

Validation of Questionnaire to Assess Occupational Health Risks and Perceived Health Problems among Nurses

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Abstract

Background: Occupational health is crucial in healthcare, where nurses encounter diverse hazards that impact their well-being and safety. This study aimed to construct and validate a comprehensive questionnaire to assess occupational health risks and perceived health problems among nurses.

Materials and Methods: This exploratory study involved constructing and validating a questionnaire in four phases: item generation, determination of essentiality using the Content Validity Ratio (CVR), subsequent validation for content, principal component analysis, and assessment of internal consistency. The occupational health risks domain comprises 33 items across two major domains (biological and non-biological), while the perceived health problem domain includes 15 items addressing health issues relevant to the nursing profession.

Results: Content validity was achieved through expert review, with an Item-Level Content Validity Index (I-CVI) of 1 for all items and a Scale-Level Content Validity Index (S-CVI) of 0.93, exceeding the threshold for significance. The kappa statistic of 1 demonstrates perfect inter-rater agreement. The KMO was 0.8, with a p-value of <0.05, indicating suitability, as similar factors or components were extracted with the constructed questionnaire. On the other hand, it exhibits good internal consistency, with a Cronbach’s alpha value ranging from 0.76 to 0.83.

Conclusions: Thus, the constructed questionnaire was validated, and the tool proved to be reliable and effective for assessing the occupational health risks and health perceptions of nurses. It can provide a foundation for assessments, effective interventions, and policy enhancements within healthcare organizations.

Keywords: Occupational Safety, Questionnaire, Validity, Health Care.

Introduction

Occupational health focuses on all aspects of workplace health and safety, prioritizing the prevention of hazards. Workers’ health is influenced by workplace determinants such as biological, ergonomic, and other non-biological factors, which can lead to accidents, respiratory, musculoskeletal, and other communicable diseases [1]. Globally, about sixty million people are engaged in health and its allied sectors. Health workers

majorly encounter occupational risks, leading to five to seven percent estimated global fatalities [2]. Nurses face diverse occupational health hazards due to physical, chemical, biological, and psychosocial demands of their work. Standards from the American Association of Critical-Care Nurses highlight these factors to promote a healthier work environment [3]. Research indicates that up to one-third of all sharps injuries in hospitals happen mainly during disposal, nurses being most vulnerable as they experience the

highest number of needle stick injuries. According to the National Institute for Occupational Safety and Health, healthcare workers experience approximately six to eight lakh percutaneous injuries annually [4]. The World Health Organization stresses the importance of risk management in hospitals, viewing it as essential for achieving “Health for all”. Effective risk assessment involves identifying hazards, calculating and implementing control measures. In hospital settings, a robust safety system that addresses all potential hazards can lead to more effective risk management [5]. There are several studies that show low but consistent exposure to occupational risks among healthcare workers, especially nurses across the world, which poses the need for constructing and validating an Occupational Health Risks Questionnaire [6,7]

Content validity assesses how well the elements of an instrument represent and are relevant to the construct of interest, which involves a panel of experts evaluating each element’s relevance and representativeness within the content domain [8]. Validating tools to assess these hazard risks and perceived health issues are essential, as

they allow healthcare organizations to understand better and enhance workplace conditions for nurses. This paper aims to construct and validate a questionnaire to assess occupational health risks and perceived health problems among nurses.

Materials and Methods

The construction of a questionnaire involves four distinct phases: construction of the questionnaire, determination of the ‘essentiality of items’, validation of the constructed questionnaire, and determination of internal consistency.

Phase 1: Construction of Questionnaire: The development stage of content validity involves four key steps: defining and formulating the concept, identifying and defining the content domain, generating and clarifying items, and constructing the instrument. Conceptual and operational definitions are foundational, as they ensure alignment between the content domain and the instrument domain, thereby aiding the content validation process [8].



Fig. 1. Phases in validation of Questionnaire

In the present study, an Occupational health hazard assessment was developed with two domains, comprising 33 items, and another domain assessed perceived health problems with 15 items. The conceptual framework for constructing the questionnaire was developed through a comprehensive review of the literature related to occupational health risks for nurses, their working environment, and based on my observations in hospital settings.

