

ARTYKUŁ POGLĄDOWY / REVIEW PAPER

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Barriers to the diagnosis of post-intensive care syndrome (PICS) in Poland: availability of Polish-language instruments**Szymon Pelczyński^{1,2}, Nina Trimouille³, Anna Kluzik^{1,4},
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Post-intensive care syndrome (PICS) has become increasingly recognised in recent years. PICS is characterised by cognitive, mental and physical symptoms that affect patients, including their quality of life, following treatment in ICU. The clinical presentation can vary in terms of the symptoms experienced, their severity, and how long they persist. Diagnosis is based on questionnaires and functional tests completed by patients at specific intervals. The aim of this narrative review was to identify Polish-language versions of the instruments used for diagnosing PICS. Databases were searched for relevant recommendations, reviews, and cohort studies on PICS. A total of 20 questionnaires and scales available in Polish were identified. Barriers to diagnosing PICS in Poland include the limited availability of instruments and the lack of validation for many tools. Current PICS diagnosis recommendations suggest instruments that could be used in clinical practice in Poland. *Anestezjologia i Ratownictwo 2025; 19: 238-247. doi:10.53139/AIR.20251920*

Keywords: *post-intensive care syndrome, intensive care unit, cognitive impairment, depression, post-traumatic stress disorder, quality of life*

Introduction

Patients who were admitted to the Intensive Care Unit (ICU) may experience various symptoms and functional problems that affect their quality of life. These symptoms are known as post-intensive care syndrome (PICS). The term 'PICS' was first introduced in 2012 at a conference of Society of Critical Care Medicine. The syndrome is defined as the onset of new symptoms, or the worsening of existing symptoms of cognitive, mental or physical impairment after critical care [1]. PICS can manifest as a wide range of symptoms, of varying severity and duration. Symptoms of

PICS may be short-lived, lasting a few weeks, progress to a chronic form, lasting months or accompany the patients for the rest of their lives. The most common clinical manifestations include general weakness and fatigue associated with intensive care unit-acquired weakness (ICU-AW), reduced physical performance and memory, sleep, anxiety and concentration problems [2]. Social problems resulting from an impaired return to daily activities (e.g. work or hobbies) are also recognised as part of PICS [3]. Due to the significant impact of an ICU stay on patients' families, post-intensive care syndrome (PICS) in patients' families (PICS-F) has been distinguished PICS-F is primarily

