The Validity and Reliability of the Indonesian Version of Post-Intensive Care Syndrome Questionnaire (PICSQ) for Intensive Care Unit Survivors

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ABSTRACT

Background: *Post-Intensive Care Syndrome (PICS) encompasses cognitive, motor, and mental impairments persisting for years in ICU survivors. Despite its significance, the prevalence of PICS in Indonesia remains uncertain due to limited research and a lack of validated measurement tools. This study aims to translate and validate the PICS Questionnaire for use among ICU survivors in Indonesia.* ***Methods:*** *The study followed a two-phase approach: translation and evaluation. The translation phase adhered to the 10-step process of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) guidelines. The analysis phase involved 184 subjects, using Confirmatory Factor Analysis (CFA) for validation and Cronbach's α and Intraclass Correlation Coefficient (ICC) for reliability testing.* ***Results:*** *The CFA reported factor loadings (λ >0.40) for each item in its relevant domain. Fit index values indicated a good-to-acceptable fit. Internal reliability was high for the mental, physical, and cognitive domains (0.812 vs. 0.779 vs. 0.855), with Cronbach's α of > 0.70. Test-retest reliability and ICC demonstrated dependable results (>0.70) for each domain.* ***Conclusion:*** *The translated and validated Indonesian PICS Questionnaire demonstrates good validity and reliability. This tool will enable healthcare professionals to assess PICS among ICU survivors in Indonesia and facilitate further research on its prevalence and impact on quality of life.*

Keywords: *Intensive Care Unit, Quality of Life, Surveys and Questionnaires, Factor Analysis, Statistical, Indonesia.*

INTRODUCTION

Advancements in medical technology have increased survival rates for critically-ill patients, yet many face daunting recovery journeys.[1] Previous studies revealed that Intensive Care Unit (ICU) survivors often experienced cognitive and physical impairments, which in some cases persisted for years alongside psychiatric disorders like anxiety and post-traumatic stress disorder (PTSD).[2] Other health challenges include dyspnea, pain, and reduced physical endurance.[3] Many of these ICU survivors struggle to return to previous employment or income levels. These findings underscore the urgent need for research to better support the complex needs of ICU survivors.[4]

Post-Intensive Care Syndrome (PICS), which has been recognized by the Society of Critical Care Medicine (SCCM) since 2010, is defined as a condition characterized by physical, cognitive, and mental impairments emerging after critical illness and persisting into the post-acute care phase.[5] PICS not only reduces the quality of life for ICU survivors but also burdens their families with anxiety, depression, PTSD, and financial strains, as it significantly increases healthcare costs.[6] Early recognition of PICS offers the opportunity to prevent and alleviate these burdens. Strategies include rehabilitation programs, blood sugar control, reducing sedative use, early weaning from ventilation, cautious corticosteroid use, and cognitive and psychological management. [7]

Several studies have reported the prevalence of PICS, including a study by Yanagi et. al. 2021, which evaluated PICS as a predictor of mortality in patients with a history of critical illness.[8] Fifty-three percent of the subjects in the study with PICS almost 4 times higher risk of death within a year compared to those without PICS.[8] The study also revealed that the physical and cognitive domains of PICS significantly affected the mortality rate.[8] A study by Carel et also reported a prevalence rate of 66% for PICS occurring after 6 months to 7 years among subjects with major burns.[9] PICS also correlated with risk of readmission, with one study showing that 25.4% of ICU survivors experienced unplanned readmission within a year. Unplanned hospital readmissions indicate high healthcare costs and add to the burden on ICU survivors, their families, and the community.[10]