- An Occupational Health Risk Assessment Questionnaire with two main domains

(Biological and Non-biological) and four sub-domains.

- A Perceived Health Problems Questionnaire with 15 items grouped under general health conditions commonly reported among healthcare workers.

A question tree was designed to align broad concepts with more specific and tangible item domains. The basic root concepts identified were biological risks, non-biological risks, and perceived health outcomes. It was divided as follows,

Table 1. Constructed Occupational Health Hazard Questionnaire

Biological risks	Non-biological risks
Exposure to Needle stick injuries Exposure to Blood and body fluids Exposure to Infectious diseases Exposure to drug-resistant pathogens	My work involves repetitive body movements I stand for a long time I walk more during my duty I adopt painful positions in my work I am exposed to extreme temperatures I am exposed to extreme noise I am exposed to chemicals, toxic, and carcinogenic substances during my duty I am exposed to radiation

	2a: Violence Bullying/harassment Discrimination Unwanted sexual attention Physical violence Verbal violence
	2b: Psychological factors Lack of internal empowerment Lack of self-confidence Suffer from burnout Insensitive towards others
	2c: Social factors Undervalued due to insufficient social recognition Lose interest in the profession
	2d: Occupational stress Conflict with doctors, superiors, and peers Lack of opportunity to talk Fear of patient death Fear of making a mistake More workload in my workplace Uncertainty regarding the operation & function of equipment Lack of material resources in my workplace Lack of technical assistance

Phase 2: Determination of ‘essentiality of items’: The determination of ‘essentiality of items’ was conducted using the Lawshe method [9]. Content validity ratio (CVR) was employed to quantify content validity. The panel of experts is provided with the constructed questionnaire to rate each item into three categories: ‘essential’, ‘Useful but not essential’ or ‘Not necessary’. The minimum CVR value of 0.50 ensures the degree of essentiality of the item construct [10, 11].

Formula 1.

$$CVR = (N_e - N/2) / (N/2)$$

N_e – Number of panellists scored as ‘essential’, N – Total Number of panellists

Phase 3: Validation of Questionnaire: The content validity index was calculated for both the measuring item level and scale level content validity, which was supported by a modified kappa value that reduces the chances of agreement [12]. About 17 subject experts, including health care professionals, nurses, academicians, and statistician are purposively selected for validating the constructed questionnaire. This content validity index provides the relevancy of each list item. The Item Level Content Validity Index (I-CVI) was calculated by dividing the number of expert agreements on the relevance of each item (‘Quite’ and ‘Highly’ relevant) by the total number of experts.

Formula 2.

$$I-CVI = N_{agree} / N_{total}$$

The scale-level content validity index (S-CVI) was calculated by dividing the number of items that all experts agree are relevant by the total number of items. The I-CVI provided the degree of expert agreement on the relevance of each item, whereas the overall measure of content validity across all items in the tool was provided by S-CVI [10, 11].

The construct validity was assessed using Exploratory Factor Analysis with Principal Component Analysis (PCA). The Kaiser-Meyer-Olkin (KMO) measure was employed to evaluate sampling adequacy; a KMO value greater than 0.5 is considered acceptable for conducting factor analysis. The factors were extracted based on eigenvalues greater than one.

Phase 4: Determination of Internal Consistency of Questionnaire: The constructed questionnaire was assessed for its internal consistency through a pilot study involving 50 nurses, and the reliability of the data was determined using the Cronbach alpha value. The Cronbach alpha values range from 0 to 1, where values above 0.7 are generally considered acceptable and values above 0.9 suggest excellent consistency among items. For each questionnaire, the Cronbach alpha value was calculated [13].

Results

Content Validity of the Occupational Health Risks Domain: Content validity ensures that the test accurately represents the structure and content of the tool, it intends to measure. Essentially, it addresses whether the items truly reflect the features being

measured, relying on expert judgement to assess their relevance and alignment with the construct [14]. The questionnaire for assessing the occupational health risks was constructed under two domains namely biological, non-biological, violence, psychological,

social, and occupational stress which contain about 34 items with five-point Likert scaling as ‘Always’, ‘Often’, ‘Sometimes’, ‘Seldom’ and ‘Never’ whereas 15 health problems are constructed for assessing the perceived health problems.

