

Structural empowerment in nursing: translation, adaptation and validation of the Conditions of Work Effectiveness Questionnaire II

Empoderamento estrutural em enfermagem: tradução, adaptação e validação do *Conditions of Work Effectiveness Questionnaire II*

Empoderamiento estructural en enfermería: traducción, adaptación y validación del *Conditions of Work Effectiveness Questionnaire II*

Abílio Cardoso Teixeira*; Maria Assunção Almeida Nogueira**; Paulo Jorge Pereira Alves***

Abstract

Background: Professional empowerment in nursing is highly important in organizations due to its impact on the organizations themselves, patients, nurses, and the nursing discipline. However, our search revealed no instrument capable of measuring it which had been validated for Portuguese nurses.

Objective: To translate, adapt and validate the Conditions of Work Effectiveness Questionnaire II (CWEQ-II).

Methodology: Methodological study, with a process of translation and back-translation, using a stratified probability sample consisting of nurses from a Portuguese teaching hospital.

Results: Six factors emerged factor analysis, explaining 72.925% of the total variance of the scales. Cronbach's alpha coefficient for the factors was .85 (Opportunity), .86 (Information), .89 (Support), .797 (Resources), .81 (Formal Power) and .68 (Informal Power), and the overall value was .91. We obtained a reference value of 18.94 for structural empowerment, which is in line with other published studies.

Conclusion: We translated, adapted and validated a version of the CWEQ-II for use in Portuguese nurses.

Keywords: empowerment; translation; validation; questionnaire

Resumo

Enquadramento: O empoderamento profissional em enfermagem é um assunto de relevância assumida nas organizações, pelo seu impacto nas mesmas, no profissional, no cliente e na disciplina de enfermagem. Da pesquisa efetuada, não encontramos nenhum instrumento capaz de o medir, validado para a população de enfermeiros portuguesa.

Objetivos: Traduzir, adaptar e validar o *Conditions of Work Effectiveness Questionnaire II* (CWEQ-II).

Metodologia: Estudo do tipo metodológico, num processo de tradução e retrotradução, com recurso a uma amostra probabilística estratificada, constituída por enfermeiros de um hospital universitário de Portugal.

Resultados: Através da análise fatorial, foram identificados 6 fatores, explicando 72,925% da variância total das escalas. O coeficiente alfa de Cronbach dos mesmos foi de 0,85 (Oportunidade), 0,86 (Informação), 0,89 (Apoio), 0,797 (Recursos), 0,81 (Poder Formal) e 0,68 (Poder Informal), sendo o valor global de 0,91. Obteve-se um valor de referência de empoderamento estrutural de 18,94, coincidentes com o de outros estudos publicados.

Conclusão: Obtivemos uma versão do CWEQ-II traduzida, adaptada e validada para a população de enfermeiros.

Palavras-chave: empoderamento, tradução, validação, questionário

Resumen

Marco contextual: El empoderamiento profesional en enfermería es un asunto importante en las organizaciones debido a su impacto en las mismas, en lo profesional en el paciente y en la disciplina de enfermería. En la investigación realizada no se ha encontrado ningún instrumento capaz de medirlo validado para los enfermeros portugueses.

Objetivo: Traducir, adaptar y validar el *Conditions of Work Effectiveness Questionnaire II* (CWEQ-II).

Metodología: Estudio metodológico en un proceso de traducción y retrotraducción en el que se utilizó una muestra probabilística estratificada que consiste en profesionales de enfermería de un hospital universitario de Portugal.

Resultados: Se identificaron 6 factores a través del análisis factorial, lo que explica el 72,925 % de la varianza total de las escalas. El coeficiente alfa de Cronbach de estos fue 0,85 (oportunidad), 0,86 (información), 0,89 (soporte), 0,797 (recursos), 0,81 (poder formal) y 0,68 (poder informal) y el valor total fue de 0,91. Se obtuvo un valor de referencia de empoderamiento estructural de 18,94, lo que coincide con el de otros estudios publicados.

Conclusión: Se obtuvo una versión traducida, adaptada y validada del CWEQ-II para los enfermeros portugueses.

Palabras clave: empoderamiento; traducción; validación; cuestionario

* MSc., RN, Hospital Center of Porto-Hospital of Santo António, 4099-00, Porto, Portugal [abilio.cardosoteixeira@gmail.com]. Contribution to the article: literature search; data collection; statistical treatment and assessment; data analysis and discussion; article writing. Address for correspondence: Rua Augusto César de Mendonça 130 4º Dto Fie, 4099-001, Porto, Portugal.

