Palliative care quiz for nurses-Indonesian version (PCQN-I): A cross-cultural adaptation, validity, and reliability study

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Abstract

Background The palliative care quiz for nurses (PCQN) has been frequently used to assess palliative care knowledge and has been adapted into several languages. The aim of this study was to perform a cross-cultural adaptation of the palliative care quiz for nurses into the Indonesian context (PCQN-I) and evaluate its psychometric properties.Methods A two-stage design was used in this study, including a cross-cultural adaptation and psychometric testing. The PCQN-I was tested on a convenience sample of healthcare providers recruited from 20 primary healthcare (PHC) centers in Yogyakarta, Indonesia, from July to October 2017.Results The cross-cultural adaptation ultimately resulted in a total of 20 items of the PCQN-I. An expert committee revised words in Item 4 "adjuvant therapies" to "adjuvant therapies/additional therapies"; Item 5 "bowel regimen" to "gastrointestinal therapies"; and Item 16 "Demerol" to "Pethidine" according to situation in Indonesia. The experts retained Item 5 "It is crucial for family members to remain at the bedside until death occurs," although none of the participants (n = 40) involved in the pilot testing could answer it correctly; and Item 19 "The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate", although few participants responded correctly. A total of 150 healthcare providers consisting of 100 nurses and 50 physicians were involved in the psychometric testing. The scale-level content validity index/Ave of the PCQN-I was 0.97 and 0.93 in terms of its relevancy and clarity, respectively. The Kuder−Richardson formula 20 score was 0.71.Conclusions The PCQN-I is a valid and reliable instrument for assessing palliative care knowledge among PHC providers. Further research is warranted to examine its reliability in different clinical settings.

Background

Palliative care concerns about the approaches used to relieve suffering in terms of physical, psychological, and spiritual aspects and improve the quality of life of patients and their families.[1] To provide palliative care, healthcare providers require the fundamental knowledge of care. Palliative care knowledge has been identified as an essential component when dealing with palliative patients and families.[2,3] Inadequate knowledge would lead to failure in identification and need assessment, insufficient pain management, and less psychological and spiritual support.[4,5,6] Therefore, identification of palliative care knowledge is important among healthcare providers.

The palliative care quiz for nurses (PCQN) has been extensively used to measure palliative care knowledge and has been adapted into several languages.[7,8,9] The PCQN measures the cognitive understanding toward palliative care, including the philosophy and principles of palliative care, management of pain and other symptoms, and provision of psychosocial and spiritual care to individuals and families.[10] The PCQN is an easy tool that has been used in various settings, such as hospitals,[11,12] cancer centers,[11] communities,[13] pediatric medical services,[14] long-term care institutions,[15,16] and nursing homes.[3]

Although palliative care was established in 1992 in Indonesia,[17] it is still in its infancy.[18] The development of palliative care has been very slow, and there are some contributing factors such as government policy, a culture of strong familial support, lack of palliative care education, and support from regional or local government.[19,20] Furthermore, the concept of palliative care has was not been actually understood by some healthcare providers.[19] Evaluating palliative care knowledge among healthcare providers could identify the misconceptions associated with palliative care and educational needs. However, there is a lack of instruments developed and validated into Indonesian to examine palliative care knowledge among healthcare providers. Therefore, this study was conducted

to perform a cross-cultural adaptation of the PCQN into the Indonesian context and evaluate its psychometric properties.

Methods

This study used a two-stage design, including (1) a cross-cultural adaptation of the PCQN using a six-step process and (2) psychometric testing, including validity and reliability of the PCQN-I.

Settings and samples

This study was conducted from July to October 2017 at 20 primary healthcare (PHC) units in Yogyakarta, Indonesia. A convenience sampling method was used to recruit participants. PHC providers, including nurses and physicians working in the above mentioned 20 units, were invited to participate in this study. PHC providers who were unable to provide their consent or took leave permit (e.g., annual leave, maternal leave) during the data collection period were excluded from the study.

Instruments

The PCQN is a 20-item instrument with true, false, or "don't know" options and used to evaluate palliative care knowledge. It was originally developed by Ross et al.[10] and contains the following three domains: philosophy and principles of palliative care (items 1, 9, 12, 17), pain and symptom management (items 2–4, 6–8, 10, 13–16, 18, 20), and psychosocial and spiritual care (items 5, 11, 19). A correct answer receives one point. The total score ranges from 0 to 20, with higher scores indicating better palliative care knowledge. The content validity has been found to be acceptable, and the internal consistency is also high (Kuder–Richardson 20 = 0.78).[10] Permission to conduct a cross-cultural adaptation of the PCQN into the Indonesia context and use the instrument for assessing palliative care knowledge among physicians and nurses was obtained from the University of Ottawa. In addition, details regarding participants' background information, including age, gender, level of education, working experience, palliative care experience, and professional education in palliative care, were collected. Palliative care experience consisted of participants' experience in providing palliative care and experience in caring for terminally ill patients. Professional education in palliative care included participants' attendance in formal palliative care education and continuing education in palliative care.