There are still multiple challenges in comprehensively understanding and accurately assessing PICS. The operational definition and diagnostic criteria of PICS remain unclear. A systematic review of PICS highlighted the necessity of developing a unique tool to measure PICS, as the tools used in the individual studies were too diverse and complex.[11] Additionally, there are no national guidelines for the identification, diagnosis, and management of PICS. Many healthcare providers remain unaware of its existence in ICU survivors. Several studies on PICS have used assessment tools commonly used to evaluate physical, cognitive, and psychological impairments in other diseases, which are not developed specifically for ICU survivors. These assessment tools are time-consuming, require trained health professionals, and are often used in sub-specialized studies.[11] Therefore, several researchers have developed a PICS screening questionnaire that covers all aspects of PICS in one assessment tool, making it quick to administer and suitable for use without trained health professionals (i.e., the questionnaire is self-reported).[12] This tool can be applied in frontline and outpatient settings across various specialty clinics, and it offers greater practicality for periodic evaluation or follow-up of PICS symptoms.[12]

Currently, there are three screening tools developed to identify physical, cognitive, and psychiatric symptoms in PICS: the Post-Intensive Care Syndrome Questionnaire (PICSQ), the Healthy Aging Brain Care Monitor (HABC-M SR), and the Short Form 36 (SF-36). PICSQ and HABC-M SR have been validated as PICS screening tools based on studies by Jeong & Kang (2019) and Wang et al. (2022).[13,14] All of these screening tools are user-friendly and can be administered over the phone. However, no studies have yet assessed the sensitivity and specificity of these tools. The lack of validated measurement tools for evaluating PICS in ICU survivors and the diverse patient profiles in previous studies contribute to the uncertainty of PICS prevalence among ICU survivors in Indonesia. Nevertheless,

developing a reliable assessment tool for PICS is substantial, particularly in guiding therapeutic interventions within rehabilitation.

The PICSQ, developed by Jeong et al., offers several advantages compared to other questionnaires.[13] PICSQ is a self-reported tool from South Korea, developed through literature reviews and extensive interviews with ICU patients.[13] Since the PICSQ was developed based on the experiences of ICU survivors, it may be more appropriate for assessing PICS than other tools. This questionnaire can be applied in Indonesia as it is relatively simple and easy to understand, making it appropriate for a population with diverse educational backgrounds.[14] The questionnaire consists of 18 questions, categorized into 3 domains: cognitive, physical, and mental, representing all aspects of PICS. This questionnaire has already been proven reliable and valid for measuring PICS in ICU survivors. Additionally, this tool showed many advantages, as it is a multidimensional tool that integrates the mental, cognitive, and physical aspects of PICS, in addition to being a self-reported tool and can be easily-administered in clinical practice.[13] It is suitable for continuous assessment, intervention, and evaluation of PICS in ICU survivors with monitoring by phone or when the patient comes for routine control. This study aims to validate and evaluate the reliability of the Indonesian version of the PICS Questionnaire on ICU survivors in Indonesia.

METHODS

This study aims to evaluate the validity and reliability of the PICS Questionnaire in Indonesia. This study had been approved by the Ethics Committee of Dr. Cipto Mangunkusumo (RSCM) National Hospital concerning the protection of human rights and welfare in medical research, under the ICH-GCP standard procedures (ethical approval number KET-1303/UN2.F1/ETIK/PPM.00.02/2022). The variables in this study consist of 18 questions, divided into 3 domains: Cognitive, Physical, and Mental. The research instrument consists of the patient's medical record, informed consent form, and the PICS questionnaire sheet in Indonesian. Informed consent was obtained from all participants in writing using an informed consent form.

Translation Phase

This phase aims to develop an Indonesian version of the PICS Questionnaire, following the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) guidelines for translation and cultural adaptation. The questionnaire underwent translation and perception alignment among researchers, translation professionals, and a sample of 30 individuals representative of the intended audience.[15] (Seen in supplementary table 1)

Forward Translation

Two independent translators, including a sworn translator from the credible English Course Institute and a Physical Medicine and Rehabilitation specialist with a TOEFL score above 550, translated the original questionnaire into Bahasa Indonesia. The two translations were then synthesized into a single forward translation version.

Backward Translation: Two translators, who had not seen the original questionnaire, back-translated the forward translation into English. The back-translated versions were compared with the original questionnaire to identify any discrepancies in meaning or content.

Harmonization: After confirming that the back-translated versions and the original questionnaire did not differ significantly, a team of experts conducted a harmonization process. This step involved adapting the translation to align with local customs, culture, and language to ensure better comprehension from the target population.