** Ph.D., Senior Adjunct Professor, Vale do Sousa Higher School of Health, 4585-116, Gandra, Portugal [assuncaoag@gmail.com]. Contribution to the article: literature search; data analysis and discussion; article revision.

*** Ph.D., Assistant Professor, Catholic University of Portugal-Institute of Health Sciences, 4200-072, Porto, Portugal [ppjalves@gmail.com]. Contribution to the article: literature search; statistical treatment and assessment; data analysis and discussion.

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Introduction

Medical activities are still considered key indicators of productivity and outcomes in our health care system (Ribeiro, 2009). This fact can be explained by the institutions' characteristics, with the predominance of the biomedical paradigm and of treating at the expense of caring (Ribeiro, 2009). However, nursing empowerment brings about positive outcomes, both at an personal and professional level, namely in terms of professional satisfaction, promotion of autonomy, quality of care and organizational and professional commitment. Thus, we believe that the concept of empowerment is essential in contemporary organizations, requiring participatory systems.

However, our study revealed the lack of instruments capable of measuring empowerment among Portuguese nurses from a structural perspective. The Conditions of Work Effectiveness Questionnaire II (CWEQ-II), developed by Laschinger, Finegan, Shamian, and Wilk (2001), although it is widely used in the United States of America and Canada, has only been applied in five other distinct realities: China, United Kingdom (one of the studies aimed to compare the British and Malayan realities), Germany (in a study involving samples from the United States of America, Canada, Germany, Scotland and England) and Italy. Therefore, this study aimed to translate and adapt the CWEQ-II, validating it for the study population through factor analysis. With this study, we hope to contribute to the development of scientific knowledge in this area in Portugal and to future research studies.

Background

Kanter (1993, p. 166) described power as the "ability to get things done, to mobilize resources, to get and use whatever it is that a person needs for the goals he or she is attempting to meet", which meant guidance for achieving objectives. Empowerment should be understood as a process and an outcome, the ability to intervene in a given context rather than the exercise of power over another person (Cawley & McNamara, 2011). It is, however, important to understand the process that leads to nurses' empowerment.

Structural theory describes empowerment from the point of view of work conditions, omitting the

relations between the individual and these conditions (Laschinger, Finegan, Shamian, & Wilk, 2001). The individual reacts emotionally to situations arising within the organization, and power evolves from the structure, influencing behaviors and attitudes (Kanter, 1993; Laschinger, Finegan, & Shamian, 2001). Within the organization, power is the result of both formal systems (resulting from activities that allow decision to achieve organizational objectives) and informal systems (deriving from interpersonal relationships) which provide access to structures that promote empowerment. It is an attribute that nurses must develop in order to practice more autonomously, and be able to define their areas of expertise and influence (Manojlovich, 2007). Therefore, organizations must provide the individual with opportunities to learn and grow, as well as with access to information, support and resources.

From a structural perspective, empowerment has an impact on professional satisfaction and autonomy, the control over practice, the decision-making process, the level of stress, organizational commitment, and commitment to nursing.

Methodology

In the absence of an adequate instrument in his/her own language, the researcher has two alternatives: develop a new one or adapt one that has already been validated for another language (Guillemin, Bombardier, & Beaton, 1993). Thus, we developed this study based on the second premise. This was a quantitative and cross-sectional study classified according to Fortin (2009) as a methodological study used to establish and verify the reliability and validity of new measuring instruments. Our purpose was to translate, adapt and validate the CWEQ-II for the population of Portuguese nurses.

Based on Kanter's theory (1993), Laschinger, Finegan, Shamian, and Wilk (2001) designed the CWEQ-II. This scale is a modification of the CWEQ (designed by Chandler in 1986), the Job Activities Scale and the Organizational Relationships Scale. It consists of 19 items divided into six dimensions: Opportunity (three items), Information (three items), Support (three items), Resources (three items), Formal Power (three items), and Informal Power (four items). It also includes an extra 2-item scale designed for validation

purposes (the correlation between this score and the total score of empowerment confirms construct validity). The scales' scores range from 1 to 5, for a total score between 6 and 30 (the score is obtained by summing the means of the six dimensions): higher scores indicate higher empowerment.