Table 2. Content Validity Ratios for the Constructed Occupational Health Risks Questionnaire

	Item	CVR
Domain 1: Biological risks	I am exposed to needle injuries and sharp objects	1
	I am exposed to blood and body fluids	0.73
	I am exposed to blood-borne infectious diseases and communicable diseases	0.6
	I am exposed to drug-resistant infections	0.6
Domain 2: Non-biological risks	My work involves repetitive body movements	1
	I stand for a long time	1
	I walk more during my duty	0.73
	I adopt painful positions in my work	0.6
	I am exposed to extreme temperatures	0.73
	I am exposed to extreme noise	0.47
	I am exposed to chemicals, toxic, and carcinogenic substances during my duty	0.6
	I am exposed to radiation	0.6
Domain 2a: Violence	I experience bullying/harassment	0.6
	I experienced discrimination	0.6
	I have a threat of unwanted sexual attention	0.47
	I have a threat of Physical violence	0.47
	I have a threat of verbal violence	0.6
Domain 2b: Psychological factors	I feel a lack of internal empowerment	0.6
	I lack self-confidence	0.6
	I suffer from burnout	0.73
	I become insensitive towards others	0.73
Domain 2c: Social factors	I feel undervalued due to insufficient social recognition in the profession	0.6
	I lose interest in the profession	0.6
Domain 2d: Occupational stress	I have a conflict with doctors	0.73
	I have a conflict with my superiors	0.73
	I have a conflict with my peers	0.6
	I have a lack of opportunity to talk openly about problems in the unit	0.6
	I fear on patient's death	0.6
	I have a fear of making a mistake	0.6
	I have more workload in my workplace	0.6
	I have uncertainty regarding the operation and function of specialized equipment	0.6
	I have a lack of material resources in my workplace	0.6
	I lack technical assistance and motivation from nurse leaders/Superiors.	0.47

Table 1 and Table 2 provide the content validity ratio of the constructed questionnaire to assess occupational

health risks and perceived health problems among nurses.

Table 3. Content Validity Ratios for the Constructed Perceived Health Problem Questionnaire

	Perceived Health Problems	CVR
1	I suffer from headaches	0.7
2	I have musculoskeletal problems	0.867
3	I suffer from gastritis and stomach ulcers	0.47
4	I suffer from respiratory allergies	0.7
5	I suffer from skin allergies	0.7
6	I suffer from varicose veins	0.867
7	I am anaemic	0.7
8	I contracted infectious hepatitis	0.6
9	I suffer from urinary tract infections	0.6
10	I suffer from renal stones	0.6
11	I suffer from diabetes	0.47
12	I suffer from Tuberculosis	0.47
13	I suffer from hypertension	0.7
14	I suffer from cardiovascular diseases	0.7
15	I suffer from cancer	0.7

Content Validity of the Perceived Health Problems Domain: The questionnaire, constructed to assess

occupational health risks and perceived health problems among nurses, underwent rigorous validation processes

to ensure validity and inter-rater reliability. As shown in Table 3, the content validity index was evaluated using the item-level content validity index (I-CVI) and the

scale-level content validity index (S-CVI), whereas the kappa statistic was used to assess inter-rater reliability.

Table 4. Content Validity Index of Constructed Questionnaire

Domain	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	Experts in agreement	I-CVI	UA	k statistic
Demographic status	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	1.00	1	1
Exposure to occupational health hazard	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	1.00	1	1
Perceived health problem	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	1.00	1	1
Proportion relevance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.93	1.00	1	

Further, the questionnaire was assessed for construct validity using Principal Component Analysis. Tables 4 and 5 provide the findings of the Kaiser-Meyer-Olkin

measure of sample adequacy, which is 0.860, indicating higher suitability for factor analysis.