Cognitive Debriefing: The harmonized translation was then presented to thirty target individuals for cognitive debriefing. This phase assessed the translated questionnaire's clarity, comprehensibility, and cultural relevance. This process involved a multidisciplinary team consisting of rehabilitation medicine specialists, anesthesiologists, and a statistical team.

Content Validity Testing: Three experts in the field of critical care medicine, rehabilitation, and scale development evaluated the pre-final

translated questionnaire.

Proofreading and Final Report: The questionnaire was proofread to address any grammatical, spelling, or formatting errors. A final report detailing the entire translation and cultural adaptation process was prepared.

Data Collection and Ethical Considerations

The sample size in this study was calculated based on the rule of thumb with a 10:1 ratio, which is 10 respondents for each item in the questionnaire. The questionnaire consisted of 18 items, resulting in a minimum required sample of 18 × 10 = 180 respondents. To anticipate a potential dropout rate of 10%, the targeted sample size was set at 198 respondents.[16]

The questionnaire responses were collected from an eligible sample of 198 ICU survivors in Dr. Cipto Mangunkusumo National Hospital between October 2022 and April 2024 was selected based on convenience non-probability sampling. All respondents provided informed consent after voluntarily agreeing to participate in the study. Participants were informed of the study purpose and assured that the confidentiality of their responses, their autonomy, voluntary participation, and the right to withdraw at any time were guaranteed. The participants were also informed that withdrawal from the study would have no negative consequences. The participants took two sessions of interviews, with the second session conducted 7 days after the first session. The participants needed approximately 3-5 minutes to complete the questionnaires.

The eligibility criteria of study participants were 1) over 18 years old; 2) admitted to ICU for ≥ 48 hours; 3) discharged from hospital from four weeks to one year before study enrollment; 4) able to understand and complete the questionnaire and have no problems in communication in Bahasa Indonesia; and 5) able to read and understand instructions in Indonesian and use Indonesian daily as their main communication language.

Analysis Phase (Psychometric Properties Evaluation)

The collected data were analyzed using AMOS version 26.0 and SPSS version 21.0. The characteristics of study participants were analyzed using descriptive statistics.

Following the translation and cultural adaptation standards outlined by the ISPOR, a group of experts different from those involved in the forward translation process conducted the back translation phase. These experts possessed similar capabilities and expertise but were unfamiliar with the original questionnaire prior to the translation process. The approved translated questionnaires were then assessed for psychometric properties to test for reliability and validity.

Validity Testing. Confirmatory Factor Analysis (CFA) was performed to evaluate the questionnaire's construct validity. The model's goodness of fit was assessed using various fit indices, including Chi-Square value (CMIN), Standardized Root Mean Square Residual (SRMR), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Standardized factor loading (λ) was calculated to test the convergent validity. The λ value was set to 0.40 for a minimum of 150 samples.[17] The questionnaire's fit indices were examined before the validity and reliability tests were conducted a week following the first meeting and at the second meeting, respectively. The CFI, TLI, and RMSEA showed acceptable fit, while the CMIN and SRMR showed good fit. [18]

Reliability Testing. Reliability testing measures the questionnaire's internal consistency and repeatability. The internal consistency of the PICS Questionnaire was assessed using Cronbach's α coefficient, which was computed for each domain (mental, physical, and cognitive). For repeatability, the test-retest method was used and measured using the Interclass Correlation Coefficient (ICC). We conducted reliability assessments by calculating Cronbach's α values to examine the questionnaire's internal consistency. We also calculated the questionnaire's Interclass Correlation Coefficients (ICCs) using the test-retest method to assess the instrument's repeatability. The obtained Cronbach's α values for each domain were > 0.7 mean acceptable.

RESULTS

Characteristics of the Participant

Based on 198 ICU survivors in Dr. Cipto Mangunkusumo National Hospital from convenience sampling, of the 198 survivors, 14 participants dropped out due to being unable to attend the second interview session within one week. A total of 184 ICU survivors participated in our study. The mean age of the participants was 46 years, with most participants being adults (79.9%). In terms of gender distribution, the majority were male (52%).

