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CULTURAL ADAPTATION AND PSYCHOMETRIC VALIDATION OF THE SELF EFFICIENCY AND PERFORMANCE IN SELF-MANAGEMENT SUPPORT (SEPSS) QUESTIONNAIRE IN UNDERGRADUATE NURSING AND MEDICAL STUDENTS OF BANGLADESH

ADAPTAÇÃO CULTURAL E VALIDAÇÃO PSICOMÉTRICA DO QUESTIONÁRIO SELF EFFICIENCY AND PERFORMANCE IN SELF-MANAGEMENT SUPPORT (SEPSS) EM ESTUDANTES DE GRADUAÇÃO EM ENFERMAGEM E MEDICINA DE BANGLADESH

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ABSTRACT

In an aging society, healthcare professionals and students face increasing demands to actively involve patients in the decision-making process regarding their health conditions and lifestyles. Self-management support is considered a best practice that aligns with the patient-centered care paradigm in Bangladesh. However, there is currently no instrument available to assess healthcare professionals' competencies in this field, particularly during their early education and training period. The aim of this study was to translate the Self Efficiency and Performance in Self-management Support (SEPSS) instrument into Bangla and validate its psychometric properties in a sample of undergraduate healthcare students in Bangladeshi higher education institutions. A cross-sectional study was conducted to assess the reliability, validity, and cultural appropriateness of the Bangla version of SEPSS-36 among 486 nursing and medical students. Confirmatory factor analysis was carried out using the chi-square model fit index (CMIN), comparative fit index (CFI), and Root Mean Square Error of Approximation (RMSEA) as fit indices. The internal consistency was estimated by the Cronbach alpha coefficient. The results

indicate that the CMIN (2.658) and RMSEA (.058) values suggest that the sample data and hypothetical model are an acceptable fit in the analysis, with satisfactory CFI values (.895). The reliability for all SEPSS dimensions was acceptable. The Bangla version of the SEPSS questionnaire is a valid and reliable instrument that can assist healthcare educators and researchers in determining students' competencies within this domain.

Keywords: Self-Management; Nursing Students; Medical Students; Self-Efficacy; Performance; Scale

RESUMO

Numa sociedade envelhecida, os profissionais de saúde e os estudantes enfrentam exigências cada vez maiores para envolver ativamente os pacientes no processo de tomada de decisão em relação às suas condições de saúde e estilos de vida. O apoio à autogestão é considerado uma prática recomendada que está alinhada com o paradigma de cuidados centrados no paciente em Bangladesh. No entanto, atualmente não existe um instrumento disponível para avaliar as competências dos profissionais de saúde nesse campo, especialmente durante o período inicial de educação e formação. O objetivo deste estudo foi traduzir o instrumento Self Efficiency and Performance in Self-management Support (SEPSS) para o bengali e validar as suas propriedades psicométricas numa amostra de estudantes de saúde de graduação em instituições de ensino superior de Bangladesh. Foi realizado um estudo transversal para avaliar a confiabilidade, validade e adequação cultural da versão em bengali do SEPSS-36 entre 486 estudantes de enfermagem e medicina. A análise fatorial confirmatória foi conduzida utilizando o índice de ajustamento do modelo qui-quadrado (CMIN), o índice de ajustamento comparativo (CFI) e o erro quadrado médio de aproximação (RMSEA) como índices de ajustamento. A consistência interna foi estimada pelo coeficiente alfa de Cronbach. Os resultados indicam que os valores de CMIN (2,658) e RMSEA (0,058) sugerem que os dados da amostra e o modelo hipotético têm um ajustamento aceitável na análise, com valores de CFI satisfatórios (0,895). A confiabilidade de todas as dimensões do SEPSS foi aceitável. A versão em bengali do questionário SEPSS é um instrumento válido e fiável que pode ajudar os educadores e investigadores em saúde a determinar as competências dos estudantes nesta área.