Procedures and data collection

Stage I: Cross-cultural adaptation

A cross-cultural adaptation was applied to the PCQN according to a well-established guideline.[21] This process integrated both translation and cultural adaptation issues in preparing an acceptable instrument to use in Indonesian settings. The following six steps were involved in the cross-cultural adaptation: forward translation, synthesis, backward translation, expert committee review, pretesting, and instrument appraisal.[21]

In the forward translation step, a nurse and a physician whose first language was Bahasa Indonesia and who were also fluent in English were invited as translators (T1 and T2) for translating the instrument from English into Bahasa Indonesia. The outcome of forwarding translation was synthesized by the researcher (NSH) and the above mentioned two translators to produce a draft of the Indonesian version.[21]

Next, two translators (T3 and T4) with English as their first language and who were fluent in Bahasa Indonesia were invited to conduct backward translation for translating the instrument from Bahasa Indonesia into English. The two translators were unaware of the original English version. This phase was a process to validate whether the Indonesian version reflects the consistent meaning of the original instrument.[21]

The fourth step was review by an expert committee consisting of seven experts, including two nurses with experience in palliative care, a palliative care physician, two nursing faculties with palliative care specialty, a PHC physician, and an anesthesiologist. The committee members reviewed all the translations in terms of semantic, idiomatic, experiential, and conceptual equivalence. At the end of the review, an expert committee provided suggestion and reached a consensus on any discrepancy.[21]

Step five was pilot testing the pre-final version of the instrument. A total of 40 healthcare providers working in 10 PHC units in Yogyakarta completed the pre-final version of the PCQN-I and provided their comments on whether they understood the items.

In the final step, the researcher and the expert committee rediscussed the pre-final version of the instrument after the completion of the pilot testing. The discussion appraised and finalized 20 items of the PCQN-I.[21]

Stage II: Psychometric testing

Content validity. The content validity index (CVI) was calculated to assess the content validity in this study. A cover letter and the PCQN-I finalized in stage I were included with the content validity survey explaining why experts were invited to participate, along with clear and concise instructions on how to rate each item. The study invited six experts, including two palliative care nurses, a physician with expertise in palliative care, two nursing lecturers with expertise in palliative care, and a primary care physician. The experts were asked to assess the relevancy and clarity of each item using a four-point scale (1 = not relevant/not clear, 2 = somewhat relevant/item requires some revision, 3 = quite relevant/clear but requires minor revision, and 4 = highly relevant/very clear).[22,23] The CVI was calculated for item-level CVI (I-CVI) and scale-level CVI/Ave (S-CVI/Ave).[23] To obtain I-CVI, the number of experts who gave a rating score of 3 or 4 was divided by the total number of experts, which ranged from 0.00 to 1.00.[22,23] The S-CVI/Ave was calculated by averaging the I-CVIs.[23] At least an I-CVI of 0.78 is considered as an acceptable value, whereas an S-CVI/Ave with an average value approaching 0.90 or higher is considered to indicate excellent content validity.[23,24]

Reliability. The validated PCQN-I was also evaluated for reliability using a convenience sample of healthcare professionals recruited from 20 PHC units in Yogyakarta Province, Indonesia. The research team recruited two research assistants (RAs) to assist with data collection. The researcher (NSH) contacted the head of each PHC unit and provided information related to the research. Then, NSH and RAs visited the PHC units to approach healthcare providers for data collection. The research aims, study requirements, and participant rights were provided when approaching potential participants. After obtaining signed consent forms from the healthcare providers, they were provided with an anonymous study instrument and asked to complete it. The completed instruments were returned to a box for collection by the research team.

Statistical analysis

Data of participants' background information were analyzed using the Statistical Package for the Social Sciences (SPSS) version 17.0 for Windows. Categorical data were represented as frequency and percentage, whereas continuous data were represented as mean and standard deviation.

