

VALIDITY AND RELIABILITY TEST OF THE NORDIC MUSCULOSKELETAL QUESTIONNAIRE WITH FORMAL AND INFORMAL SECTOR WORKERS

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ABSTRACT

Background: Musculoskeletal Disorders are one of the most common reasons patients seek medical care. Musculoskeletal diseases are still the main source of disability and lost working time. Understanding the reasons, especially work-related reasons, is still the key to primary prevention. Nordic Musculoskeletal Questionnaire (NMQ) can serve as an inexpensive instrument for the identification and assessment of musculoskeletal risks in workers. This study aimed to determine validity and reliability test of the Nordic Musculoskeletal questionnaire with formal and informal sector workers.

Subjects and Method: This was a cross-sectional study. The subject of 2 groups of workers, namely formal and informal workers. The data were collected by in-depth interview and questionnaire. The stages of this study were: (1) the construct validity test was carried out by comparing the results of filling in the self-administered NMQ with the results of the interviews (2) the criteria validity test was carried out by comparing the effects of filling out the questionnaire with a physical examination. (3) The test and retest reliability test was done by calculating the correlation coefficient between the first and second filling which is seven days apart.

Results: The results of the construct validity test showed a similarity (100%) between the self-administered NMQ and the interview results and the specificity value was obtained in the lower back, neck and shoulder region above (85%) with a specificity value reaching (100%). Reliability test results obtained Cronbach's Alpha value above (0.945) which means that the reliability is excellent. The Indonesian version of the NMQ questionnaire was declared valid and reliable for use on workers in Indonesia.

Conclusion: The instrument that was invented can clarify workers who have real pain in the lower back, neck and shoulders.

Keywords: cross cultural adaptation, musculoskeletal disorders, nordic musculoskeletal questionnaire, validity and reliability

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BACKGROUND

Musculoskeletal Disorders (MSDs) has been known as a hazard in work and have a significant role in causing injury. MSDs in workers cause decreased productivity and job satisfaction (Kahraman T, Genc A, and Goz E, 2016). MSDs account for 42-58% of all work-related diseases globally and 40% of all work-related health costs. The cost of losses incurred by MSDs is estimated to

reach an average of 14,726 dollars or about 150 million rupiahs per year. Data from the UK Labor Force Survey (LFS) shows that the incidence of MSDs among workers reached 1,144,000 cases with details of 493,000 cases of complaints on the back, 426,000 cases of complaints in the upper limbs or neck, and 224,000 cases of complaints in the lower limbs. Another study in America revealed data that there

are about six million incidents of MSDs per year, with an average of 300-400 cases per 100,000 workers (Sekaaram VA and Luh S, 2017).

The prevalence of MSDs in Indonesia based on being diagnosed by health workers was 11.9%, and based on symptoms or diagnosis, it was 24.7%. Meanwhile, farmers, fishers, and labourers are the workers who suffer the most from MSDs, with a prevalence of 31.2%. According to the results of a study by the Indonesian Ministry of Health (2018) found in Riskesdas 2018, the prevalence of musculoskeletal disorders, which disrupt daily activities in Indonesia, reached 9.2% and in DKI Jakarta, it was 10.1% (Purba N, Kalsum and Mahyuni E, 2015).

It is necessary to have an easy and inexpensive assessment instrument to identify complaints of MSDs among workers. The requirement for a good assessment instrument is that it has been standardized. If there is no standardization in the process, it is challenging to compare results from different studies. These considerations prompted The Nordic Group to develop a standardized questionnaire for the analysis of complaints in musculoskeletal.⁽⁵⁾ *Nordic Musculoskeletal Questionnaire* is a freely usable public instrument developed by a Nordic Council of Ministers project. This questionnaire can be used to assess musculoskeletal disorders of different parts of the body in epidemiological studies. This questionnaire consists of structured questions that can be used as an interview questionnaire or be filled in by the respondents themselves (Kahraman T, Genc A, and Goz E, 2016). There are two parts to the questionnaire: a questionnaire with a general problem assessment that aims to survey in general and a specific section with an assessment that focuses on the lower back area and a neck/shoulders that aim for a more in-depth survey. *The*

Nordic Musculoskeletal Questionnaire can be used as (1) an assessment instrument for screening MSDs in an ergonomic context and (2) health care for workers (Kuorinka I et al., 1987).

Validity and reliability are two important components in the assessment of various measurement instruments. The validity value concerns what the measurement instrument assesses / measures. In contrast, the reliability value concerns the confidence in the measurement results obtained by the measurement instrument. The questionnaire before use is needed to get accurate results (TestingMohajan HK, 2017). There are two main points of a good questionnaire, namely valid and reliable. Useful means that the questionnaire used can measure exactly what you want to measure, while being faithful means that the questionnaire can provide consistent results (Brace I, 2018).