Palavras-Chave: Autogestão; Estudantes de Enfermagem; Estudantes de Medicina; Autoeficácia; Desempenho; Escala.

1. INTRODUCTION

In the current era, there is a rapid expansion of new interventions for the management of noncommunicable diseases (NCDs) [1]. The Centers for Disease Control and Prevention report that about 85% of elderly people have at least one NCD and around 60% have at least two [2]. NCDs pose a significant global health burden and represent a substantial threat to public health. These diseases not only hinder social and economic development worldwide but also contribute to growing inequalities between nations and within populations [3], particularly in Low- and Middle-Income Countries (LMICs) [4].

Bangladesh, a densely populated developing nation in South Asia, is undergoing significant economic transition and experiencing rapid demographic shifts. The current population of Bangladesh stands at approximately 167.4

million people [5]. Over the years, there has been an improvement in life expectancy at birth, rising from 65.6 years in 2000 to 74.3 years in 2019 [5]. However, the healthy life expectancy at birth remains around 64.3 years, posing significant challenges for both the citizens of Bangladesh and the country's healthcare and social systems [5]. Notably, recent studies have revealed that the escalating rates of non-communicable diseases (NCDs) in the country can be attributed to prevailing lifestyle practices among both adults and children [6,7]. Factors such as inadequate diet, poor sleeping patterns, tobacco consumption, and low levels of physical activity have been identified as contributing to the exponential growth of NCDs in Bangladesh [6,7]. These findings underscore the urgent need for interventions and preventive measures to address these

lifestyle-related issues and mitigate the burden on public health and society at large.

To tackle this challenge, the World Health Organization encourages self-management support as a worldwide preference to improve population health and sustain healthcare systems in response to the increasing number of individuals with NCDs [8] across high-, middle-, and low-income countries. Self-management education should be an integral part of high-quality health care as it aims to manage NCDs individually [9]. In a systematic review of 157 studies, Reynolds et al. [10] found that self-management support interventions most frequently resulted in improvements in patient-level outcomes compared to others. Thus, healthcare professionals must take on a new role and develop new skills to support their patients' self-management, establishing a proactive, personalized and dynamic partnership with their patients, families and communities [11,12].

The most commonly reported framework in the literature is the Five A's model, which outlines the five essential stages to support patients in managing their NCDs by identifying, planning, and taking action towards new healthy lifestyle goals (Assess, Advise, Agree, Assist, and Arrange)[13]. Healthcare professionals must evaluate patients' motivation and beliefs about living with NCDs to personalize the support provided. The advise phase's crucial component is information regarding the health condition and its impact on the patients' health and well-being. Education is necessary to make evidence-based decisions about new health and lifestyle goals [13]. During the agree phase, healthcare professionals and patients should jointly decide on the goals to pursue, guided by positive experiences. The assist phase requires healthcare professionals to have the necessary skills to help patients implement and maintain their new lifestyle routines. The arrange phase involves healthcare professionals and patients comparing initial expectations with actual achievements and discussing the need for any changes, initiating a new cycle [13].

Self-management support should involve an interdisciplinary personalized approach to care delivery, where each member of the healthcare team displays core competencies in recognizing ethical quandaries, reflecting on their own behavior, and respecting patients' autonomy in shared decision-making [9]. Therefore, it is essential to have standardized and reliable tools to assess healthcare professionals' competencies that can enhance their role in this domain, particularly during their formal education and training stages [14]. The emphasis on students as the healthcare professionals of tomorrow is particularly crucial, considering the growing body of evidence highlighting their challenges in applying theoretical knowledge to practical settings [15]. Moreover, students often encounter conflicting values between their formal education and clinical internships, further underscoring the importance of addressing their needs and concerns. [16–19]. In alignment with this requirement, the Self-Efficacy and Performance in Self-management Support (SEPSS) instrument [20] emerges as a promising tool to measure healthcare professionals and students' self-efficacy and performance in providing self-management support to patients with NCDs.