Regarding reliability, the Kuder–Richardson formula 20 (KR-20) was used to determine the internal consistency of the PCQN-I with a dichotomous variable (i.e., responses that were correct or incorrect). Reliability coefficients >0.50 were considered as acceptable.[25]

The difficulty index was calculated to determine the percentage of participants answering an item correctly.[10] This was calculated by dividing the total number of participants who answered an item correctly by the total number of participants giving the answer on that item.[8] A difficulty index ranging from 0.20 to 0.80 indicated that the item could be correctly answered by a reasonable number of individuals.[10] A difficulty index <0.20 and >0.80 indicated that the item was very difficult and very easy, respectively. Furthermore, the discrimination index was calculated to determine whether the items are good (discrimination index >0.30) or poor (discrimination index <0.10 or negative value).[10] This was determined by subtracting the proportion of the lower quartile of the participants who obtained the lowest scores from the proportion of the upper quartile of the participants who obtained the highest scores of the PCQN-I.[8,10]

Ethical consideration

This study was approved by the Medical and Health Research Ethics Committee of Universitas Gadjah Mada, Yogyakarta, Indonesia (Ref. KE/FK/0926/EC/2017). Research permit was obtained from the Government Office of Yogyakarta, Indonesia (Ref. 074/7091/Kesbangpol/2017). Before data collection, the participants received an information letter outlining the study and an informed consent form. Participants provided written consent indicating their agreement to be involved in the study, but they still could withdraw from the study at any time and without penalty. Participants' name and address were kept confidential and did not appear on the computerized data, and only study ID numbers were recorded.

Results

Cross-cultural adaptation

The process of cross-cultural adaptation was performed systematically. The first, second, and third steps were conducted without any difficulties. In the fourth step, the semantic, idiomatic, experiential, and conceptual equivalences of the PCQN-I were 89.8%, 94.6%, 94.2%, and 90.6%, respectively. In the fifth step, a total of 40 healthcare providers, including 14 physicians (35%) and 26 nurses (65%), with a mean age of 40 years, completed the pre-final version of the PCQN-I. The duration for completing the instruments ranged from 7 to 10 min. The mean score of the pre-final version of the PCQN-I was 6.8 of a possible score of 20. All participants (n = 40) in the pilot study answered Item 5 "It is crucial for family members to remain at the bedside until death occurs" incorrectly. Moreover, only one participant could answer Item 19 "The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate" correctly. Approximately 70% of the participants (n = 27) provided comments regarding their misconception of some words in Items 4, 8, 16, and 17. In the sixth step, the expert committee identified difficult words in Items 4, 8, 16, and 17 and reached a consensus (Table 1). The expert committee also discussed Items 5 and 19 and retained these items due to culture consideration. Thus, the cross-cultural adaptation process was finalized, resulting in a total of 20 items of the PCQN-I (Table 2).

Validity testing

All the six panelists considered 16 of the 20 items to be highly relevant, so that the I-CVI for each of these 16 items was 1.00, which was considered as "excellent".[23] Four items were given a score of 1 or 2 by an expert. Thus, the I-CVIs were 1.00 for 16 items and 0.83 for four items. Regarding clarity, three of the 20 items were given a score of 1 by an expert, three items were given a score of 2 by an expert, and one item was given a score of 2 by two experts. Thus, the I-CVIs were 1.00 for 13 of the 20 items, 0.83 for six items, and 0.67 for one item. Both these S-CVIs/Ave were 0.97 and 0.93, respectively, reflecting an excellent content validity.[23,24]

Reliability testing

Overall responses

A total of 150 healthcare providers, including 100 nurses and 50 physicians recruited from 20 PHC units in Yogyakarta, completed the PCQN-I in the reliability testing. The mean age of the participants was 40.75 years (SD = 9.88, range = 23–59 years). More than 64% (n = 97) of the participants were females. All the physicians had completed at least a bachelor's degree, whereas only 4% of the nurses (n = 4) had a bachelor's degree. More than 54% of the participants (n = 82) had hospital experience, but only 26.7% (n = 40) had experience related to providing palliative care in hospitals. The mean years of working experience in PHC units was 14.69 (SD = 10.01, range = 0.1–35 years), and only 30% (n = 45) of them had experience with caring for terminally ill patients. Half of the participants (n = 75) had received formal palliative care education in their previous school education, whereas only a minority of them had participated in palliative care continuing education (Table 3).

The mean score of the PCQN-I among the 150 participants was 7.78 (SD = 3.56). As shown in Table 4, Item 5 "It is crucial for family members to remain at the bedside until death occurs (False)" and Item 19 "The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate (False)" were answered correctly by the lowest percentage of participants (5.3%, n = 8). Table 4 also shows that Item 18 was very easy (difficulty index >0.80), whereas Items 5, 19, 7, 3, and 11 were very difficult (difficulty index 0.04–0.15). Items 5 and 19 were indicated as poor (discrimination index <0.10).