Among the 184 subjects, 98 (52.4%) had completed high school, and 55 (29.9%) were undergraduates. One participant has no formal education but can read and write for informed consent to include in this study.

The most common primary etiology of intensive care admission was cardiovascular disease, affecting 57 subjects (31%), followed by malignancy in 31 subjects (16.8%). The least common etiology of intensive care admission was metabolic disease (such as hypoglycemia, ketoacidosis, diabetic mellitus, etc), with 10 subjects (5.4%). The median duration of ICU admission was 6 days, with a range of 2 to 120 days. The characteristics of all the participants are presented in **Table 1**.

A total of 183 (99.4%) of the 184 subjects required mechanical ventilation during the intensive care treatment, with 109 (59.2%) subjects receiving mechanical ventilation for over four days.

Forward-Backward Translation

At this stage, we recruited 184 volunteers who matched predetermined requirements. Follow-up tests were carried out a week after the first evaluation to evaluate repeatability and reliability. [18]

The process of forward and backward translation is described in **Table 2**. This table presents the differences between the original version, forward translation, backward translation, and the final version of each question. Each domain has factor loading from confirmatory analysis and Cronbach's alpha values as indicators of internal consistency reliability.

Validity and Reliability Tests

Construct Validity (Correlation Analysis)

Correlation tests were conducted to determine the strength of the correlation for each item/ question. This correlation provided insight and description of hypotheses, data exploration, and variable selection. The Spearman rho correlation test showed a significant correlation of each

Table 1. Characteristics of Study Participants (N= 184)

Characteristic		Total n (%)	Mean	Median
Age (years)			46.03 ± 13.75	
Gender	Men	97 (52.7)		
	Women	87 (47.3)		
Education	Postgraduate	61 (33.2)		
	High School	98 (53,3)		
	Under High School	25 (13.5)		
Job prior to ICU admission	Yes	113 (61.4)		
	No	71 (38.6)		
Diagnosis	Cardiovascular disease	57 (31)		
	Malignancy	31(16.8)		
	Sepsis	30 (16.3)		
	Cerebrovascular disease	20 (10.9)		
	Respiratory failure	20 (10.9)		
	Others	16 (8.7)		
	Metabolic disease	10 (5.4)		
Surgery	Yes	86 (46.7)		
	No	98 (53.3)		
ICU admission days				6 (2-120)
Mechanical Ventilation (MV) Use (days)	≥4	109 (59.2)		
	<4	74 (40.2)		
	No MV	1 (0.5)		

item/question with its corresponding domain, varying from moderate to highly significant. The correlation between each domain was 0.54 for Cognitive-Physical, 0.80 for Cognitive-Mental, and 0.09 for Physical-Mental Domains (**Figure 1**).[19]

Structural Validity

Structural validity measures the degree to which the scores of a PICSQ item adequately reflect the dimensionality of the construct to be measured. In this study, the structural validity of the items of the Indonesian version of PICSQ was assessed with confirmatory factor analyses (CFA) using the statistical software IBM SPSS AMOS version 26.0. The questionnaire showed a Kaiser–Meyer–Olkin (KMO) value of 0.887 and a Bartlett Chi-Square value of 1344.40 ($p<0.001$). Based on these results, subsequent analyses/testing were performed.[20]

The model's adequacy was assessed to ensure it met the criteria for a good fit. This evaluation included examining the Chi-Square value (263.346, df = 132), standard Chi-Square ratio (CMIN/df = 2.047), Root Mean Square Error of Approximation (RMSEA = 0.076), Comparative Fit Index (CFI = 0.889), Tucker-Lewis Index (TLI = 0.871), and Standardized Root Mean Square Residual (SRMR = 0.036). Overall, the model fit had values ranging from Acceptable to Good fit, as seen in **Table 2**.[21, 22]

Next, the loading factors for each item (**Table 3**) were computed, organized, and categorized according to PICSQ domains: Cognitive, Physical, and Mental. Among 18 questions, each domain had 6 questions. Each question was accompanied by response options and scored on a scale of 0 (*Tidak pernah*/Never), 1 (*Kadang-kadang*/Sometimes), 2 (*Sering*/Often), or 3 (*Selalu*/Always). Based on the factor loading (λ) analysis outcomes (**Figure 1**), every item exhibited a loading factor greater than 0.40.