In Bangladesh, an instrument that can validly and reliably measure healthcare professionals' performance and their perceived capacity to perform self-management support is needed to evaluate the current practice and training in this field. Thus, we aimed to translate the SEPSS instrument into Bangla, culturally adapt it, and validate its psychometric properties in a sample of undergraduate nursing and medical students from Bangladesh.

2. MATERIALS AND METHODS

2.1. STUDY DESIGN

This study was conducted in two main phases: i) translation and cross-cultural adaptation of the SEPSS questionnaire to Bangla; ii) assessment of the scale's psychometric properties with a sample of undergraduate healthcare students from Bangladesh.

During phase one, the original version of the SEPSS questionnaire (in English) was translated and adapted to Bangla during phase

one (April to September 2021) using the six stages proposed by Beaton et al. [21]. Stage I involved two independent reviewers who were fluent in written and spoken English and performed the forward translation of the questionnaire. The resulting translations were analyzed and discussed by the research team and reviewers, and a Bangla α version of the SEPSS questionnaire [20] was developed in stage II.

In stage III, two official translators with native English proficiency back-translated the α version into English. The research team and translators reviewed the back-translations, and the original SEPSS questionnaire and the Bangla α version were deemed linguistically equivalent.

An Expert Committee consisting of one member from Khulna City Medical College Hospital (Khulna, Bangladesh), two members from City Medical College & Hospital (Khulna, Bangladesh), and two members from Universal Medical College and Hospital (Dhaka, Bangladesh) was formed in stage IV to review the Bangla version of the SEPSS questionnaire. After rounds of discussion and synthesis of individual contributions, a final consensus on each component of the scale was achieved. In a final round, the experts unanimously deemed the scale as a valuable contribution to the current undergraduate training of healthcare professionals in Bangladesh.

In the final stage, a pre-test of the pre-final version was conducted, and nursing and medical students ($n = 38$) found the items of the SEPSS questionnaire (Bangla version) clear and easily scored. The research team deemed the average response time of 30 minutes appropriate based on their experience with previous instruments. The original authors of the questionnaire approved the conducted process after reviewing the results gathered from the previous phases (stage VI).

Concerning phase two, the psychometric validation of the SEPSS questionnaire (Bangla version) was conducted between September and November 2021, in the three higher education institutions of Bangladesh.

2.2. SETTING AND PARTICIPANTS

Three higher education institutions in Bangladesh, namely City Medical College and Hospital, Gazipur, Bangladesh (CIMCH), Khulna City Medical College, Khulna, Bangladesh (KCMCH), and Universal Medical College, Dhaka, Bangladesh (UMCH), were selected for the initial validation process of the SEPSS questionnaire due to their role as partner institutions of the Erasmus+ project titled “DIGICARE—Educating students for digitalized health care and coaching of their patients” (ref. 598267-EPP-1-2018-1-FI-EPPKA2-CBHE-JP).

During phase two of the study, student recruitment followed a non-probability, consecutive sampling approach [22], with senior researchers approaching students between classes and informing them about the study goals. Interested students who were age 18 years or above, enrolled in a bachelor of nursing or medicine degree at one of the institutions and willing to participate in the study, were asked to sign an informed consent form. Students who had previous formal training on clinical self-management support or were enrolled in these institutions as part of a short-term mobility action were excluded from the study. After signing the consent form, students were instructed to independently score the SEPSS questionnaire and place it in a sealed box when finished to be considered eligible for study inclusion.

2.3. INSTRUMENTS AND VARIABLES

Data were collected using the translated and culturally adapted version of the SEPSS to Bangla. The SEPSS questionnaire is based on the Five A's models and includes an additional category for “generic” self-management support skills that are not covered by the model [20]. The questionnaire comprises six dimensions, each containing six items: (i) Assessment, (ii) Advise, (iii) Agree, (iv) Assist, (v) Arrange, and (vi) Overall Competency. Respondents score their self-efficacy and performance on a five-point Likert scale, with 0 representing the lowest score and 4 representing the highest score. The six subscales allow for a more detailed analysis of specific aspects of self-management support, while the total score provides an overall view

[20]. Scores range from 0 to 4 for the subscales and from 0 to 24 for the total score, with higher scores indicating better self-efficacy and performance in self-management support. Mean scores need to be calculated for each subscale (range 0–4).