Given the multiplicity of factors facilitating or hampering empowerment (Amendoeira, 2008; Kuokkanen, Leino-Kilpi, & Katajisto, 2003; Laschinger, Wilk, Cho, & Greco, 2009; Manojlovich, 2007), and despite not being our objective, we decided to obtain data on sociodemographic characteristics, which may subsidize future studies.

However, since this instrument was not translated, adapted and validated for Portuguese nurses, we translated, adapted and validated it for use in that population. This process was rigorous, because poorly translated instruments jeopardize data validity (Wild et al., 2005). Therefore, different methodological steps were taken to ensure linguistic, conceptual and psychometric equivalence, according to Ribeiro's guidelines (1999) and in line with the different types of cross-cultural equivalence (Hilton & Skrutkowski, 2002). According to Wild et al. (2005), despite being extremely important, the preparation phase is usually omitted in this process. The request for permission and the first contact with the authors occurred within this period, and we only proceeded with the study after obtaining their authorization. The linguistic equivalence was assured through translation and back-translation processes, which were in line with those proposed by Beaton, Bombardier, Guillemin, and Ferraz (2000). Our purpose was to achieve an accurate translation, based on the assumption that the same concept has different meanings in different cultures (Hilton & Skrutkowski, 2002).

The translation into Portuguese was performed by a translator who was familiar with the concepts under analysis and another translator without any knowledge of them and no connection to the health area. We elaborated reports on each translation (T1 and T2), and synthesized them later on into a single document (T12), with a view to solving potential discrepancies (Wild et al., 2005). In order to increase the quality of the instrument, this document was back-translated by two translators blinded to the original instrument. Versions RT1 and RT2 were obtained and then compiled into a single document (RT12). According to Beaton et al. (2000), this process ensures validity,

i.e. that the translated version reflects the same type of content as in the original version. The RT12 version was sent to the authors of the original scale, together with a request for suggestions. We would like to emphasize that the authors confirmed this version. According to the authors of the CWEQ-II, the changes that seem fit for your participants, mention it in your final paper that you MADE these changes to the tool and then in the reference section also put modified tool.

The conceptual equivalence was achieved in line with the recommended by Hilton and Skrutkowski (2002). The version was reviewed by experts (researchers, health professionals, linguistic experts and translators) so as to standardize expressions that could differ due to cultural reasons (Beaton et al., 2000; Guillemin, Bombardier, & Beaton, 1993). We aimed to achieve an accurate translation, so we checked for the semantic, idiomatic and conceptual equivalence between the original and the translated version (Knaut, Moser, Melo, & Richards, 2010). The pre-final version emerged from this review. This version was pre-tested with the purpose of identifying any problems concerning the instrument (Fortin, 2009). It was applied to 32 nurses (in line with Beaton et al., 2000) who were attending a postgraduate specialization degree in nursing. We wanted to have a variety of experiences as similar as possible to the study sample. Thus, in this version of the instrument, the clarity and level of understanding of the items was tested through questions on their level of understanding, the clarity of the questions formulated, the adequacy of the response options, the clarity of the instructions for completion and the information provided, and the suitability of the sequence. The nurses in the pre-test gave suggestions to improve this version, ensuring equivalence and applicability to the context. Although it was ultimately unnecessary, we had previously agreed that items with 15% or more of disagreement or doubts would be submitted for reformulation in another meeting of the committee responsible for designing the latest version in Portuguese (Knaut et al., 2010).

Population and sample

The population of this study was composed of nurses from a teaching hospital in the northern region of Portugal. The sample was obtained through a probability and stratified sampling technique. Sample

size was in line with the recommendations of Dillman, Smyth, and Christian (2009). In 2011, there were 891 nurses in this hospital, so, for a 95% confidence interval, an expected response percentage of 50/50 and a margin error of 5%, we estimated a sample of 268 nurses. We included in the study nurses who worked in inpatient, intensive care, surgical and emergency units, and who agreed to participate in the study. We excluded nurses who worked in the pediatric intensive care unit, due to their recent integration into this hospital unit. Subsequently, we stratified the sample to obtain greater representativeness and more homogenous groups based on common characteristics. Participants were randomly selected from each stratum (departments, which bring together services with similar organic and clinical characteristics) (Collins, Onwugbuzie, & Jiao, 2006). In each stratum, we took into account the percentage value of the participants according to the total value (population).