Internal consistency

The KR-20 was used to examine the internal consistency of the PCQN-I. The reliability coefficient was 0.71, indicating moderate reliability.[25]

Discussion

This study produced 20 items of the PCQN-I with true/false/don't know options. Originally, the instrument was used to examine palliative care knowledge among nurses and nursing students. Because of its general concept, this study applied the instrument for assessing not only nurses' but also physicians' palliative care knowledge.

Some items were revised during the process of cross-cultural adaptation to improve the semantic, idiomatic, experiential, and conceptual equivalence. Item 4 "Adjuvant therapies are important in managing pain" was revised because 54% of the nurses (n = 14) in the pilot testing incorrectly answered this item and provided comments indicating that the words "adjuvant therapies" were uncommon to them. The expert committee suggested addition

of the words "additional therapies" following the term "adjuvant therapies" as "adjuvant therapies/additional therapies" (*terapi adjuvan/terapi tambahan*- in Indonesian).

Item 8 "Individuals who are taking opioids should also follow a bowel regimen" was also reviewed. Approximately 60% of the nurses (n = 16) involved in the pilot study incorrectly answered this item. The expert committee viewed that "bowel regimen" was an unfamiliar term for nurses in PHC units. Therefore, the expert committee changed "bowel regimen" to "gastrointestinal therapies" (*terapi saluran pencernaan*- in Indonesian).

The expert committee also revised Item 16 "Demerol is not an effective analgesic in the control of chronic pain." Considering that Demerol was not distributed in Indonesia, the anesthesiologist changed "Demerol" to "Pethidine." Thus, healthcare providers could easily recognize the drug.

The expert committee found that Item 17 "The accumulation of losses renders burnout inevitable for those who seek work in palliative care" was ambiguous. In the French and Spanish versions, this item was referred to healthcare providers working in the palliative care unit.[7,8] This understanding was also assumed into the PCQN-I.

In addition, the expert committee retained Item 5 "It is crucial for family members to remain at the bedside until death occurs," (False) although none of the participants (n = 40) involved in the pilot testing could answer it correctly. The experts considered that the misconceptions of Item 5 of the PCQN might be influenced by culture. In Indonesia, it is considered an obligation of the family to care for terminally ill patients.[26] This is because the family takes important roles in activities pertaining to patients' daily living, physical, spiritual, social, psychological, autonomous, and financial aspects during hospitalization.[27] Moreover, the family has an important role in making treatment-related decisions for patients.[28] Therefore, almost all hospitals in Indonesia allow the family to accompany the patients for 24 h a day.[28,29] Under the influence of this culture, participants might feel that the attendance of the family at the bedside until the death of the patient is important. The original version of the PCQN indicated that remaining at the bedside until death occurs could become exhausting among the family members.[10] This item was retained because the experts considered Item 5 as one of the critical concepts in palliative care.

Few participants answered Item 19 correctly, "The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate" (False). This finding is similar to that of an Iranian study, with only 9.1% of the participants correctly answering this item.[12] Like Iran, Indonesian kinship is also strong, with all the family members participating in care.[28]

The S-CVIs/Ave of the PCQN-I were 0.97 and 0.93 in terms of its relevancy and clarity, respectively. These values were higher than the Korean (S-CVI = 0.85)[9] and the Spanish versions (S-CVI = 0.83).[8] The high score of S-CVIs/Ave suggested that due to some revisions made during the cross-cultural adaptation process, a consensus was reached on any discrepancy of the PCQN-I.

Regarding the difficulty index, Items 5, 19, 7, 3, and 11 were indicated as very difficult (difficulty index <0.20), and Item 18 was indicated as very easy (difficulty index >0.80) among all participants. However, these items were retained because they fell within the desired range in the physician's group, except Items 5 and 19.

Regarding the discrimination index, Items 5 and 19 were indicated as poor (discrimination index <0.10). We retained these items because earlier studies have explained that a positive value of the discrimination index

indicated that an item was desirable.[8,10] Furthermore, deleting these items did not significantly increase the reliability coefficient.