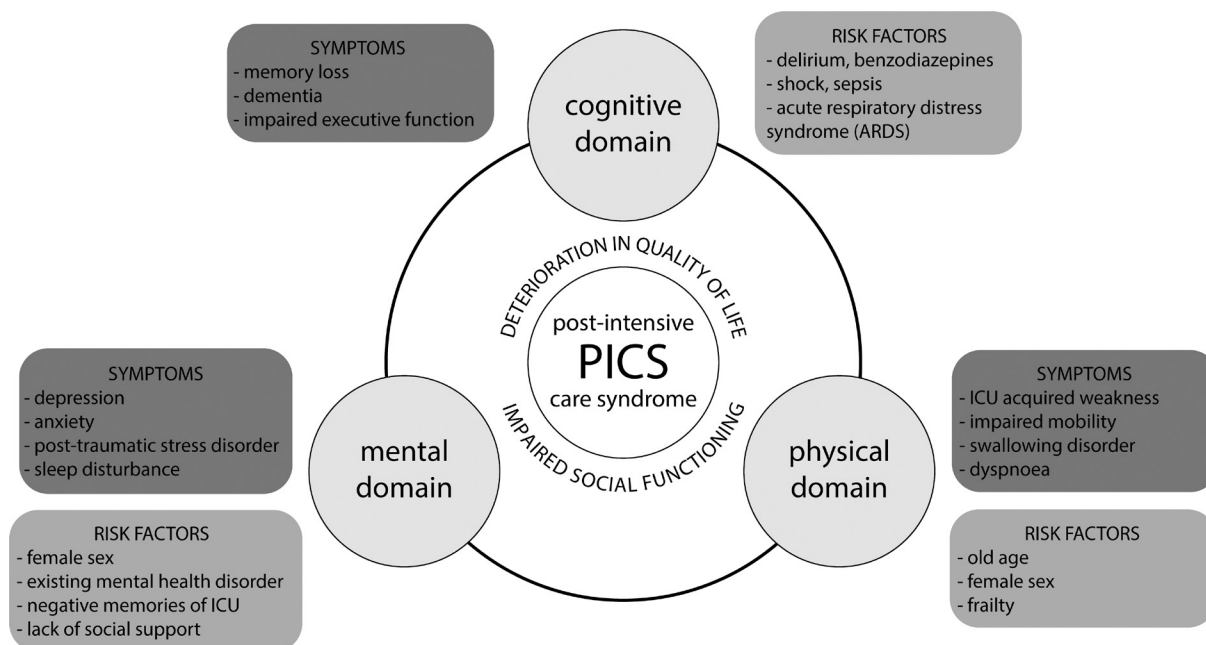


Figure 1. PICS and its domains, including selected clinical symptoms and risk factors. *Based on:* [1-3]

associated with psychiatric disorders [1]. PICS symptoms are summarised in figure 1.

According to the literature, PICS can be diagnosed in at least half of patients following an ICU stay. Up to 80% of patients may experience disturbances in at least one of the three basic life domains [2]. To date, no studies have been conducted in Poland on functional disorders in patients following ICU treatment. The vast majority of English-language papers on PICS originate from the United States and Western European countries [4].

PICS diagnosis is made using instruments such as scales, questionnaires and functional tests to detect deterioration in quality of life or impairments in life domains. There are currently no laboratory markers that can be used to diagnose PICS syndrome [3]. This article reviews the availability of Polish-language versions of the instruments used for PICS diagnosis.

Methods

A literature review was conducted to identify Polish-language diagnostic tools. First, PubMed and Google Scholar databases were searched, using the keywords “post intensive care syndrome” and “questionnaire”, “test”, “scale”, “diagnosis”, “scree-

ning”. Articles from 2012 to 2025 were identified, including literature reviews, recommendations, and cohort studies or their protocols. The questionnaires and tests used to diagnose specific PICS disorders were then identified. Next, the Google, PubMed and Google Scholar search engines were used to search for articles in Polish, adding the keywords “Polish”, “Poland” and “validation” to the tool name and filtering the results. Once the Polish-language version of the tool had been identified, articles describing its validation, scoring and standardisation for use with the Polish population were searched for. A total of 20 questionnaires and scales for which a Polish version is available were identified, as well as four functional tests with Polish manuals. The data obtained are summarised in tables II-VI. An Internet search revealed that some of the questionnaires are publicly available online, for example as PDF files. As the selected questionnaires are subject to licensing and copyright, only references to the original sources are provided in the tables. If no such source was identified, no reference is given.

Challenges in PICS diagnosis

The diagnostic process is time-consuming due to the existence of multiple assessment tools for each

domain, and the limited ability to diagnose remotely using telemedicine tools. Turnbull et al. identified 250 different screening tools used to investigate functional problems in patients after an ICU stay [5]. Most of these tools have not been validated for use with ICU/post-critical care patients, so their usefulness is limited.

