelle ultime 2 settimane?

INTRODUCTION

Il seguente questionario valuta la sintomatologia (indolenzimento, dolori e/o rigidità) delle articolazioni e dei muscoli.

Si prega di rispondere alle domande prestando particolare attenzione a quali sono i problemi di salute correlati ai disturbi muscolo scheletrici da voi riferiti.

1. Dolore/rigidità durante il giorno. Nelle ultime 2 settimane, quanto sono intensi i sintomi (dolore e/o rigidità) durante il giorno?

2. Dolore/rigidità durante la notte. Nelle ultime 2 settimane, quanto sono intensi i sintomi (dolore e/o di rigidità) durante la notte?

8. Bisogno di aiuto. Nelle ultime 2 settimane, quanto spesso ha avuto bisogno dell'aiuto degli altri (inclusi familiari, amici o assistenti) a causa dei suoi sintomi (dolore e/o rigidità)?

Conflict of Interest

The Authors declare that they have no conflict of interest (39).

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