Table 2. The Model Fit Indices

Model Fit	Value	Value Interpretation
Standardized Chi Square (CMIN/df)	2.047	Good fit
Root-mean-square error of approximation (RMSEA)	0.076	Acceptable fit
Standardized Root Mean Square Residual (SRMR)	0.037	Good Fit
Comparative Fit Index (CFI)	0.889	Acceptable Fit
Tucker–Lewis Index (TLI)	0.871	Acceptable Fit

Table 3. Items of the Translated PICS questionnaire

		Items Questionnaire	0	1	2	3
Cognitive	X1.1	Saya sulit mengingat angka (seperti saat diminta mengulangi menyebutkan beberapa angka)				
	X1.2	Orang sekitar mengatakan bahwa saya mengulang-ulang apa yang saya katakan sebelumnya				
	X1.3	Saya sulit menemukan jalan				
	X1.4	Saya tidak dapat berkonsentrasi saat membaca				
	X1.5	Saya kesulitan dalam mengelola uang				
	X1.6	*Saya bingung dengan tanggal atau waktu*				
Physical	X2.1	*Persendian saya kaku*				
	X2.2	*Genggaman tangan saya lemah*				
	X2.3	*Saya sulit menaiki tangga*				
	X2.4	*Performa seksual saya menurun*				
	X2.5	*Saya mudah lelah lebih dari biasanya*				
	X2.6	*Saya merasakan sakit di seluruh tubuh saya*				
Mental	X3.1	*Jantung saya terasa berat*				
	X3.2	*Saya mengalami mimpi buruk*				
	X3.3	*Saya merasa cemas*				
	X3.4	*Saya mudah kesal atau marah*				
	X3.5	*Saya mudah terkejut*				
	X3.6	*Saya tidak memiliki harapan*				

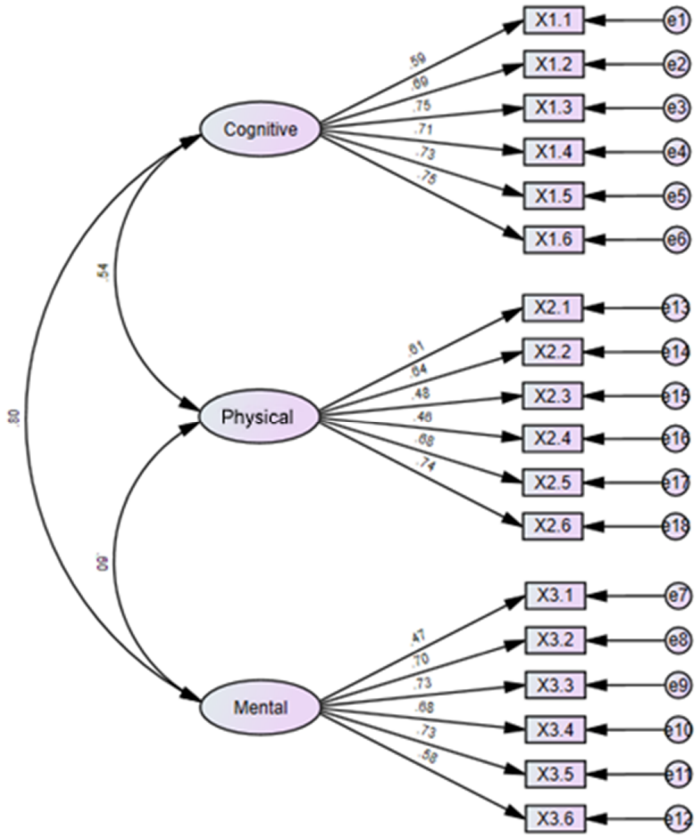

Figure 1. The standardized estimates of the confirmatory factor analysis model

Reliability

Internal consistency was assessed using Cronbach's alpha (α) coefficient. All the items had a Cronbach's α of > 0.7 (**Table 4**). We also evaluated the test-retest reliability to determine the correlation coefficients between the first and second sets of data for each domain.