The lack of clear guidelines for the diagnosis of PICS syndrome is a significant problem. In 2019, an SCCM (Society of Critical Care Medicine) conference was held to develop by consensus (based on the Delphi method) recommendations for the diagnosis of PICS [3]. The recommendations identify risk factors, vulnerable groups of patients at risk and the selection of diagnostic tools. The authors failed to make strong recommendations for the diagnosis of physical disorders. The SCCM consensus is largely based on a literature review by Needham et al. who identified the available screening tools and proposed a package for assessing long-term outcomes in post-acute respiratory failure patients [6]. The authors created a website www.improvelto.com, which provides a detailed overview of the research tools (questionnaires and tests), as well as a wide range of additional resources, such as interview scenarios and protocols for researchers. The aim is to standardise the tools used in research on disorders in patients after ICU discharge. Rousseau et al. proposed extending the toolset to include additional scales for

assessing chronic pain, fatigue, sleep disorders and metabolic and endocrine disorders [7]. Although adding more instruments can increase the diagnostic sensitivity of the toolkit, it significantly prolongs the assessment time, thus reducing the number of patients assessed. One solution to this problem is to separate the toolkit into screening kits and PICS extended diagnostic kits. Spies et al. proposed a toolkit consisting of a screening package, estimated to take up to 20 minutes, and an extended package, estimated to take 85-110 minutes [8]. An extended assessment would be activated if at least one test threshold value was suggestive of a relevant disorder. The most time-consuming component of this toolkit is the RBANS test, which is not available in Polish. Table I summarises the selected toolkits for PICS diagnosis.

Physical domain

The selected questionnaires used to assess physical impairment are summarised in table II, while the functional tests are summarised in table III.

Assessing physical impairment is a significant challenge in diagnosing PICS, as questionnaires are not very useful for measuring loss of muscle strength compared to functional tests. Testing requires stationary conditions to ensure the test is standardised and

Table I. The proposed research toolkits for PICS diagnostics, developed by consensus, known as “core outcome measures”

Article and authors	Physical domain	Cognitive domain	Mental domain	Quality of life
Mikkelsen et al. [3]	- the 6-minute walking test (6-MWT) - EQ-5D-5L	Montreal Cognitive Assessment (MoCA)	- Hospital Anxiety and Depression Scale (HADS) - Impact of Event Scale – Revised (IES-R) (or short version IES-6)	EQ-5D-5L
Needham et al. [9]	- the 6-minute walking test (6-MWT) - hand grip test	Montreal Cognitive Assessment (MoCA) – BLIND version	- Hospital Anxiety and Depression Scale (HADS) - Impact of Event Scale-Revised (IES-R)	- EQ-5D-5L - SF-36
Spies et al. [12]	Screening			
	- Timed Up-and-Go (TUG) - hand grip test	- MiniCog - Animal Naming	Patient Health Questionnaire-4 (PHQ-4)	EQ-5D-5L
	If any abnormality at screening			
	- the 2-minute walking test (2-MWT) - hand grip test - Short Physical Performance Battery (SPPB)	- Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)* - Trail Making Test (TMT) A and B	- Generalized Anxiety Disorder Scale-7 (GAD-7) - Patient Health Questionnaire-8 (PHQ-8) - Impact of Events Scale – Revised (IES-R)	- EQ-5D-5L - WHODAS 2.0

* no Polish-language version available

Table II. Questionnaires and scales used to assess physical impairment in PICS, available in Polish

Scale/questionnaire	Scoring	Remarks	Access
Clinical Frailty Scale (CFS)	1 (very fit) to 9 (terminally ill)	• use of scale requires official approval of authors • scale is not formally validated <65 years of age • no Polish validation	[9]
Katz's Activities of Daily Living (ADL)	• 6-5 – independent • 4-3 – partially dependent • <3 – fully dependent	no Polish validation	[10]
Lawton's Instrumental Activities of Daily Living (IADL)	• no general scoring • reduction in IADL in a serial assessment indicates a worsening general condition	no Polish validation	[10]
Barthel Index	• 90-100 – independent • 25-85 – partially dependent • 0-20 – very dependent	• no Polish validation • short, modified versions available	[11]
The Functional Independence Measure (FIM)	• 18 (full dependency) – 126 (full independence) • functional aspects scored from 0 (full dependency) to 7 (full independence)	• translated by Ministry of Family and Social Policy (2022) • no Polish validation	*