2.4. STATISTICAL ANALYSIS

A two-step maximum likelihood structural equation modeling procedure was conducted using AMOS 23.0 (SPSS Inc., Chicago, IL). Firstly, a confirmatory factor analysis (CFA) was performed to validate the measurement model. The reliability of the constructs was evaluated using Cronbach’s α coefficients, and values above the 0.70 criterion were considered reliable [23]. Secondly, the structural model estimation was carried out to test the research hypothesis. The suitability of the data for both the measurement and structural models was assessed using a variety of Goodness-of-Fit indices (GFIs). In particular, a good model fit was considered when the chi-square (χ^2) was less than 3.0, and the comparative fit index (CFI) and GFI were greater than 0.90 [23]. A Root Mean Square Error of Approximation (RMSEA) value less than 0.06 indicated a good fit, while values between 0.08 and 0.10 were deemed acceptable [23].

2.5. ETHICAL CONSIDERATIONS

The research proposal was approved by the Ethics Committee of the Health Sciences

Research Unit: Nursing of the Nursing School of Coimbra with number P781-5/2021. Informed consent was obtained to ensure that the subjects voluntarily participated in this study. The students participating in the study were provided with full information about the study, including the purpose, research methods, and rights when participating in the study. Students were informed of their right to withdraw from the study at any time without consequences.

3. RESULTS

A total of 486 nursing ($n = 312, 64.2\%$) and medical ($n = 174, 35.8\%$) students from three higher education institutions in Bangladesh voluntarily participated in the study. These institutions were CIMCH ($n = 184, 37.9\%$), KCMCH ($n = 152, 31.2\%$), and UMCH ($n = 150, 30.9\%$). Female students ($n = 371, 76.3\%$) outnumbered male students ($n = 115, 23.7\%$) by three to one. Most participants ($n = 457, 94\%$) were full-time students, with only a small proportion ($n = 29, 6\%$) being part-time students. The students’ mean age was 22.4 years (± 2.35), with the youngest student being 19 and the oldest 36 years old. In terms of the results of phase two, healthcare students scored their potential performance higher than their self-efficacy perception (Table 1).

Table 1 – Total and subscale mean and SD in self-efficiency and performance of the SEPSS instrument

SEPSS dimension	Self-efficacy (min and max)	Performance (min and max)
Assess	2.83 ± 0.83 (0 and 4)	2.99 ± 0.77 (0 and 4)
Advise	2.85 ± 0.74 (0 and 4)	2.99 ± 0.74 (0 and 4)
Agree	2.84 ± 0.80 (0 and 4)	2.97 ± 0.76 (0 and 4)
Assist	2.87 ± 0.78 (0 and 4)	2.99 ± 0.70 (0 and 4)
Arrange	2.82 ± 0.82 (0 and 4)	2.88 ± 0.86 (0 and 4)
Overall competency	2.87 ± 0.78 (0 and 4)	3.00 ± 0.78 (0 and 4)
Total score (0–24)	17.08	17.82

The reliability of the SEPSS dimensions for self-efficacy and performance was estimated using Cronbach’s alpha (Table 2). All values for

self-efficacy and performance were equal to or greater than 0.75, indicating acceptable reliability.