In terms of reliability, the KR-20 score of the PCQN-I was 0.71, indicating acceptable internal consistency. This result was similar to that of the Spanish version (KR-20 = 0.72).[8] Although the KR-20 score of the PCQN-I was slightly lower than that of the Korean (KR-20 = 0.78)[9] and the original version (KR-20 = 0.78),[10] it was higher than that of the French version (KR-20 = 0.60).[7] The internal consistency of the PCQN-I suggested that revising some items did not change the conceptual equivalence from the original one.

The findings of this study indicated that the PCQN-I is a valid and reliable instrument for assessing palliative care knowledge among PHC providers. The PCQN-I is the first version that demonstrated the applicability of the instrument to examine palliative care knowledge not only among nurses but also among physicians in PHC settings. The PCQN-I could be used to identify healthcare providers' knowledge as the basic data to assess their misconceptions and educational needs regarding palliative care. In the future, it may be used as an assessment tool to evaluate healthcare providers' knowledge who participate in palliative care education programs.

Limitations

This study had some limitations. First, the reliability testing was conducted only in PHC units in Yogyakarta, which may hinder the generalizability of the results. An additional survey at the national level would be worthwhile. Second, the moderate scores for the internal consistency of the PCQN-I (KR-20 = 0.71) should be a concern. Further survey is encouraged to assess the instrument among healthcare providers working in hospitals.

Conclusions

The PCQN-I was found to be a valid and reliable instrument for assessing palliative care knowledge among healthcare providers working in PHC units. The instrument can be applied to evaluate palliative care programs in Indonesia. Further survey is encouraged to examine its reliability in different clinical settings.

Abbreviations

CVI: Content validity index; I-CVI: Item-level content validity index; KR-20: Kuder–Richardson formula 20; LPDP: *Lembaga Pengelola Dana Pendidikan*; NSH: Nuzul Sri Hertanti; PCQN: Palliative care quiz for nurses; PCQN-I: Palliative care quiz for nurses-Indonesian version; PHC: primary healthcare; RAs: research assistants; SCI/Ave: Scale-level content validity index/Ave; SPSS: Statistical Package for the Social Sciences.

Declarations

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions

NSH conducted the study project, analyzed data, discussed the results and implications, and prepared the manuscript. CYK supervised the study project, discussed the results and implications, and commented on the manuscript at all stages. ALW provided comments and revised on abstract, background, study design, results, and discussions. CE provided comments on study design, results, and discussions. All authors read and approved the final manuscript.

Ethics approval and consent to participate

This study was approved by the Medical and Health Research Ethics Committee of Universitas Gadjah Mada, Yogyakarta, Indonesia (Ref. KE/FK/0926/EC/2017). All participants provided written consent to participate.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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References

1. World Health Organization. National Cancer Control Programmes: Policies and *Managerial Guidelines.* 2nd ed. Geneva, Switzerland: World Health Organization; 2002. Available from: https://books.google.com.tw/books?id=7VQ0DgAAQBAJ. Accessed May 23, 2017.

2. Ronaldson S, Hayes L, Carey M, Aggar C. A study of nurses' knowledge of a palliative approach in residential aged care facilities. Int J Older People Nurs. 2008;3(4):258–67.

3. Wilson O, Avalos G, Dowling M. Knowledge of palliative care and attitudes towards nursing the dying patient. Br J Nurs. 2016;25(11):600–5.

4. Abu-Saad Huijer H, Dimassi H, Abboud S. Perspectives on palliative care in Lebanon: knowledge, attitudes, and practices of medical and nursing specialties. Palliat Support 2009;7(3):339–47.

5. Cameron BL, Santos Salas A. Understanding the provision of palliative care in the contextof primary health care: qualitative research findings from a pilot study in a communitysetting in Chile. J Palliat Care. 2009;25(4):275–83.

6. Hermsen MA, ten Have HA. Moral problems in palliative care practice: a qualitative study. Med. Health Care Philos. 2003;6(3):263–

7. Carroll G, Brisson DP, Ross MM, Labbe R. The French version of the palliative care quizfor nursing (PCQN-F): development and evaluation. J Palliat Care. 2005;21(1):27–34.

8. Chover-Sierra E, Martinez-Sabater A, Lapena-Monux Y. Knowledge in palliative care of nursing professionals at a Spanish hospital. Rev Lat Am Enferm. 2017;25:e2847.

9. Kim HS, Kim BH, Yu SJ, Kim S, Park SH, Choi S, et al. The effect of an end-of-life nursing education consortium course on nurses' knowledge of hospice and palliative care in Korea. J Hosp Palliat Nurs. 2011;13(4):222–9.

10. Ross MM, McDonald B, McGuinness J. The palliative care quiz for nursing (PCQN): the development of an instrument to measure nurses' knowledge of palliative care. J Adv Nurs. 1996;23(1):126–37.