Table 5. Kaiser Meyer Olkin and Bartlett’s Value of Constructed Questionnaire

KMO and bartlett's test	
Kaiser-meyer-olkin measure of sampling adequacy	0.860
Bartlett's test of sphericity	Approx. chi-square
	df
	Sig.
	4046.737
	171
	0.00

Table 6. Rotated Component Matrix of the Formulated Tool

Items	Number of components			
	1	2	3	4
My work involves repetitive body movements				0.550
I stand for a long time				0.421
I walk more during my duty		0.717		
I adopt painful positions in my work		0.625		
I am exposed to extreme temperatures	0.507		0.409	
I am exposed to extreme noise	0.498		0.400	
I am exposed to chemicals, toxic, and carcinogenic substances during my duty	0.533		0.462	
I am exposed to radiation	0.557		0.418	
I experience bullying/harassment	0.657			
I experienced discrimination	0.684			
I have a threat of unwanted sexual attention	0.734			
I have a threat of Physical violence	0.742			
I have a threat of verbal violence	0.688			
I feel a lack of internal empowerment	0.575			
I lack self-confidence	0.535			
I suffer from burnout	0.633			
I become insensitive towards others	0.437			
I feel undervalued due to insufficient social recognition in the profession	0.560			
I lose interest in the profession	0.533			

The Bartlett’s test results were significant ($\chi^2 = 4046.73$, $P < 0.00$), demonstrating that all items under non non-biological domain were significantly correlated. The varimax rotation method of principal component analysis resulted in the eigenvalues ranging from 1.148 to 5.485, explaining 57% of the total variance. Based on factor loadings higher than 0.4, four components were extracted and labelled as Component 1: Psychosocial or emotional distress consisting of items of occupational stress domain, Component 2: Ergonomic risks, consisting non biological physical risks such as walking and painful postures during duty, Component 3: Environmental or chemical exposures,

including exposures to extreme conditions such as chemicals and radiations, Component 4: Musculoskeletal strain includes repetitive movements and prolonged standing (Table 5, Table 6). Reliability of the Constructed Questionnaire: The constructed and validated questionnaire was assessed for its internal consistency through a pilot study involving 50 selected nurses who were not part of the main study population. The internal consistency refers to the extent to which items within a scale or domain measure the construct, which is evaluated using Cronbach’s alpha value (Table 7).

Table 7. Reliability of Constructed Questionnaire

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Occupational Risks Exposure	0.837	0.861	33
Perceived Health Problems	0.724	0.759	15

Discussion

Content validity ensures that the test accurately represents the structure and content of the tool it intends to measure. Essentially, it addresses whether the items truly reflect the features being measured, relying on expert judgement to assess their relevance and alignment with the construct [14].

Nurses in Indian healthcare settings are widely exposed to diverse occupational hazards, notably biological and ergonomic risks, which consistently show high prevalence and severity in ward settings. A study by Mondal and Ray (2023) also contributed to the development of a risk assessment framework that enables the prioritization of hazards, aiding in targeted interventions [15]. The occupational health risks domain of the current study questionnaire aims to capture a range of potential risks encountered by nurses in their work environment. The relevance of each item was evaluated using the Content Validity Ratio (CVR), with certain items achieving strong consensus on their essentiality. For example, items related to needle injuries and sharp objects (CVR = 1) and repetitive body movements (CVR = 1) were unanimously deemed highly relevant by experts, underscoring these as prominent risks in the nursing profession. Moderate agreement was found for items such as exposure to blood and body fluids and walking during duty (CVR = 0.73), suggesting that these risks are commonly recognized but may vary in perceived impact based on the work environment. Conversely, items such as the threat of physical violence, extreme noise exposure and lack of technical assistance (CVR = 0.47) received lower CVR values. These results highlight a strong consensus on physical and biological risks; however, some items may require revision or clarification to improve their relevance and applicability across diverse nursing settings.

The perceived health problems domain was designed to identify health issues that nurses may experience due to occupational exposure. Content validity for this domain was assessed by analyzing the CVR for each item, revealing high consensus on several items. Notably, musculoskeletal problems (CVR = 0.867) and varicose veins (CVR = 0.867) achieved high CVR scores, indicating that these conditions are viewed as particularly relevant and are likely linked to the physical demands of nursing work.

Items with moderate agreement included headache (CVR = 0.7), respiratory allergies (CVR = 0.7), skin allergies (CVR = 0.7), and hypertension (CVR = 0.7).

These results suggest that these health issues are generally recognized by experts as relevant concerns, although their perceived severity or prevalence may vary depending on specific occupational contexts. In contrast, conditions such as diabetes, Tuberculosis, gastritis, and stomach ulcers (CVR = 0.47) yielded lower CVR scores, implying limited expert consensus on their essentiality for this domain. A study assessing occupational health problems also highlights that one-fifth of nursing students are exposed to insomnia, musculoskeletal pain, and skin problems, which is consistent with our study results [16].