* This tool is available on government and municipal websites as an appendix to social support programmes

Table III. Functional tests used to assess physical impairment in PICS, instructions available in Polish

Test	Scoring	Remarks	Access
Short Physical Performance Battery	• 0-3 severe limitation • 4-6 moderate limitation • 7-9 mild limitation • 10-12 no limitation	test includes an assessment of the speed of getting up from a chair, balance and walking speed over a distance of 3 or 4 metres	[12]
Medical Research Council Scale (MRC) for muscle assessment/The Lovett Scale ^a	• 0 – no muscle strength/tension • 5 – muscle strength normal • <48 suggests muscle weakness	serial muscle tone assessment at 12 anatomical points	[13]
Hand grip strength test	no reference values	assessment of muscle strength using a dynamometer	[14]
The 6-Minute Walking Test (6-MWT)	distance covered in 6 minutes in a corridor of approx. 30 metres	• test is carried out after resting in a sitting position for 10 minutes • examination is discontinued if chest pain occurs	[15]

* There is also an MRC scale for assessing dyspnoea. In Poland, the Lovett scale is commonly used for muscle assessment, although it is similar to the MRC

objective. Of the available recommendations, only the SCCM consensus included a questionnaire (the EQ-5D-5L for quality of life assessment) as a tool for assessing physical impairment (weak strength recommendations) [3]. Some studies have used activities of daily living (ADL) questionnaires [5].

Zaburzenia funkcji poznawczych

The tools for assessment of cognitive impairment are summarised in table IV.

Cognitive impairment is identified using psychometric tests, which are mainly developed by psychological societies. Testing cognitive functions

takes into account various factors, including memory (delayed word recall tasks), attention (word repetition), language functions, and executive functions (complex motor activities and the 'clock test'). Some tools require additional training or a diploma in psychology.

A full assessment of cognitive function is difficult to carry out remotely. The authors of the Montreal Cognitive Assessment (MoCA) tool have created alternative versions of the test: the MoCA-BLIND and the 5-minute MoCA (MoCA Mini), which do not include any visual tasks. The MoCA-BLIND has been validated among patients with visual impairment. Both tools can be administered remotely (e.g. over the phone) [17].

Table IV. Scales used to assess cognitive impairment in PICS, available in Polish

Test	Scoring	Remarks	References
Montral Cognitive Assessment (MoCA)	• 26-30 – normal cognition • 18-25 – mild cognitive impairment • 10-17 – moderate cognitive impairment • <10 – severe cognitive impairment	• three options (8.1, 8.2, 8.3), can be used interchangeably to minimise the effect of repetition • detailed manual • training is recommended (available in English) • MoCA-BLIND and MoCA MINI versions (without visual tasks) • Polish validation for MoCA 7.2 by Gierus et al. [16] (2015)	• [17] • registration required • registration is free for healthcare workers
MiniCog	• <3 – screening for dementia • <4 – further evaluation is recommended	• Polish manual available on website • short instrument, consists only of clock drawing test and word recall • Polish validation by Barczak et al. (2022) [18]	[19]
Mini-Mental State Examination (MMSE)	• 24-30 – normal cognition • 18-23 – mild cognitive impairment • 10-17 – moderate cognitive impairment • 0-9 – severe cognitive impairment	• takes around 8 minutes • Polish validation by Stańczak J. (2013)	• officially distributed by Polish Psychological Association [20] • master's degree required • paid tool

Mental domain

The tools used to diagnose mental disorders in PICS are summarised in table V. Dedicated questionnaires are used to assess depression, anxiety and PTSD (post-traumatic stress disorder). The IES-R tool is widely used for the assessment of PTSD, but it is not fully compatible with the current DSM-V (Diagnostic and Statistical Manual of Mental Disorders) classification, which is used interchangeably with the ICD-10 classification in the community of psychologists and psychiatrists. These tools can be successfully used remotely, e.g. by sending a questionnaire to the patient.