Nordic Musculoskeletal Questionnaire is a questionnaire used to find out whether someone has problems with their locomotion. The NMQ validity test has been conducted in several countries, France with good results, but in Indonesia, no one has ever validated the NMQ. The standard Indonesian version of the questionnaire that is ready for use could not be found previously. This study aimed to determine validity and reliability test of the Nordic Musculoskeletal questionnaire with formal and informal sector workers. It is hoped that the NMQ can be widely used to assess the disruption of MSDs in various groups of workers in the formal and informal sectors.

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study. The subject of 2 groups of workers, namely formal and informal workers.

2. Population and Sample

The sample in the formal sector's validity test research was 80 administrative workers using computers with a high level of education (workers with a minimum education of D3 to Bachelor degree). In the informal sector with a low to medium level of education (workers with an education equivalent to SD to SMA), a study was carried out on 204 garment workers and 108 batik workers who worked in the Giriloyo Batik Wisata Village, Bantul Regency, DIY Province who met the research criteria.

3. Study Stages

The stages of this study were: (1) the construct validity test was carried out by comparing the results of filling in the self-administered NMQ with the results of the interviews (2) the criteria validity test was carried out by comparing the effects of filling out the questionnaire with a physical examination. (3) The test and retest reliability test was done by calculating the correlation coefficient between the first and second filling seven days apart.

4. Study Instruments

Research data collection in the form of primary data. The primary data used were taken through the Nordic Musculoskeletal Questionnaire Indonesian version of (NMQ)/ the Nordic Survey Indonesian Questionnaire.

It has received IPR with recording number 000144406 to assess the musculoskeletal system's complaints that are at risk of occurring in groups of workers. The researcher will compare the results and carry out analysis statistics to describe the results obtained.

RESULTS

A. Validity and Reliability of the NMQ / Nordic Survey Indonesia on Formal Sector Workers

Table 1. The Conformity of the Answers of Self-Administered NMQ Respondents with the Results of the Doctor's Interview

Respondent Answer	NMQ Self-Administered	NMQ Doctors' Interviews
Yes	21 (26.3%)	21 (26.3%)
No	59 (73.7%)	59 (73.7%)
Total	80 (100%)	80 (100%)

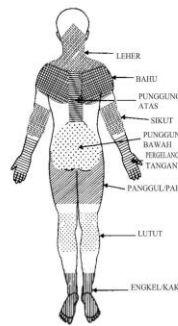
DISCUSSION

A. Research Results on the Validity and Reliability of the NMQ / Nordic Survey Indonesia on Formal Sector Workers

Chairani (2013) as the first party translating NMQ by involving a sworn translator and then analyzing to calculate the validity value of NMQ where the construct validity and NMQ criteria are assessed by comparing the NMQ filling with physical examination which is the gold standard for diagnosing MSDs complaints in administrative workers who use Visual Display Terminal (VDT) while working. Based on the results of the study, it was found that the answer match between the self-administered NMQ and the NMQ results from the doctor's interview reached 100%.

Questionnaire		Interview + Physical Examination		
		Disorders	Not Disorders	Total
		Musculoskeletal	Musculoskeletal	
NMQ Self-Administered	Positive	21/12/17	0/0/0	21/12/17
	Negative	2/2/2	57/66/61	59/68/63
	Total	23/14/19	57/66/61	80/80/80

Cara menjawab kuesioner:
Jawablah dengan memberi tanda
kotak yang tepat — satu silang
pertanyaan. Anda mungkin ragu
cara menjawab, namun mohon up-
samping Anda. Jawablah setiap
walaupun
Anda tidak pernah menghadapi m-
bagian tubuh mana pun.



Pada gambar, Anda dapat melihat posisi kira-kira bagian tubuh yang disebutkan di dalam kuesioner ini. Batas-batasnya tidak tegas, dan bagian-bagian tertentu bertumpang tindih. Anda harus memutuskan sendiri bagian tubuh yang Anda rasakan pernah atau kini bermasalah (jika ada).