11. Abudari G, Zahreddine H, Hazeim H, Assi MA, Emara S. Knowledge of and attitudes towards palliative care among multinational nurses in Saudi Arabia. Int J Palliat Nurs. 2014;20(9):435–41.

12. Iranmanesh S, Razban F, Tirgari B, Zahra G. Nurses' knowledge about palliative care in Southeast Iran. Palliat Support Care. 2014;12(3):203–10.

13. Hughes PM, Parker C, Payne S, Ingleton MC, Noble B. Evaluating an education programme in general palliative care for community nurses. Int J Palliat Nurs. 2006;12(3):123–

14. Knapp CA, Madden V, Wang H, Kassing K, Curtis C, Sloyer P, et al. Paediatric nurses' knowledge of palliative care in Florida: a quantitative study. Int J Palliat Nurs. 2009;15(9):432–9.

15. Brazil K, Kaasalainen S, McAiney C, Brink P, Kelly ML. Knowledge and perceived competence among nurses caring for the dying in long-term care homes. Int J Palliat Nurs. 2012;18(2):77–

16. Raudonis BM, Kyba FC, Kinsey TA. Long-term care nurses' knowledge of end-of-life care. Geriatr Nurs. 2002;23(6):296–

17. Soebadi RD, Tejawinata S. Indonesia: status of cancer pain and palliative care. J Pain Symptom Manage. 1996;12(2):112–

18. Effendy C, Vissers K, Woitha K, van Riet Paap J, Tejawinata S, Vernooij-Dassen M, Engels Y. Face-validation of quality indicators for the organization of palliative care in hospitals in Indonesia: a contribution to quality improvement. *Support Care Cancer*. 2014;22(12):3301–

19. Putranto R, Mudjaddid E, Shatri H, Adli M, Martina D. Development and challenges of palliative care in Indonesia: role of psychosomatic medicine. Biopsychosoc Med. 2017;11:29.

20. Rochmawati E, Wiechula R, Cameron K. Current status of palliative care services in Indonesia: a literature review. Int Nurs Rev. 2016;63(2):180–90.

21. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine. 2000;25(24):3186–

22. Wicaksana AL, Wang ST. Psychometric Testing of the Indonesian Version of Dietary Sodium Restriction Questionnaire Among Patients with Hypertension. Asian Nurs Res. 2018;12(4):279–

23. Polit DF, Beck CT. Nursing research: Generating and assessing evidence for nursing practice. Lippincott Williams & Wilkins; 2008.

24. Lynn MR. Determination and quantification of content validity. Nurs Res. 1986;35(6):382–

25. Hinton PR, Brownlow C, McMurray I, Cozens B. SPSS explained. New York: Routledge; 2004.

26. Dwi Anggraeni M, Ekowati W. Family role in the achievement of post radicalmastectomy self integrity patients. Int J Public Heal Res. 2011;2011(Special Issue):163–

27. Kristanti MS, Setiyarini S, Effendy C. Enhancing the quality of life for palliative carecancer patients in Indonesia through family caregivers: a pilot study of basic skillsBMC Palliat Care. 2017;16(1):4.

28. Effendy C, Vernooij-Dassen M, Setiyarini S, Kristanti MS, Tejawinata S, Vissers K, et al.Family caregivers' involvement in caring for a hospitalized patient with cancer and theirquality of life in a country with strong family bonds. 2015;24(5):585–91.

29. Shields L, Hartati LE. Nursing and health care in Indonesia. J Adv Nurs. 2003;44(2):209–

Tables

Table 1 Summary of items' modification

Item No.	Original Version	Adapted Version	
		English	Indonesian
4	adjuvant therapies	adjuvant therapies (additional therapies)	*terapi adjuvan (terapi tambahan)*
8	bowel regime	gastrointestinal therapies	*terapi saluran pencernaan*
16	Demerol	Pethidine	Pethidine
17	The accumulation of losses renders burnout inevitable for those who seek work in palliative care.	The accumulation of losses renders bournout for healthcare providers working in palliative care unit.	*Kejenuhan tenaga kesehatan yang bekerja di unit paliatif disebabkan oleh akumulasi rasa kehilangan karena kematian pasien.*