Based on the test-retest evaluation between the initial testing and the subsequent retesting of the same individual, the correlation between the measures of each domain from the first and second assessments demonstrated a strong correlation (r = 0.7 to 0.9; p > 0.001), indicating reliable repeatability.

DISCUSSION

Based on our study, the PICS questionnaire in the Bahasa Indonesia version has good validity and reliability for use in ICU settings in Indonesia. This questionnaire was tested for validity and reliability through in-depth interviews and surveys with 184 ICU survivors, with reported appropriate reliability and validity. The dimensions of the PICSQ were constructed similarly to the initial conceptual framework set up for the tool development. [18] Previous studies on tools to measure PICS did not cover the mental health domain, while several other studies resorted to the use of multiple measurement

Table 4. Internal and Inter-rater Reliability

Domain	Cronbach's Alpha (α)	Interclass Correlation Coefficient (ICC)		
		Single Measure	Average Measure	Sig
Cognitive	0.855	0.820	0.901	0
Physical	0.770	0.743	0.852	0
Mental	0.809	0.821	0.902	0
Total PICS	0.879	0.834	0.910	0

tools to assess mental health in patients with PICS. Additionally, its scope of application was wider because it was targeted at the general ICU population rather than a specific group of patients. It was also relatively simple among the non-medical population. Clinicians may use PICSQ scores to screen for PICS in ICU survivors, evaluate intervention effectiveness, or track long-term outcomes. [10]

Although post-ICU mortality rates have been decreasing in recent years, long-term evaluation of ICU survivors is needed to avoid worsening conditions. The self-reported PICS questionnaire can help make this questionnaire more practical for its users.[13] Self-reported questionnaires have been widely used to predict clinical outcomes such as psychiatric impairment, which can help healthcare providers screen to predict the risk of deterioration in ICU survivors.[19] One study stated that physical disability and cognitive impairment are one of the risk factors for long-term mortality in ICU survivors after disease severity.[22] Because risk factors are multifactorial, PICS management requires complex interventions through a multidisciplinary approach to reduce the risk of mortality and deterioration in both the short and long term.

Diagnostic tools for this recently recognized syndrome have limited applicability in Indonesia. The present study intended to translate an innovative questionnaire that was created in English and confirmed in South Korea as a valid and reliable questionnaire.[22] The translation process involved working with a local rehabilitative medicine professional and a licensed local translator, who was familiar with the local way of life. The obtained Cronbach's α values for each domain were above the acceptable value ($\alpha > 0.7$), indicating that the Indonesian version of PICSQ had good internal consistency across domains. Consequently, no further modification of the items was deemed necessary.

Cognitive debriefing in this study was conducted to ensure the clarity, comprehensibility, and cultural relevance of the questionnaire within the Indonesian population. Involving 30 respondents and a multidisciplinary team, this phase confirmed that most items were well understood, with only minor adjustments made to certain terms. This process strengthened the content validity and ensured that the instrument was appropriate for the socio-cultural context and the diverse literacy levels in Indonesia. In our study, two statements were suggested for revision because they did not specify numerical values and did not clearly define the type or severity of fatigue.

These findings provide important implications for both practice and research in the field of rehabilitation, to prevent and manage disability in ICU survivors. This result highlights the importance of an assessment tool to measure PICS, develop interventions, and measure long-term outcomes in ICU survivors. Following this study, we anticipate that our Indonesian translation of the PICSQ will be utilized as a diagnostic instrument and in upcoming research on ICU survivors' outcomes in several other settings by comparing PICS participants at hospitals in various other cities, and quality of life among ICU survivors.