Quality of life

The tools used to assess patients' quality of life (QoL) are summarised in table VI. Although quality of life is not one of the life domains included in the PICS characteristics, its deterioration is an important component of the syndrome. Available questionnaires usually consist of two components: an assessment of dysfunction within different life domains, and an overall perceived quality of life score/percentage

Limitations of diagnostic instruments

Diagnosis of PICS syndrome based on questionnaires is associated with limitations due to the

specificity, availability and reliability (validation and standardisation) of these instruments.

Patients completing the questionnaire assess their symptoms subjectively. Patients may refuse to participate in the study (e.g. due to negative memories of hospitalisation), or they may not respond to questionnaires sent by post or email (e.g. because they are too long). When comparing results between patients, additional factors must be considered, such as age, prevalence, frailty scores, and ICU admission scores (e.g. APACHE-II). An additional way to make patient assessment more objective is to repeat the examination at regular intervals after hospital discharge (e.g. one month, six months and one year later), so that the trajectory of symptoms over time can be determined [3]. Polish norms (by age and sex) are available for the two QoL assessment tools: EQ-5D-5L and SF-36 v2. As no separate cut-off points have been defined for PICS syndrome, deviations from these norms can be considered to significant change in quality of life.

Some of the Polish-language tools identified are not widely available:

- the EQ-5D-5L, MoCA and MiniCog tools are available on the developers' websites, together with official translations,
- use of the CFS, MoCA, HADS and EQ-5D-5L (especially for research or commercial purposes) requires formal permission,
- the HADS and SF-36 v2 tools are distributed

Table V. Questionnaires and scales used to assess mental disorders in PICS, available in Polish

Scale/ Questionnaire	Scoring	Remarks	References
Patient Health Questionnaire-9 (PHQ-9)	• 0-4 – no depression • 5-9 – mild depression • 10-14 – moderate depression • 15-19 – moderately severe depression • 20-27 – severe depression	cut-off point for depression is 12 points in Polish validation by Kokoszka et al. (2016) [21]	[22]
General Anxiety Disorder Scale (GAD-7)	• 0-4 – no anxiety • 5-9 – mild anxiety • 10-14 – moderate anxiety • 15-21 – severe anxiety	no Polish validation	[22]
Patient Health Questionnaire-4 (PHQ-4)	≥3 points in subscale for anxiety and depression	• consists of 2 questions from PHQ-9 and 2 questions from GAD-7 • validated by Larionow et al. (2023) [23]	[23]
Hospital Anxiety and Depression Scale (HADS)	anxiety and depression scored independently • 0-7 – normal • 8-10 – threshold • 11-21 – incorrect	no Polish validation	• license required • [24]
Impact of Events Scale – Revised (IES-R)	• mean score ≥1.6 suggests a significant risk of PTSD • 5-point (0-4) Likert scale	• can only be used for screening for PTSD • validated by Juczyński et al. (2009) [25]	[25]
Center for Epidemiologic Studies Depression Scale (CESD)	• 4-point (0-3) Likert scale • 0-15 – no depression • 16-21 – moderate depression • 22-60 – severe depression	no Polish validation	[26]
Beck Depression Inventory (BDI-II)	• 4-point (0-3) Likert scale • 0-13 – no depression • 14-19 – mild depression • 20-28 – moderate depression • 29-63 – severe depression*	• Polish normalisation by Łojek, Stanczak (2019) [20]	• officially distributed by Polish Psychological Association [20] • master's degree and passing psychometrics exam is required • paid tool
Geriatric Depression Scale (GDS)	• 0-5 – no depression • 6-10 – moderate depression • 11-15 – severe depression possible	• 15 yes/no questions • no Polish validation	[10]

* Different versions of BDI-II scoring are available online. The reference value should be the Polish normalisation

through third parties and made available upon signing a licence agreement – the cost of this agreement is not made public,