Each item in the questionnaire scored an I-CVI of 1, which indicating that every item was rated as ‘relevant’ or ‘highly relevant’ by all experts (N=17), meeting the maximum possible validity for each item individually. Whereas Scale-level Content Validity Index (S-CVI) indicated that the average item level content validity index across all items or proportion of items rated relevant across the scale [17] The constructed questionnaire had scored scale-level content validity of 0.93 which exceeds the commonly accepted threshold of 0.80, indicating that most items are highly relevant to the intended construct on scale-wide basis without significant gaps or redundancies. A kappa value of 1 signifies perfect agreement among reviewers, demonstrating that experts consistently agreed on the relevance of each item. This agreement reduces the chance or probability and indicates the robustness of the constructed questionnaire. A study by Rai et al. (2020) assessed the validity of an adapted occupational exposure questionnaire through Cohen’s Kappa, with high test-retest reliability, providing evidence for the appropriateness of the adapted questionnaire in assessing occupational chemical exposure among healthcare workers in Bhutan [17].

Further, the principal component analysis was done with Kaiser Meyer Olkin measure of sample adequacy of 0.860 and p value less than 0.05 in barlett’s test indicated the presence of correlation structure as like the study by Carlesi et al., (2023) [18] which led to the extraction of four components with total cumulative percentage of 57 percent provides the suitability of retention. The extracted components (Component 1: Psychosocial or emotional distress, Component 2: Ergonomic risks, Component 3: Environmental or chemical exposures, Component 4: Musculoskeletal strain) align with the domain structure of the constructed questionnaire, thus confirming the validity of the questionnaire. These findings are consistent with

a study by Koy et al. (2023) [19], which aimed to develop a psychometric analysis of nurse competency. In terms of reliability, the constructed questionnaire yielded a Cronbach's alpha value of 0.76 to 0.83, indicating its internal consistency. Another study, which outlines the development and content validation of the Occupational and Safety Monitoring Questionnaire for assessing the occupational stress of port terminal nurses, finds that its findings coincide with those of the present study, with higher I-CVI and S-CVI demonstrating solid structural validity [11].

Together, these reflect a questionnaire that is both valid and reliable for assessing occupational hazards and perceived health problems in nurses. Limitations of the present study include the convenience sampling technique and the sample size, which may pose problems with generalizability. However, the constructed questionnaire has a strong basis in an in-depth literature review, allowing it to be applied to all hospital settings.

Conclusion

The constructed questionnaire demonstrates robust validity and reliability in evaluating occupational health risks and perceived health issues among nurses. High I-CVI, S-CVI, and kappa scores confirm the instrument's relevance and applicability across various nursing contexts, with expert consensus affirming its comprehensive coverage of physical, biological, psychological, and social risks. This validated tool enables healthcare institutions to identify and address occupational risks, thereby supporting targeted interventions that promote nurses' safety and well-being. The instrument's precision in capturing occupational exposures and health concerns marks it as a valuable resource for both research and practice, with implications for enhancing workplace policies and ensuring a safer healthcare environment.

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Conflict of interest

None declared.

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Ethical Considerations

The study was conducted in accordance with the ethical standards of the Declaration of Helsinki. Ethical clearance was obtained from the Institutional Human Ethics Committee of Avinashilingam Institute for Home Science and Higher Education for Women (Approval Number: AUW/IHEC/FSMD-21-22/XPD-28).

Participation of subject experts was purely voluntary, and consent was obtained before data collection.

Code of Ethics

The research received approval from the Institutional Human Ethics Committee of Avinashilingam Institute for Home Science and Higher Education for Women (Approval Number: AUW/IHEC/FSMD-21-22/XPD-28).

Authors' Contributions

S Ignacious Mary: Conceptualizing, Designing, Collecting, and Analyzing Data. Drafting of Manuscript; PL Sridevi Sivakami: Supervision, Guidance throughout the study, Reviewed and edited the manuscript.