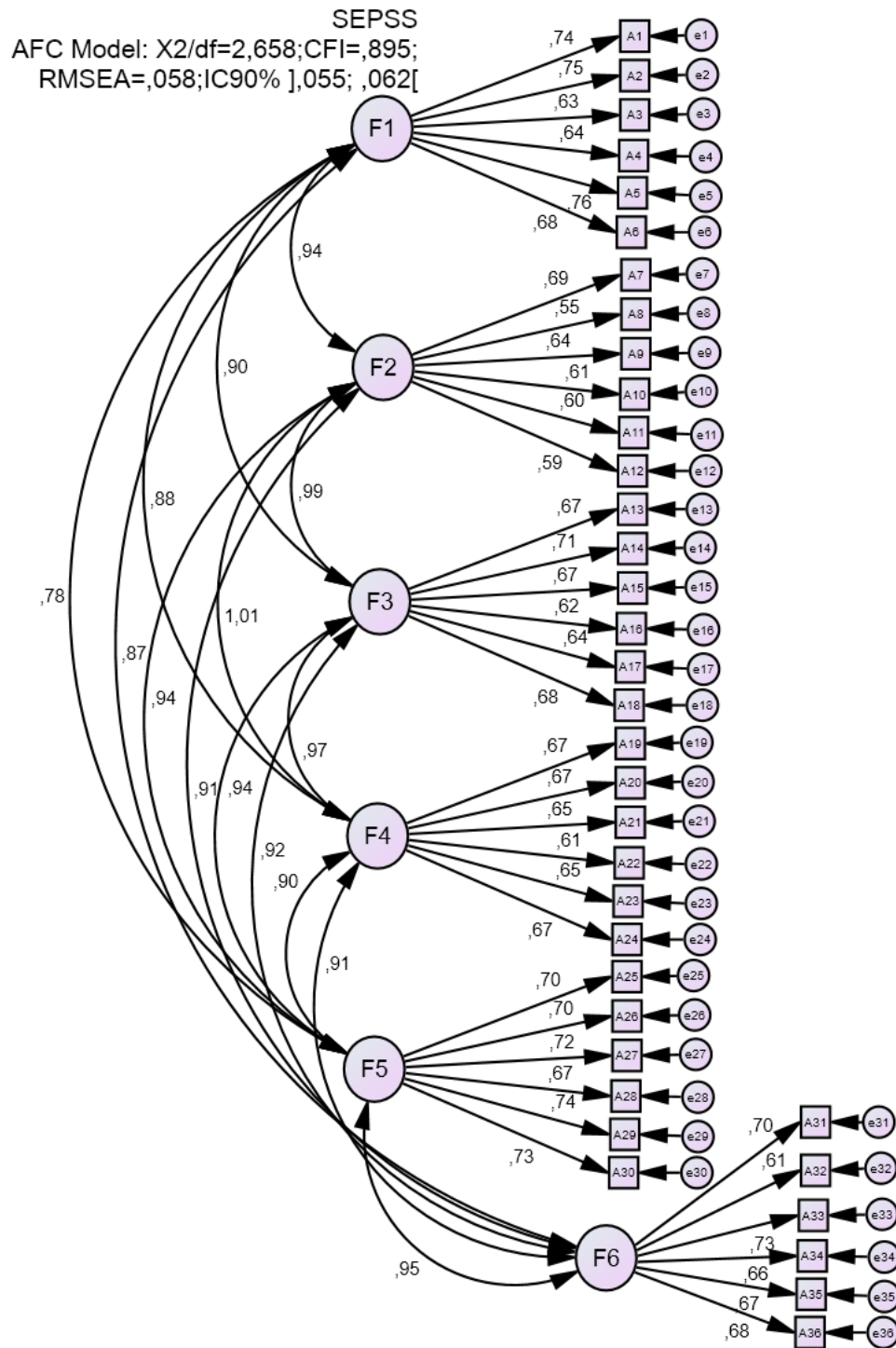
Table 2 – Cronbach alpha values of 6 dimensions of SEPSS

SEPSS dimensions	Self-efficacy subscale	Performance subscale	SEPSS (global) scale
Assess	0.84	0.82	0.85
Advise	0.76	0.75	0.78
Agree	0.82	0.78	0.83
Assist	0.83	0.75	0.82
Arrange	0.83	0.84	0.86
Overall competency	0.82	0.80	0.83

Regarding the CFA performed on the final model (Figure 1), the results showed a good fit according to the normal fit index (NFI), which had a value of .842. The comparative fit index (CFI) also indicated an adequate fit, with a value of .895. The Root Mean Square Error of Approximation (RMSEA) was .058 (with a 90% confidence interval between .055 and .062),

suggesting that the observed data and the proposed model fit reasonably well. Additionally, the CMIN/DF fit index for the default model was 2.658, which is less than 3, indicating an acceptable fit according to Kline [24].