- the MoCA, HADS and EQ-5D-5L are payable for commercial use
- Polish translations of the FIM, WHODAS 2.0 and WHOQOL-BREF questionnaires have been developed as part of government programmes, they are available as attachments on the gov.pl servers, but there is no dedicated website with a description of the tools,
- the MMSE and the Beck Depression Inventory-II (BDI-II) are officially distributed by the Psychological Testing Laboratory (PTP) of the Polish Psychological Association. Manuals, stan-

dardisation data and test sheets are available to purchase. The PTP requires at least a master's degree, and for the BDI-II, completion of a training course and a passed psychometrics exam are also required.

Discrepancies in question content and scoring should be noted when using tools from outside official sources. For example, the BDI-II is widely available online in the form of a self-assessment test, but with different scoring thresholds.

The process of creating a new language version of a research questionnaire involves several stages of translation. First, the questionnaire is translated by certified translators or other fluent language users, and then it is back-translated into the original language by

Table VI. Questionnaires used to assess quality of life in PICS, available in Polish

Questionnaire	Scoring	Remarks	Access
EQ-5D-5L*	• calculation of QoL index [27] • indexed value: -0.590 (worst QoL) to 1.000 (best QoL) • general population reference values [28]	• 5-point (1-5) Likert scale • general health perception on a visual analogue scale (0-100) • Polish validation by Golicki et al. (2020) [29]	• [30] • free registration • multiple versions (paper, electronic) available
SF-36 v2	• score is calculated separately for each subscale • general population reference values [31]	• 8 subscales (4 for physical domain, 4 for mental domain) • Polish validation by Żołnierczyk-Zreda et al. (2009) [31]	• [31,32] • license required
WHOQOL-BREF	• 4 (worst QoL) – 20 (best QoL)	• questions on general health perception, QoL perception and life domains) • 5-point (1-5) Likert scale • Polish validation for previous version by Jaracz et al. (2006) [33]	[34]
WHO Disability Assessment Schedule 2.0 (WHODAS 2.0)	• no specific cutoff • higher score = higher dependence	• 12-item and 36-item version • 5-point Likert scale • Polish validation (population of 60-70 year olds) by Cwirlej-Sozańska et al. (2017) [35]	[36]

* EQ-5D-5L is recommended by the Agency for Health Technology Assessment and Tariff System (AOTMiT) for assessing quality of life

translators for whom it is their mother tongue. This process aims to ensure that the translated version remains consistent with the original, while accounting for cultural differences. Once translated, the questionnaire should be standardised by being validated on a study group, and its internal consistency, sensitivity and relevance should be assessed by comparison with another research tool [37]. Most of the tools in tables IV-VI, which are used to assess quality of life, cognitive function, and mental disorders, have been validated. However, none of the tools used to assess physical disorders and activities of daily living have been validated.

Universal tools for a comprehensive PICS assessment

Due to the broad spectrum of symptoms, an extended PICS assessment requires the use of different instruments, which prolongs the process. Due to the broad spectrum of symptoms, an Extended PICS diagnosis requires the use of different instruments, which prolongs the assessment process. One alternative is to use a ‘universal’ questionnaire that covers all PICS domains. The advantage of such tools is that they streamline the screening of patients. However, developing a tool that checks several domains requires thorough methodology, as well as robust validation and verification of sensitivity and specificity compared to standard

tools. Several potential “universal” questionnaires have been identified, but none are currently available in Polish [38]. The two most popular questionnaires are the Healthy Aging Brain Care-Monitor (HABC-M) and the Post-Intensive Care Syndrome Questionnaire (PICS-Q).

The HABC-M was originally developed to assess the functioning of patients with dementia and has been validated for use with PICS [39]. The instrument consists of four subscales: cognitive, functional, behavioural and mood, and self-efficacy assessment. The instrument contains 30 symptoms, which are rated on a 4-point Likert scale (0-3) according to the intensity of the problems experienced in the two weeks prior to the survey.