We obtained a predominantly female sample (66%), aged between 24 and 61 years, with a mean age of 30 years. Of the participants, 11% hold the professional category of specialist nurses and 2% are head nurses, 53.7% have no postgraduate degree, 18.3% have postgraduate degrees (we did not explore their areas

of expertise) and 28% had specialization degrees. The length of professional experience ranged from 2 to 37 years, with a mean of 10.2 years. The length of professional experience in the unit ranged from 0.1 to 36 years, with a mean of 7.4 years.

We met all ethical requirements for any research study. Thus, after the institutions' approval, we sent e-mails to the head nurses of the units involved with information on the study, the data collection instrument and the date scheduled for the first visit to the units. During the first visit to the unit, we distributed the questionnaires, explained the study, clarified doubts and ensured the confidentiality of personal and institutional information.

The psychometric validity was ensured through the analysis of the psychometric properties of the questionnaire at two levels: descriptive and factorial.

Results and discussion

The reliability of the scale was estimated using Cronbach's alpha coefficient, with a variation between the different dimensions ranging from .678 to .889, with a total of .911 (Table 1).

Table 1

Measures of central tendency and dispersion, item-total correlation and internal consistency of the CWEQ-II

| Dimension | Q. | M | SD | r | α | α of the dimension |
|----------------|----|-------|---------|------|----------|---------------------------|
| Opportunity | 1 | 56.62 | 98.943 | .589 | .610 | .854 |
| | 2 | 56.51 | 99.557 | .575 | .598 | |
| | 3 | 56.59 | 101.455 | .530 | .500 | |
| Information | 1 | 57.28 | 101.064 | .568 | .540 | .859 |
| | 2 | 57.51 | 99.752 | .570 | .733 | |
| | 3 | 57.50 | 100.783 | .507 | .654 | |
| Support | 1 | 57.35 | 97.648 | .695 | .705 | .889 |
| | 2 | 57.23 | 99.519 | .598 | .709 | |
| | 3 | 57.15 | 99.229 | .637 | .632 | |
| Resources | 1 | 57.66 | 99.943 | .561 | .447 | .797 |
| | 2 | 57.07 | 100.830 | .607 | .538 | |
| | 3 | 57.19 | 98.497 | .651 | .547 | |
| Formal Power | 1 | 57.74 | 97.857 | .637 | .578 | .811 |
| | 2 | 57.29 | 100.354 | .567 | .510 | |
| | 3 | 57.70 | 98.279 | .670 | .555 | |
| Informal Power | 1 | 56.70 | 102.990 | .413 | .269 | .678 |
| | 2 | 56.35 | 105.373 | .382 | .296 | |
| | 3 | 57.19 | 100.977 | .507 | .433 | |
| | 4 | 57.10 | 102.471 | .439 | .342 | |

total $\alpha = 0.911$

Q. – Question; M – Mean; SD – Standard Deviation; r – Item-total correlation; α – Cronbach's alpha if item deleted; α of the dimension – Cronbach's coefficient of the dimension

Values higher than .7 for internal consistency (Hochwalder & Brucefors, 2005) were considered as acceptable. McDonald, Tullai-McGuinness, Madigan, and Shively (2010) put forward the Cronbach's alpha coefficients of this instrument found in other studies: .78-.93 (CWEQ-II total), .75-.85 (Opportunity), .80-.95 (Information), .72-.89 (Support), .71-.88 (Resources), .61-.83 (Formal Power), and .63-.80 (Informal Power). We believe that the data obtained, which are in line with these studies, ensure the internal consistency of this scale.

Table 2 shows the communality coefficients calculated after factor extraction, with values above .5, assuming significant covariance. Factors were extracted according to the Kaiser's criterion. The choice of the principal components which justify most of the variation was determined by those with eigenvalues greater than 1. Items with factor loadings above .30 on more than one factor were included in the factor with the highest loading.