<p>Permalink Anda di dalam 12 bulan terakhir menghadapi masalah kesehatan yang serius? (ya, tidak, cukup, mati rasa?)</p>	<p>Permalink Anda menghadapi masalah kesehatan "hati terseka"?</p>	<p>Selama 12 bulan terakhir, permalink Anda pernah mengalami masalah kesehatan yang abnormal (misalnya: kerja terlalu keras, terlalu banyak bekerja, masalah sex)?</p>
<p>1. Leher</p> <p>Tidak Ya 1 2</p>	<p>2. Leher</p> <p>Tidak Ya 1 2</p>	<p>3. Leher</p> <p>Tidak Ya 1 2</p>
<p>4. Bahu</p> <p>Tidak Ya 1 2</p> <p>3 D 4 D bahu kanan 3 D 4 D bahu kiri 4 D 4 D kedua bahu</p>	<p>5. Bahu</p> <p>Tidak Ya 1 2</p> <p>3 D 4 D bahu kanan 3 D 4 D bahu kiri 4 D 4 D kedua bahu</p>	<p>6. Bahu (kedua-dua)</p> <p>Tidak Ya 1 2</p>
<p>7. Sikut</p> <p>Tidak Ya 1 2</p> <p>3 D 4 D sikut kanan 3 D 4 D sikut kiri 4 D 4 D kedua sikut</p>	<p>8. Sikut</p> <p>Tidak Ya 1 2</p>	<p>9. Sikut</p> <p>Tidak Ya 1 2</p>
<p>10. Pergelangan/tangan</p> <p>Tidak Ya 1 2</p> <p>3 D 4 D pergelangan/ tangan kanan 3 D 4 D pergelangan/ tangan kiri 4 D 4 D kedua pergelangan/ tangan</p>	<p>11. Pergelangan/tangan</p> <p>Tidak Ya 1 2</p> <p>3 D 4 D pergelangan/ tangan kanan 3 D 4 D pergelangan/ tangan kiri 4 D 4 D kedua pergelangan/ tangan</p>	<p>12. Pergelangan/tangan</p> <p>Tidak Ya 1 2</p> <p>3 D 4 D pergelangan/ tangan kanan 3 D 4 D pergelangan/ tangan kiri 4 D 4 D kedua pergelangan/ tangan</p>
<p>13. Pinggang atas</p> <p>Tidak Ya 1 2</p>	<p>14. Pinggang atas</p> <p>Tidak Ya 1 2</p>	<p>15. Pinggang atas</p> <p>Tidak Ya 1 2</p>
<p>16. Pinggang bawah</p> <p>Tidak Ya 1 2</p>	<p>17. Pinggang bawah</p> <p>Tidak Ya 1 2</p>	<p>18. Pinggang bawah</p> <p>Tidak Ya 1 2</p>
<p>19. Rungtu atau kedua pergelangan/puntur</p> <p>Tidak Ya 1 2</p>	<p>20. Panggul/paha/puntur</p> <p>Tidak Ya 1 2</p>	<p>21. Panggul/paha/puntur</p> <p>Tidak Ya 1 2</p>
<p>22. Selak atau satu kedua lutut</p> <p>Tidak Ya 1 2</p>	<p>23. Lutut</p> <p>Tidak Ya 1 2</p>	<p>24. Lutut</p> <p>Tidak Ya 1 2</p>
<p>25. Selak atau satu kedua engkel kaki</p> <p>Tidak Ya 1 2</p>	<p>26. Engkel kaki</p> <p>Tidak Ya 1 2</p>	<p>27. Engkel kaki</p> <p>Tidak Ya 1 2</p>

Cara menjawab kuesioner: Pada gambar, Anda dapat melihat posisi kira-kira bagian tubuh yang disebutkan di dalam kuesioner ini. Masalah punggung bawah adalah sakit, nyeri, atau rasa tidak enak di daerah betis, baik menjalar dari daerah itu ke salah satu atau kedua paha (sialia, sciatica) maupun tidak. Jawablah dengan memberi tanda silang di kotak yang tepat — satu silang untuk setiap pertanyaan. Anda mungkin ragu mengenai cara menjawab, namun mohon upayakan semampai Anda.

<p>5. Pernakaluk Anda mengahului masalah panggang hawthorn (apple), seperti, atau maia maia ora? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>Jika Anda menjawab "Tidak" atau Pertanyaan 1, jawaban: jawab Pertanyaan 2-B.</p>	<p>5. Pernakaluk ranaulug panggang hawthorn (apple) maia maia? Anda mengahului ahia maia selama 12 bulan terakhir? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>6. Ahia maia kura (di ranaulug maia di kura ranaulug) <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>7. Ahia maia beranang ranaulug <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p>
<p>2. Pernakaluk panggang hawthorn (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>3. Pernakaluk Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>4. Pernakaluk Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p>	<p>6. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>7. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>8. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p>
<p>3. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>4. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>5. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p>	<p>9. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>10. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>11. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p>
<p>Jika Anda menjawab "Ya" atau Pertanyaan 4, jawaban: jawab Pertanyaan 5-B</p>	<p>12. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>13. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p> <p>14. Pernakaluk ranaulug waktu (apple) Ahia maia beranang (apple) eodur (apple) maia kura? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak</p>

Masalah bahu adalah sakit, nyeri, atau rasa tidak enak di daerah beraris. Mohon pusatkan perhatian kepada daerah ini dengan mengabaikan setiap masalah yang mungkin Anda rasakan di bagian tubuh yang berdekatan. Ada kuesioner tersendiri untuk masalah leher.