Table 2 The PCQN-Indonesian and English Version

Item No.	Questions
1	*Perawatan paliatif hanya sesuai diberikan pada pasien yang mengalami penurunan atau kemunduran kondisi (S).* Palliative care is appropriate only in situations where there is evidence of a downhill trajectory or deterioration (F).
2	*Morfin adalah standar yang digunakan untuk membandingkan efek analgesik dari golongan opioid lainnya (B).* Morphine is the standard used to compare the analgesic effect of other opioids (T).
3	*Keparahan penyakit menentukan metode penatalaksanaan nyeri (S).* The extent of the disease determines the method of pain treatment (F).
4	*Terapi ajuvan (tambahan) penting dalam manajemen nyeri (B).* Adjuvant therapies are important in managing pain (T).
5	*Anggota keluarga harus berada di samping pasien hingga pasien meninggal (S).* It is crucial for family members to remain at the bedside until death occurs (F).
6	*Selama hari-hari terakhir menjelang ajal, rasa kantuk yang dialami pasien akibat ketidakseimbangan elektrolit dapat menurunkan kebutuhan obat sedatif (B).* During the last days of life, the drowsiness associated with electrolyte imbalance may decrease the need for sedation (T).
7	*Ketergantungan obat merupakan salah satu masalah utama yang terjadi jika morfin digunakan dalam jangka panjang untuk manajemen nyeri (S).* Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain (F).
8	*Pasien yang mendapatkan terapi opioid seharusnya juga diberikan terapi saluran pencernaan (B).* Individuals who are taking opioids should also follow a bowel regime (T).
9	*Pemberian perawatan paliatif tidak memerlukan rasa empati (S).* The provision of palliative care requires emotional detachment (F).
10	*Selama tahap akhir penyakit, obat yang menyebabkan depresi pernafasan tepat digunakan untuk penatalaksanaan dyspnea berat (B).* During the terminal stages of an illness, drugs that can cause respiratory depression are appropriate for the treatment for severe dyspnea (T).
11	*Pada umumnya, laki-laki lebih cepat menghilangkan rasa duka daripada wanita (S).* Men generally reconcile their grief more quickly than women (F).
12	*Filosofi perawatan paliatif sesuai dengan prinsip terapi agresif (B).* The philosophy of palliative care is compatible with that of aggressive treatment (T).
13	*Plasebo (obat kosong) dapat digunakan dalam penatalaksanaan beberapa jenis nyeri (S).* The use of placebos is appropriate in the treatment of some types of pain (F).
14	*Kodein dosis tinggi lebih sering menyebabkan mual dan muntah daripada morfin (B).* In high doses, codeine causes more nausea and vomiting than morphine (T).
15	*Penderitaan dan nyeri fisik adalah hal yang sama (S).* Suffering and physical pain are synonymous (F).
16	*Petidine (analgesik golongan opioid) bukan analgesik yang efektif untuk mengontrol nyeri kronis (B).* Demerol is not an effective analgesic in the control of chronic pain (T).

Item No.	Questions
17	*Kejenuhan tenaga kesehatan yang bekerja di unit paliatif disebabkan oleh akumulasi rasa kehilangan karena kematian pasien (S).* The accumulation of losses renders burnout inevitable for those who seek work in palliative care (F).
18	*Manifestasi nyeri kronis berbeda dengan nyeri akut (B).* Manifestations of chronic pain are different from those of acute pain (T).
19	*Rasa duka akibat kehilangan kerabat jauh lebih mudah diatasi daripada kehilangan kerabat dekat (S).* The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate (F).
20	*Ambang nyeri dapat diturunkan melalui rasa cemas atau lelah (B).* The pain threshold is lowered by anxiety or fatigue (T).

PCQN: Palliative care quiz for nurses; B: *Benar*/ T: True; S: *Salah*/ F: False.

Table 3 Participant background information ($n = 150$)