Table 2
Factor analysis of the CWEQ-II using the principal components analysis. Solution after varimax rotation.

| | H ² | Factors | | | | | |
|-------------------------------|----------------|---|--------|--------|--------|--------|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| Opportunity 2 | .777 | .827 | | | | | |
| Opportunity 1 | .766 | .813 | | | | | |
| Opportunity 3 | .733 | .809 | | | | | |
| Support 2 | .879 | | .887 | | | | |
| Support 3 | .788 | | .800 | | | | |
| Support 1 | .815 | | .781 | | | | |
| Information 2 | .860 | | | .881 | | | |
| Information 3 | .787 | | | .854 | | | |
| Information 1 | .684 | | | .733 | | | |
| Resources 2 | .765 | | | | .807 | | |
| Resources 3 | .693 | | | | .713 | | |
| Resources 1 | .626 | | | | .659 | | |
| Informal Power 4 | .702 | | | | | .747 | |
| Informal Power 3 | .662 | | | | | .719 | |
| Informal Power 2 | .634 | | | | | .687 | |
| Informal Power 1 | .582 | .367 | | | .405 | .419 | |
| Formal Power 1 | .758 | | | | | | .694 |
| Formal Power 2 | .692 | | | | .494 | | .595 |
| Formal Power 3 | .653 | | | | | | .565 |
| % Explained variance | | 13.727 | 13.440 | 13.292 | 13.086 | 10.582 | 8.798 |
| | | 72.925 | | | | | |
| Kaiser-Meyer-Olkin Measure | | .881 | | | | | |
| Bartlett's Test of Sphericity | | $X^2 = 2940.5$; $df = 171$; $p\text{-value} = .000$ | | | | | |

H² – Communality coefficient; X² – Chi-square; df – degrees of freedom
Attention: All values with a factor loading below .30 were removed from the table to facilitate data analysis.

Similarly to the original scale, the six factors obtained (CWEQ-II) explain 72.925% of the total variance of the scale, through orthogonal varimax rotation. Separately, these factors explain the following percentages of variance: 13.727 (factor 1), 13.440 (factor 2), 13.292 (factor 3), 13.086 (factor 4), 10.582 (factor 5), and 8.798 (factor 6). With regard to communality, we found that all of the variables are

above .5, indicating that half or more than half of their variance is explained by common factors.

The measure of sampling adequacy compares the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. The score of .881 in the Kaiser-Meyer-Olkin measure showed inter-variable correlations, indicating a good sampling adequacy. The Bartlett's test of sphericity

indicates the presence (or absence) of inter-variable correlation. The Chi-square test, which was calculated for this test, indicates the presence of correlation ($p < .001$).

Table 3 shows Pearson's correlation coefficients between the different subscales. We considered the correlation to be statistically significant, ranging from .370 to .621, and that the four scales are moderately correlated.

Table 3
Pearson's correlation between the different dimensions of the CWEQ-II

| | Opp. | Inf. | Sup. | Res. | For. P. | Inf. P. | Total |
|----------------|------|--------|--------|--------|---------|---------|--------|
| Opportunity | | .370** | .398** | .437** | .508** | .415** | .721** |
| Information | | | .425** | .429** | .392** | .411** | .660** |
| Support | | | | .553** | .579** | .415** | .760** |
| Resources | | | | | .621** | .437** | .772** |
| Formal Power | | | | | | .415** | .693** |
| Informal Power | | | | | | | .754** |

** $p < .001$; Opp. – Opportunity; Inf. – Information; Sup. – Support; Res. – Resources; For. P. – Formal Power; Inf. P. – Informal Power

According to Laschinger, in the instructions provided when we received the scale, the two global empowerment items are only intended to provide evidence on construct validity, through the correlation between this value and the total value of the scale. It was confirmed that there is a moderate correlation ($\rho = .672$; $p < .001$) between this scale and the total value of the CWEQ-II.

The study participants were considered to be moderately empowered (scale total of 18.94). The highest score was obtained in the Opportunity dimension, whereas the lowest score was obtained in the Information dimension. Higher scores were obtained in the scale assessing Informal Power than in the scale assessing Formal Power (Table 4).