The PICS-Q is a tool designed specifically for PICS [39]. It consists of 18 statements in total (six for each domain), which are also rated on a 4-point Likert scale (0-3).

PICS prevention and early management in the ICU

A multi-pronged approach is required to prevent the deterioration of patients’ quality of life after ICU discharge. One important aspect of this approach is the prevention and minimisation of PICS risk factors, in which ICU staff play a key role. Examples of such interventions include the ABCDEF bundle [2,40]:

a) adequate pain control,

- b) attempts to reduce sedation and wean patients off ventilators,
- c) selection of analgesics and sedatives (avoiding benzodiazepines),
- d) assessment and prevention of delirium,
- e) early mobilization,
- f) involvement of patients' families in the care process.

Before discharge from the ICU, patients should undergo a functional assessment that includes their pre-ICU functional abilities (e.g. dependency) in order to predict any post-ICU problems or the need for additional care after discharge, primarily rehabilitation. During the transition of care, all potential problems should be highlighted to the medical team taking charge of the patient's care [3].

PICS in Poland

Post-intensive care syndrome is probably an under-recognised problem among healthcare professionals in Poland. Currently, there is no comprehensive programme in Poland for the care of patients after a stay in an intensive care unit, and staff are usually unaware of what happens to patients after they are discharged [40]. In Poland, healthcare support for patients after an ICU stay is mainly provided by public long-term care facilities (such as care and treatment facilities and hospices), as well as by primary health care clinics, where patients can receive care from family doctors and community nurses (e.g. for dressing changes and other treatments). Significant problems include long waiting times for services under the National Health Fund, often reaching several months after hospital discharge, and the limited number of places in care and treatment facilities, particularly for those requiring long-term ventilation. Private care facilities and rehabilitation centres, which are financed by patients themselves, are becoming increasingly popular [40].

Some countries are establishing centres, known as post-ICU clinics, to coordinate care for patients after an ICU stay. These centres offer comprehensive psychological care and rehabilitation [2]. Currently, there are no facilities in Poland that specialise in providing dedicated care for patients after an ICU stay. Establishing an outpatient clinic specialising in this area could significantly improve the diagnosis and treatment of PICS syndrome, thereby contributing to an improved quality of life for patients. It is important to raise awareness

of post-ICU syndrome, particularly among primary care physicians, psychologists, and physiotherapists. The toolkit proposed by the SCCM seems optimal for application in Poland, e.g. in outpatient clinics run by the previously mentioned professional groups. The growing number of prehabilitation clinics should also be taken into account. Integrating PICS screening assessments with qualifications in preoperative or pre-anaesthesia clinics could help optimise the health status of post-ICU patients before surgery.

Summary

Questionnaires are the main tool used for diagnosing post-intensive care syndrome. While no clear recommendations have yet emerged for diagnosing PICS, there is a recognised need for a standardised set of research questionnaires. This study identified Polish-language versions of the PICS diagnostic questionnaires and verified their translation and validation processes. The limited availability of questionnaires and the lack of validation pose significant barriers to diagnosing PICS in Poland. Further research should include the validation of the remaining instruments and cohort studies investigating the incidence of PICS in Poland.

Recommendations from the Society of Critical Care Medicine could be adopted in the Polish healthcare system. These include the EQ-5D-5L, the Montreal Cognitive Assessment Scale (MoCA), the Hospital Anxiety and Depression Scale (HADS), the Revised Event Impact Scale (IES-R), and the six-minute walk test. The initial PICS assessment should take place shortly after hospital discharge (within a few weeks) and can be conducted in either a primary care or a rehabilitation clinic.

When using questionnaires, it is important to verify their reliability. This includes verifying the translation and validation process, as well as ensuring that the correct rules for interpreting the results are followed. It is also important to be aware of potential discrepancies between online versions and the original sources.

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Conflict of interest

None

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