Jawablah dengan memberi tanda silang di kotak yang tepat — satu silang untuk setiap pertanyaan. Anda mungkin ragu mengenai cara menjawab, namun mohon upayakan semampu Anda

<p>9. Pernakaluk Anda menghadihi masalah bahwa selama 7 bulan terakhir?</p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p> <p>Jika Anda menjawab "Tidak," apa Pertanyaan 10 jangan jawab Pertanyaan 10-17</p>	<p>14. Pernakaluk masalah bahwa memukuk Anda menghadihi aktivitas selama 12 bulan terakhir?</p> <p>Aktivitas kurang dari rumah atau di luar rumah? <input type="checkbox"/></p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p> <p>Aktivitas beresam-senang? <input type="checkbox"/></p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p>
<p>10. Pernakaluk bahwa Anda cedera dalam suatu lesak? <input type="checkbox"/></p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p>	<p>15. Berapa lamakuk waktu total Anda tertidur setiap malam secara normal (di rumah atau di luar rumah) alahat masalah bahwa selama 12 bulan terakhir?</p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p> <p>Di bawah 7 jam <input type="checkbox"/></p> <p>7-8 jam <input type="checkbox"/></p> <p>8-9 jam <input type="checkbox"/></p> <p>9-10 jam <input type="checkbox"/></p> <p>10-11 jam <input type="checkbox"/></p> <p>12 jam atau lebih <input type="checkbox"/></p>
<p>11. Pernakaluk Anda terpakuk berganti pekerjaan atau tugas karena masalah bahwa?</p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p>	<p>16. Pernakaluk Anda diperiksa oleh seorang dokter, ahli fisioterapi, ahli ergonomik/akutis, ahli syaraf atau masalah bahwa selama 12 bulan terakhir?</p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p>
<p>Jika Anda menjawab "Tidak," apa Pertanyaan 12 jangan jawab Pertanyaan 13-17</p>	<p>17. Pernakaluk Anda menghadihi masalah bahwa selama 7 bulan terakhir?</p> <p>Tidak <input type="checkbox"/> Ya <input type="checkbox"/></p> <p>Di bawah 1 jam <input type="checkbox"/></p> <p>1-2 jam <input type="checkbox"/></p> <p>2-3 jam <input type="checkbox"/></p> <p>3-4 jam <input type="checkbox"/></p> <p>4-5 jam <input type="checkbox"/></p> <p>5-6 jam <input type="checkbox"/></p> <p>6-7 jam <input type="checkbox"/></p> <p>7-8 jam <input type="checkbox"/></p> <p>8-9 jam <input type="checkbox"/></p> <p>9-10 jam <input type="checkbox"/></p> <p>10-11 jam <input type="checkbox"/></p> <p>12 jam atau lebih <input type="checkbox"/></p>

The 7th International Conference on Public Health
Solo, Indonesia, November 18-19, 2020 | 103
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It can be concluded that the respondents answered exactly the same when filling in the NMQ questionnaire by answering the results of interviews with doctors so that both methods can be used and do not make a difference. However, it is recommended that based on the calculation of the efficiency of time and energy, method self-administered is recommended.

This is useful because it can be done alone without the need for special assessment from experts. More appropriate for early detection musculoskeletal disorders are cheap and fast. Results for Lower Back: Sensitivity (Ss): $21/23 \times 100\% = 91\%$; Specificity (Sp): $21/21 \times 100\% = 100\%$; Positive Predictive Value (NPP): $21/21 \times 100\% = 100\%$; Negative Predictive Value (NPN): $57/59 \times 100\% = 100\%$. Obtained Result for Neck: Sensitivity (Ss): $12/14 \times 100\% = 86\%$; Specificity (Sp): $66/66 \times 100\% = 100\%$; Positive Predictive Value (NPP): $12/12 \times 100\% = 100\%$; Negative Predictive Value (NPN): $66/68 \times 100\% = 97\%$. Obtained Results for Shoulder: Sensitivity (Ss): $17/19 \times 100\% = 89.5\%$; Specificity (Sp): $61/61 \times 100\% = 100\%$; Positive Predictive Value (NPP): $17/17 \times 100\% = 100\%$; Negative Predictive Value (NPN): $61/63 \times 100\% = 97\%$.