Table 4
Descriptive statistics of the CWEQ-II

| Question | m. | M. | Mean | SD | MV (dimension) | CWEQ II |
|----------|----|----|------|-------|----------------|---------|
| Opport1 | 1 | 5 | 3.70 | 0.966 | | |
| Opport2 | 1 | 5 | 3.81 | 0.937 | 3.75 | |
| Oport3 | 1 | 5 | 3.73 | 0.847 | | |
| Inf1 | 1 | 5 | 3.04 | 0.827 | | |
| Inf2 | 1 | 5 | 2.81 | 0.929 | 2.89 | |
| Inf3 | 1 | 5 | 2.82 | 0.935 | | |
| Support1 | 1 | 5 | 2.97 | 0.925 | | 18.94 |
| Support2 | 1 | 5 | 3.08 | 0.909 | 3.07 | |
| Support3 | 1 | 5 | 3.16 | 0.879 | | |
| Res1 | 1 | 5 | 2.66 | 0.924 | | |
| Res2 | 1 | 5 | 3.24 | 0.796 | 3.01 | |
| Res3 | 1 | 5 | 3.13 | 0.917 | | |
| Form1 | 1 | 5 | 2.58 | 0.980 | | |
| Form2 | 1 | 5 | 3.02 | 0.886 | 2.74 | |
| Form3 | 1 | 5 | 2.62 | 0.908 | | |
| Inform1 | 1 | 5 | 3.61 | 0.885 | | |
| Inform2 | 1 | 5 | 3.97 | 0.685 | 3.48 | 18.94 |
| Inform3 | 1 | 5 | 3.13 | 0.918 | | |
| Inform4 | 1 | 5 | 3.21 | 0.893 | | |

m. – Minimum; M. – Maximum; SD – standard deviation; MV – mean value

Upon the submission of the original scale, Laschinger showed data from several studies using the CWEQ-II. At the hospital level, the reference value of empowerment varied between 17.35 and 19.60, and nurses assigned more importance to the Opportunity and Informal Power dimensions (in comparison to the Formal Power dimension), which is in line with the results of this study.

As in any study, this research also had some limitations. As proposed by Laschinger, Finegan, Shamian, and Wilk (2001), there are other factors influencing empowerment that are not included in this scale.

Due to certain constraints (time and money), this study was performed only in a unit, part of a hospital center, so the test/retest reliability was not applied (because of the difficulty in finding the most appropriate time for the retest and large amount of studies referred to by nurses)

Conclusion

This study is important due to the lack of instruments capable of measuring professional empowerment, from a structural perspective, in Portugal. Professional empowerment in nursing brings about several gains for nurses (as individual actors), nursing, patients and the institution. In this study, we have validated instruments to assess the perceptions of structural empowerment in nursing. Their implementation may lead to the development of action plans that will meet the needs or reinforce the strengths identified, thus leading to several gains for the professional, the patient and the discipline.

In order to meet the objectives set out for this study - to translate and adapt the CWEQ-II for the Portuguese population - we believe to have contributed to the identification of nurses' perceptions of structural empowerment and of areas of activity at an organizational and individual level through the production of valid tools. Based on the technical and statistical procedures performed, we can infer that the methodology adopted in the translation and adaptation process was consistent with the objectives outlined. This consistency ensures that the instrument is valid for the Portuguese population.

Six factors emerged from the factor analysis of the CWEQ-II, corresponding to those identified by the authors of the original scale. Factor loadings and

coefficients of communalities confirmed the adequacy of the factor analysis. These results were corroborated by the correlation coefficients of the Kaiser-Meyer-Olkin measure and the Bartlett's test of sphericity, which were considered favorable. Cronbach's alpha value confirmed the internal consistency of the scale, being above the mean value found in the published studies.

The version obtained has psychometric validity and is adequate for the study sample, ensuring its use in future studies.

We highlight nurses' moderate perception of structural empowerment, with a higher mean score in the Opportunity dimension, and a greater emphasis on Informal Power, compared to Formal Power. The analysis of demographic data showed a lower percentage of female nurses, a lower mean age and a lower mean length of professional experience than in the vast majority of studies. In conclusion, this study allowed us to create a valid and culturally adapted instrument to assess the perceptions of structural empowerment in Portugal using the CWEQ-II.

We underline that this instrument can be applied to different realities: practice, education and management. The assessment of the perceptions of structural empowerment allows us to establish associations with professional satisfaction, organizational and professional commitment, quality of care and organizational outcomes. Experimental studies should also be performed to test the effectiveness of different interventions. It would be interesting to conduct a longitudinal study on the evolution of newly-graduated nurses' perception of empowerment. In addition, we also find it important to conduct studies that follow up on the same group of nurses, in different periods, observing how different changes affect the perceptions of empowerment. We believe that further multicenter studies will be developed, with the purpose of providing a comprehensive view of the state-of-the-art in Nursing. It is also relevant to conduct studies assessing the influence of personality traits in the perceptions of empowerment.

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