Figure 1 – SEPSS model and goodness-of-fit indexes obtained by confirmatory factor analysis.



F1	ACESS
F2	ADVISE
F3	AGREE
F4	ASSIST
F5	ARRANGE
F6	OVERALL COMPETENCY

4. DISCUSSION

Self-management is the dominant paradigm for delivering care for NCDs in many countries. Developing and implementing educational interventions to enhance self-management support competencies for future healthcare professionals is therefore critical [25–27]. In this study, we aimed to evaluate the construct validity of the SEPSS instrument using CFA. The proposed structural equation model evidenced satisfactory goodness-of-fit indices. The CMIN/DF value for the default model was 2.658, indicating a reasonable fit. The sample data and hypothetical model were an acceptable fit, as indicated by RMSEA values ≤ 0.05 . The instrument and its subscales demonstrated strong internal consistency, as evidenced by high Cronbach's alpha values ranging from 0.75 to 0.96. The test-retest procedure indicated good stability of the instrument.

The performance of Bangladeshi nursing and medical students was found to be higher than their self-efficacy scores across all subscales and in total. Since self-efficacy is a critical precursor to behavior, it is recommended that performance and self-efficacy items be assessed in an integrated manner. These preliminary findings suggest that Bangladeshi nursing and medical students are actively engaged in supporting patients' self-management of NCDs in different stages but may lack confidence in their level of proficiency and competency to provide efficient, safe, and timely care. These initial findings can provide insight to nursing and medical educators in the selected higher education institutes on the significance of designing and implementing specific educational interventions that concentrate on enhancing students' competencies in crucial aspects of self-management support, including patient-centered communication and counseling, shared decision-making, information provision, innovative thinking, and cultural, religious, and spiritual awareness [25–27].

However, it is important to consider the limitations of our study. Firstly, we recruited participants from only three non-randomized universities, which may limit the generalizability

of our findings. Additionally, our model analysis did not account for the potential differences in undergraduate students' scoring of the SEPSS instrument based on their scientific background and year of study. Therefore, further validation studies are required to ensure the instrument's reliability and construct validity for specific undergraduate healthcare courses and to assess whether students' progression through the course affects their perception and scoring of the instrument. Furthermore, given the interdisciplinary nature of self-management support, it is recommended that the translated and culturally adapted version of the SEPSS instrument be validated with other key stakeholders, such as physiotherapy, pharmacy, and nutrition students.

Secondly, although our selection of undergraduate students was intentional, we believe that the Bangla version of the SEPSS instrument could also be a reliable tool to assess self-management support competencies among post-graduate students and licensed healthcare professionals. In Bangladesh, these groups face increasing pressure to plan and deliver care in increasingly demanding scenarios due to the exponential growth in citizens requiring care and the increasing complexity of their health conditions and needs.

5. CONCLUSIONS

The Bangla version of the SEPSS instrument demonstrated both semantic and linguistic equivalence to the original version and was positively received by academic experts and undergraduate nursing and medical students in Bangladesh. The instrument also displayed favorable psychometric properties, suggesting its potential for evaluating the self-efficacy and performance of undergraduate healthcare students in supporting patients' self-management of NCDs. Future studies with a more diverse and inclusive sample, including students with varying scientific backgrounds, post-graduate students, and healthcare professionals, are necessary to further refine the instrument.

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PROCEDIMENTOS ÉTICOS

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