This study had several limitations. Firstly, participation from patients is required, and the accuracy of their responses is crucial, particularly when it comes to questions about private matters such as "*Performa seksual saya menurun*" (My sexual performance has deteriorated). Additionally, since the participation in this study primarily depends on the patient's willingness, there may be bias towards patients with less severe conditions, as patients with more severe conditions (such as those who have had a tracheostomy) may find it more challenging to answer the questions comfortably, the absence of vision and hearing assessments to ensure that participants fully met the inclusion criteria, the possibility of response bias in the form of extreme or central tendency bias in which participants tended to select either extreme points (e.g., 0 and 4) or middle points (e.g., 1 and 2), and the lack of more in-depth evaluation of items related to the physical and mental domains.

CONCLUSION

The translated and validated Indonesian version of the PICS Questionnaire demonstrated good validity, reliability, and repeatability. This

tool will enable healthcare professionals to assess PICS among Indonesian ICU survivors and facilitate further studies on its prevalence and impact on quality of life.

DATA AVAILABILITY

Repository name: Zenodo: The Validity and Reliability of the Indonesian Version of Post-Intensive Care Syndrome Questionnaire (PICSQ) for Intensive Care Unit Survivors. https://doi.org/10.5281/zenodo.15795195 [26].

Informed Consent: The Validity and Reliability of The Indonesian Version of Post-Intensive Care Syndrome Questionnaire (PICSQ) for Intensive Care Unit Survivors.

CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest regarding the publication of this article.

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Forward and backward translation PICSQ

Domain	Original	Forward Translation 1	Forward Translation 2	Reconciliation 1	Backward Translation 1	Backward Translation 2	Reconciliation 2	Cognitive Debriefing	Final Version*	Factor Loading	Cronbach alpha
Cognitive	It's hard to memorise numbers.	*Sulit mengingat angka*	*Sulit untuk mengingat angka*	*Saya sulit mengingat angka*	I have difficulty remembering numbers	It's hard for me to memorize numbers	It's hard for me to memorize numbers	Suggestion: *perlu penjelasan mengingat angka yang seperti apa*	*Saya sulit mengingat angka (seperti saat diminta mengulangi menyebutkan beberapa angka)*	0.59	0.855
	People around me say that I repeat what I said before.	*Orang di sekitar mengatakan bahwa saya mengulangi apa yang saya katakan sebelumnya*	*Orang di sekitar saya mengatakan bahwa saya mengulang-ulang apa yang saya katakan sebelumnya*	*Orang di sekitar saya mengatakan bahwa saya sering mengulang-ulang apa yang saya katakan sebelumnya.*	Those around me say that I often repeat what I have already said.	People around me say that I often repeat what I have said before.	People around me say that I often repeat what I have said before.	No suggestion and already clear	*Orang sekitar mengatakan bahwa saya mengulang-ulang apa yang saya katakan sebelumnya*	0.69	
	It is hard for me to find the way.	*Sulit bagi saya untuk mencari jalan*	*Sukar bagi saya untuk mencari jalan*	*Saya sulit menemukan jalan.*	It's hard for me to find the way	I have difficulty finding my way.	It's hard for me to find the way	No suggestion and already clear	*Saya sulit menemukan jalan*	0.75	
	I cannot concentrate on reading.	*Saya tidak dapat berkonsentrasi membaca*	*Saya tidak dapat berkonsentrasi dalam membaca*	*Saya tidak dapat berkonsentrasi saat membaca.*	I cannot concentrate when reading.	I cannot concentrate on reading.	I cannot concentrate on reading.	No suggestion and already clear	*Saya tidak dapat berkonsentrasi saat membaca*	0.71	
	Money management is difficult.	*Pengelolaan-uang sulit*	*Pengelolaan-uang adalah hal yang sulit*	*Saya memiliki kesulitan dalam mengelola uang.*	I have difficulties managing money/ finances.	I have difficulty managing money.	I have difficulty managing money.	No suggestion and already clear	*Saya kesulitan dalam mengelola uang*	0.73	
	I am confused with date or time.	*Saya bingung tentang tanggal atau waktu*	*Saya bingung dengan tanggal atau waktu*	*Saya bingung dengan tanggal atau waktu.*	I get confused about the date or time.	I am confused with date or time.	I am confused with date or time.	No suggestion and already clear	*Saya bingung dengan tanggal atau waktu*	0.75	