Variables	Physician ($n = 50$) n (%)	Nurse ($n = 100$) n (%)	Total ($n = 150$) n (%)
Gender			
Male	17 (34.0)	36 (36.0)	53 (35.3)
Female	33 (66.0)	64 (64.0)	97 (64.7)
Education levels			
Diploma and below	0 (0.0)	96 (96.0)	96 (64.0)
Bachelor's degree	50 (100.0)	4 (4.0)	54 (36.0)
Hospital experience			
Yes	30 (60.0)	52 (52.0)	82 (54.7)
No	20 (40.0)	48 (48.0)	68 (45.3)
Hospital PC experience			
Yes	12 (24.0)	28 (28.0)	40 (26.7)
No	38 (76.0)	72 (72.0)	110 (73.3)
Caring for TP in hospitals			
Yes	12 (24.0)	35 (35.0)	47 (31.3)
No	38 (76.0)	65 (65.0)	103 (68.7)
Caring for TP in PHC units			
Yes	17 (34.0)	28 (28.0)	45 (30.0)
No	33 (66.0)	72 (72.0)	105 (70.0)
Previous PC education			
Yes	33 (66.0)	42 (42.0)	75 (50.0)
No	17 (34.0)	58 (58.0)	75 (50.0)
PC Seminar attendance			
Yes	14 (28.0)	9 (9.0)	23 (15.3)
No	36 (72.0)	91 (91.0)	127 (84.7)
PC Training			
Yes	4 (8.0)	1 (1.0)	5 (3.3)
No	46 (92.0)	99 (99.0)	145 (96.7)
Variables	Physician ($n = 16$) M (SD)	Nurse ($n = 26$) M (SD)	Total ($n = 40$) M (SD)
Age	37.5 (9.7)	42.3 (9.6)	40.7 (9.9)
Years of PHC unit experience	11.0 (9.2)	16.5 (9.9)	14.7 (10.0)

PC: palliative care, PHC: primary health care, TP: terminally ill patient.
Note: Here, a seminar is more like a lecture or classroom style of learning, an expert sharing information with the audience on a specific topic. Training is the act of teaching and or developing skills to improve the skills required to do

one's job.

Table 4 The results of the PCQN-Indonesian version ($n = 150$)

Item No.	Physician (n = 50) Correct answers n (%)	Item response theory Difficulty	Discrimination	Nurse (n = 100) Correct answers n (%)	Item response theory Difficulty	Discrimination	Total (n = 150) Correct answers n (%)	Item response theory Difficulty	Discrimination
18	46 (92.0)	0.92	0.23	91 (91.0)	0.91	0.24	137 (91.3)	0.91	0.24
4	47 (94.0)	0.90	0.23	52 (52.0)	0.52	0.68	99 (66.0)	0.65	0.60
15	40 (80.0)	0.74	0.46	58 (58.0)	0.58	0.76	98 (65.3)	0.63	0.66
8	37 (74.0)	0.82	0.54	52 (52.0)	0.52	0.80	89 (59.3)	0.62	0.76
1	35 (70.0)	0.66	0.23	49 (49.0)	0.49	0.40	84 (56.0)	0.55	0.37
6	24 (48.0)	0.48	0.69	57 (57.0)	0.57	0.48	81 (54.0)	0.54	0.47
14	27 (54.0)	0.70	0.46	41 (41.0)	0.41	0.60	68 (45.3)	0.51	0.66
2	31 (62.0)	0.70	0.54	36 (36.0)	0.36	0.52	67 (44.7)	0.47	0.55
17	27 (54.0)	0.50	0.46	39 (39.0)	0.39	0.36	66 (44.0)	0.43	0.42
9	30 (60.0)	0.66	0.54	33 (33.0)	0.33	0.16	63 (42.0)	0.44	0.42
20	18 (36.0)	0.40	0.61	35 (35.0)	0.35	0.56	53 (35.3)	0.37	0.66
16	22 (44.0)	0.42	0.69	29 (29.0)	0.29	0.56	51 (34.0)	0.33	0.68
10	9 (18.0)	0.24	0.54	32 (32.0)	0.32	0.60	41 (27.3)	0.29	0.47
12	13 (26.0)	0.34	0.46	27 (27.0)	0.27	0.60	40 (26.7)	0.29	0.50
13	20 (40.0)	0.38	0.38	16 (16.0)	0.16	0.32	36 (24.0)	0.23	0.42
11	17 (34.0)	0.24	0.15	10 (10.0)	0.10	0.20	27 (18.0)	0.15	0.24
3	10 (20.0)	0.24	0.61	10 (10.0)	0.10	0.16	20 (13.3)	0.15	0.37
7	16 (32.0)	0.34	0.31	2 (2.0)	0.02	0.08	18 (12.0)	0.13	0.26

Item No.	Physician (n = 50)			Nurse (n = 100)			Total (n = 150)		
	Correct answers n (%)	Item response theory		Correct answers n (%)	Item response theory		Correct answers n (%)	Item response theory	
		Difficulty	Discrimination		Difficulty	Discrimination		Difficulty	Discrimination
19	3 (6.0)	0.04	0.08	6 (6.0)	0.06	0.04	9 (6.0)	0.05	0.05
5	3 (6.0)	0.02	0.08	5 (5.0)	0.05	0.12	8 (5.3)	0.04	0.08

Item No.	Physician (n = 50)	Nurse (n = 100)	Total (n = 150)