Sensitivity is the proportion of sick subjects with positive test results compared to all sick subjects. In contrast, specificity is the proportion of non-sick subjects with a negative test result compared to all non-sick subjects. It was found that the NMQ sensitivity value reached $> 85\%$ in the assessment in all regions of the lower back, shoulders and neck, while for the average specificity value, it reached 100%. From the high sensitivity and specificity values the NMQ questionnaire was declared valid.

Research by Takekawa et al. (2015) revealed that research subjects identified with low back pain complaints using NMQ obtained a sensitivity value of 100% and a specificity of 88%. This study involved administrative employees at a university in

becoming research respondents. These results indicate a good point from NMQ, which is in line with Chairani's research (2013).

For the reliability test, Karnanda et al. (2016) conducted a study using the NMQ / Nordic Survey Indonesia Questionnaire for FK level III students to measure pain in a specific area, namely the lower back, and the results were able to detect 70 people (66%) of 108 respondents. , Then the research results of Putri et al. (2020) The Nordic Survey Indonesia questionnaire can see pain in specific areas of the lower back, neck and shoulders as many as 68 people (60.2%) of 113 FK students tested. The calculation of reliability must be carried out only on questions that have been validated, so the validation must be calculated first before calculating the reliability. A reliable instrument means an instrument that will produce the same data when used several times to measure the same object. In addition to meeting the requirements of validity and reliability, the instrument should meet practicality needs.

Kahraman (2016) in his research, found that the NMQ has an adequate validity value after being translated into Turkish. By comparing the NMQ results with relevant questionnaires such as NPAD, Quick-DASH, ODI and WOMAC to check the construct validity of the NMQ questionnaire. The results of the researchers stated that the Turkish version of the NMQ has good construct validity. Besides that, the internal reliability of NMQ seen from the coefficient value of Cronbach's Alpha also gives good results with a value of 0.896. The test-retest reliability results using PABAK (prevalence-adjusted bias-adjusted kappa) obtained good results with values in the range of 0.57 and 0.90.

The whole item shows good stability, which means that the reliability is also good. The validity and reliability study results are in line with Aرسالani's (2011) study, which obtained valid and reliable results when using

the NMQ to assess MSDs complaints on nurses in Iran. Validity was assessed using the *Content Validity Index* (CVI) and got a yield of 87.2%. Respondents were considered to be able to understand and understand the questions on the NMQ. All items' internal consistency is acceptable and good (Kahraman T, Genc A and Goz E, 2016; Arsalani N et al., 2011).

B. Results of Research on the Validity and Reliability of the NMQ / Nordic Survey of Indonesia on Workers

The Blue-collar validity and reliability of NMQ in Indonesia have also been carried out by Burkon (2017) on 204 garment workers. The questionnaire validity test results in this study were dominated by the Corrected Item-total correlation value above 0.6 or has a strong meaning.

The comparison of the reliability values of the questionnaire was carried out by using the test-retest method in two different times with a distance of 7 days. Reliability is done by calculating the value of the reliability coefficient of the questionnaire on the first and second filling questionnaire items. Meanwhile, the reliability value seen from the Cronbach's Alpha value is in the range of 0.965-0.966 which also has a strong meaning. The validity and reliability test was again carried out by Wicaksono (2019) on 108 batik makers in Yogyakarta by assessing all 55 questions given and answered by the respondent and then obtained good results, where 55 questions on the questionnaire were declared valid based on the corrected-item total correlation value, which is more than 0.3 as a *cut-off point*.

The questionnaire was also declared reliable based on the results obtained after calculating the value of the reliability coefficient which was dominated by good results, besides that the Cronbach's Alpha value obtained also got good results with a value of > 0.9. This proves that the NMQ is a valid and reliable instrument, which means

that all the questions have a good overall correlation. Based on the observations of researchers to get consistency of respondents in filling out the questionnaire, it takes accuracy and good concentration from the respondent in reading and understanding carefully each filling instruction and question column according to what the respondent feels. In addition, repeated question items on different parts (neck, lower back, and shoulders) can make it easier for respondents to understand questions more quickly and accurately (Burkon LK, 2017; Wicaksono PD, 2019).

Based on the research results of the *Nordic Musculoskeletal Questionnaire* (NMQ), the Nordic Survey Indonesia questionnaire has been proven to be a valid and reliable assessment instrument for assessing complaints of *Musculoskeletal Disorders* (MSDs) in groups of formal and informal sector workers.

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