Physical	My joints are stiff.	*Persendian saya kaku*	*Persendian saya kaku*	*Persendian saya kaku.*	My joints are stiff.	My joints are stiff.	My joints are stiff.	No suggestion and already clear	*Persendian saya kaku*	0.61	0.770
	My hand grip is weak.	*Pergelangan tangan saya lemah*	*Cengkeraman tangan saya lemah*	*Genggaman tangan saya terasa lemah.*	My (hand)grip feels weak	My hand grip feels weak.	My hand grip feels weak.	No suggestion and already clear	*Genggaman tangan saya lemah*	0.64	
	I can hardly climb the stairs.	*Saya hampir tidak dapat menaiki anak tangga*	*Saya hampir tidak dapat naik tangga*	*Saya sulit menaiki tangga.*	I have difficulties climbing/going up stairs.	I have difficulty climbing stairs.	I have difficulty climbing stairs.	Confirmation questions: *Apakah termasuk menaiki tangga di luar rumah? Ya*	*Saya sulit menaiki tangga*	0.48	
	My sexual performance has deteriorated.	*Kemampuan seksual saya menurun*	*Kemampuan seksual saya menurun*	*Performa seksual saya menurun.*	My sexual performance has decreased.	My sexual performance has declined.	My sexual performance has declined.	No suggestion and already clear	*Performa seksual saya menurun*	0.46	
	I get tired easily.	*Saya mudah lelah*	*Saya mudah lelah*	*Saya mudah lelah.*	I am easily fatigued.	I get tired easily.	I get tired easily.	Suggestion: *Saya mudah lelah lebih dari biasanya.*	*Saya mudah lelah lebih dari biasanya*	0.68	
	I feel sick everywhere in my body.	*Badan saya terasa sakit dimana-mana*	*Saya merasa sakit di sekujur tubuh saya*	*Saya merasakan sakit di seluruh tubuh saya.*	I feel pain all over my body.	I feel pain all over my body.	I feel pain all over my body.	No suggestion and already clear	*Saya merasakan sakit di seluruh tubuh saya*	0.74	
Mental	My heart is stuffy.	*Jantung saya sesak*	*Jantung saya sesak*	*Dada saya terasa sesak.*	My chest feels stuffy	My chest feels tight.	My heart feels stuffy	No suggestion and already clear	*Jantung saya terasa berat*	0.47	0.809
	I have nightmares.	*Saya mengalami mimpi buruk*	*Saya mengalami mimpi buruk*	*Saya mengalami mimpi buruk.*	I have nightmares.	I have nightmares.	I have nightmares.	No suggestion and already clear	*Saya mengalami mimpi buruk*	0.70	
	I am worried.	*Saya merasa khawatir*	*Saya merasa khawatir*	*Saya merasa khawatir.*	I feel worried.	I feel anxious.	I feel worried.	No suggestion and already clear	*Saya merasa cemas*	0.73	
	I am annoyed or angry.	*Saya merasa terganggu atau marah*	*Saya merasa terganggu atau marah*	*Saya mudah kesal atau marah.*	I get irritated or angry easily.	I get irritated or angry easily.	I get irritated or angry easily.	No suggestion and already clear	*Saya mudah kesal atau marah*	0.68	
	I am easily startled.	*Saya mudah kaget*	*Saya mudah kaget*	*Saya mudah gugup.*	I get nervous easily.	I get startled easily.	I get startled easily.	No suggestion and already clear	*Saya mudah terkejut*	0.73	
	I have no hope.	*Saya tidak memiliki harapan*	*Saya tidak memiliki harapan*	*Saya tidak memiliki harapan*	I have no hope.	I feel hopeless.	I have no hope.	No suggestion and already clear	Saya tidak memiliki harapan	0.58	

*Final version is determined after the cognitive debriefing process and panel expert discussion