References

1. World Health Organization. Occupational Health. Geneva, Switzerland: World Health Organization; 2019.
2. Ayenew E, Akafu W, Wolde Daka D. Prevalence of Work-Related Health Hazard and Associated Factors among Health Workers in Public Health Institutions of Gambella Town, Western Ethiopia: Cross-Sectional Survey. *J Environ Public Health*. 2022;2022:6224280.
3. Vitale E, Chang YC. Validation and Measurement of Psychometric Properties of the "Nursing Work Environment Questionnaire" (NWE-q) in Italian Nurses. *Risk Manag Healthc Policy*. 2024;17:233-47.
4. Auta A, Adewuyi EO, Tor-Anyiin A, Edor JP, Kureh GT, Khanal V, et al. Global prevalence of percutaneous injuries among healthcare workers: a systematic review and meta-analysis. *Int J Epidemiol*. 2018;47(6):1972-80.
5. Ajam Ekrami H, Fouladi Dehaghi B, Ghanbari S, Jaafarzadeh Haghighifard N, Mohammadi MJ. Health risk assessment and occupational safety at hospitals in Southwest of Iran. *Clin Epidemiol Glob Health*. 2024;26:101515.
6. Sikder AS, Sharaque AR, Haque N, Sultana M, Noor IN, Alam UK, et al. Occupational Health Hazard Experiences of Doctors and Nurses at a Tertiary

- Hospital in Bangladesh. *Eur J Med Health Sci.* 2024;6(1):36-40.
7. Shamkh SS, Mohammed AH, Al-Abedi GA. Occupational hazards among nurses at primary health care centers in Al-Amara City/Iraq. *Bahrain Med Bull.* 2022;44(1):846-50.
8. Almanasreh E, Moles R, Chen TF. Evaluation of methods used for estimating content validity. *Res Soc Adm Pharm.* 2019;15(2):214-21.
9. Gilbert GE, Prion S. Making Sense of Methods and Measurement: Lawshe's Content Validity Index. *Clin Simul Nurs.* 2016;12(12):530-1.
10. Lynn, M.R. Determination and quantification of content validity. *Nurs Res;*35(6):382-5 .
11. Yaakub N, Ranjan MZ, Baharuddin MR, Mohd Elias S, Zainuddin H, Mohd Noor MA. Content Validation of Occupational Health & Safety Monitoring Questionnaire (OHSMQ) For Occupational Stress Risk Assessment among Port Terminal Workers. *J Adv Res Occup Saf Health.* 2019;5(1):18-28.
12. Pavsek KU, Steege LM, Kwekkeboom K. Testing Content Validity of Nursing Stress Scales: Do They Reflect Current Practice? *SAGE Open.* 2022;12(3).
13. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar AR. Design and Implementation Content Validity Study: Development of an Instrument for Measuring Patient-Centered Communication. *J Caring Sci.* 2015;4(2):165-78.
14. Madadzadeh F, Bahariniya S. Tutorial on how to Calculating content validity of scales in medical research. *Perioper Care Oper Room Manag.* 2023;31:100315.
15. Mondal R, Ray PK. A framework for occupational health risk assessment of nursing personnel in Indian healthcare system. *IJSE Trans Healthc Syst Eng.* 2024;14(3):214-31.
16. Ören B, Zengin N. Assessing Health Threatening Problems among Nursing or Midwifery Students during the Clinical Education Course in Turkey. *Iran J Public Health.* 2019;48(1):85-94.
17. Rai R, El-Zaemey S, Dorji N, Fritsch L. Reliability and Validity of an Adapted Questionnaire Assessing Occupational Exposures to Hazardous Chemicals among Health Care Workers in Bhutan. *Int J Occup Environ Med.* 2020;11(3):128-39.
18. Cuadros-Carlesi K, Henríquez-Roldán C, Meneses Ciuffardi E, Fuentes Ibáñez J, Ruiz-Araya P. Construction and Validation of an Occupational Risks Scale for Intra-hospital Nursing Staff. *Invest Educ Enferm.* 2023;41(2):e16.
19. Koy V, Yunibhand J, Rauth A, Bircher N, Prak M, Henker R. Development and psychometric testing of a competency of nursing process questionnaire. *Int J Nurs Sci.* 2023;10(2):245-50.