

Questionnaire to Measure the Participation of Nursing Professionals in Mentoring Students

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Questionnaire to Measure the Participation of Nursing Professionals in Mentoring Students

Objective. The aim herein was to validate a questionnaire to measure the level of participation of clinical nursing professionals in the mentorship of nursing students during clinical practices. **Methods.** Design and validation of a questionnaire. The psychometric properties of the tool were determined through four phases: 1- literature review; 2- evaluation of content validity; 3- pilot test, cognitive pretest and intra-observer reliability study; 4- construct validity study through an exploratory factor analysis of main components with varimax rotation in a sample of 249 nursing professionals from primary care and

hospital care from different Spanish provinces. The internal consistency was studied with Cronbach's alpha coefficient. **Results.** The global content validity was above 0.8. The final version of the questionnaire had 33 items, with a global intraclass correlation coefficient of 0.852 and Cronbach's alpha of 0.837. Factor analysis explained 55.4% of the total variance, with a solution of five factors that made up the dimensions: Implication, Motivation, Satisfaction, Obstacles, and Commitment. **Conclusion.** The questionnaire evaluated has adequate validity and reliability to permit determining the level of nurse participation in the mentorship of students.

Descriptors: nursing education; clinical clerkship; mentors; validation studies.

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Cuestionario para medir la participación de los profesionales de enfermería en la tutela de estudiantes

Objetivo. Validar un cuestionario para medir el nivel de participación de los profesionales de enfermería clínicos en la tutela de estudiantes de enfermería durante las prácticas clínicas. **Métodos.** Diseño y validación de un cuestionario. Se determinaron las propiedades psicométricas de la herramienta mediante cuatro fases: 1- revisión de la literatura; 2- evaluación de la validez de contenido; 3- prueba piloto, pretest cognitivo y estudio de la fiabilidad intraobservador; 4-, estudio de validez de constructo mediante un análisis factorial exploratorio de componentes principales con rotación varimax en una muestra de 249 profesionales de enfermería de atención primaria y de atención hospitalaria de diferentes provincias españolas. La consistencia interna se estudió con el coeficiente Alfa de Cronbach. **Resultados.** La validez de contenido global fue superior a 0.8. La versión final del cuestionario fue de 33 ítems, con un CCI global de 0.852 y un alfa de Cronbach de 0.837. El análisis factorial explicó el 55.4% de varianza total, con una solución de cinco factores que formaron las dimensiones Implicación, Motivación, Satisfacción, Obstáculos y Compromiso. **Conclusión.** El cuestionario evaluado tiene validez y fiabilidad adecuadas que permite determinar el nivel de participación de las enfermeras en la tutela de estudiantes.

Descriptor: educación en enfermería; prácticas clínicas; mentores; estudios de validación.

Introduction

Clinical practices comprise around 50% of the educational programs in Nursing; not only in the European Union, but in the rest of the world,⁽¹⁾ so that clinical nurses are a key element to help students acquire skills⁽²⁾ due to direct relationship both have during clinical practices.⁽³⁾ All students have during their clinical learning several figures with greater or lesser involvement with the university and distinct denominations. This research focused on the role of clinical nursing with mentorship function and without formal ties to the student's university of origin. To conduct mentorship of students, it is important for nursing care professionals to maintain ties with the university and receive prior formation

Questionário para medir a participação dos profissionais de enfermagem na tutela de estudantes

Objetivo. Validar um questionário para medir o nível de participação dos profissionais de enfermagem clínicos na tutela de estudantes de enfermagem durante as práticas clínicas. **Métodos.** Desenho e validação de um questionário. Se determinaram as propriedades psicométricas da ferramenta mediante quatro fases: 1- revisão da literatura; 2- avaliação da validez de conteúdo; 3- prova piloto, pré-teste cognitivo e estudo da fiabilidade intra-observador; 4-, estudo de validez de constructo mediante uma análise factorial exploratório de componentes principais com rotação varimax numa amostra de 249 profissionais de enfermagem de atenção primária e de atenção hospitalar de diferentes províncias espanholas. A consistência interna se estudou com o coeficiente Alfa de Cronbach. **Resultados.** A validez de conteúdo global foi superior a 0.8. A versão final do questionário foi de 33 itens, com um CCI global de 0.852 e um alfa de Cronbach de 0.837. A análise factorial explicou que 55.4% de variância total, com uma solução de cinco fatores que formaram as dimensões; Implicação, Motivação, Satisfação, Obstáculos e Compromisso. **Conclusão.** O questionário avaliado tem validez e fiabilidade adequadas que permite determinar o nível de participação das enfermeiras na tutela de estudantes.

Descriptor: educação em enfermagem; estágio clínico; mentores; estudos de validação.

in mentorship of students, although it is true that a variability exists in this process.⁽⁴⁻⁶⁾ Diversity exists in the terms that describe professionals who mentor students in the clinical setting due to the different health and educational systems in the world. In all cases, these are nursing care professionals who guide students, as a model to imitate who helps to integrate theory and practice.^(7,8)

Jokelainen *et al.*,⁽⁶⁾ state that the functions of practice mentors are confusing and provide a conceptual framework with four principal functions: (i) create an environment of solidarity learning; (ii) that permits a process of individual learning; (iii) development of empowerment of professional attributes and identity; (iv)

achieve improvement in professional skills. These functions are developed within a context that combines the culture of two complex organizations: university and health center. Lack of time, work overload, or institutional support can limit the availability of nursing professionals to carry out adequately the mentor function.^(9,10) In some cases, deficiencies exist in teaching methodology, lack of clear evaluation criteria,⁽¹¹⁾ or inadequate communication between professors and mentors, which are obstacles that can have negative impact on student evaluations during the clinical practices.⁽¹²⁾

Further, nursing professionals must have skills, like experience, enthusiasm, positive attitude,^(5,13) commitment, and level of implication^(6,9) necessary to achieve effective learning. Formation from the university on aspects related to teaching methodology, evidence-based practice, or the educational program and the evaluation tools are well-received by clinical professionals who mentor students and contribute improvement to student learning.⁽¹⁴⁻¹⁶⁾ In synthesis, adequate mentorship of students by nursing care professionals during clinical practices requires fluent institutional relationships between the university and health services, besides pedagogic, clinical, and academic attributes of the practice mentors, which along with experience, improve the quality of clinical learning⁽¹⁾ and by extension, the formation of future nurses. In the literature reviewed, no tools have been found to measure the level of participation of clinical professionals in mentoring students. Hence, the objective of this research study was to design and validate a questionnaire that permits determining the level of participation of nursing care professionals in mentoring nursing students during clinical practices.

Methods

This study was conducted to design and validate a questionnaire that permits knowing the participation of nursing professionals in mentoring nursing students during their clinical practices within the setting of Spanish universities. The study

was conducted between January and November of 2014. The following phases were carried out:

Phase I: Literature review. A literature review was conducted to obtain a battery of items related to mentoring nursing students, which was carried out by combining the descriptors 'Survey', 'Mentor', 'Preceptor', 'Clinical learning', 'Clinical training', and 'Nursing'. PubMed, CINAHL, SciELO, and ERIC databases were consulted to recover all the research articles of interest in English and Spanish between 2009 and 2014; this permitted the recovery of 324 articles and 27 were included in the study because they are directly related to the study theme. Many of the articles included were from qualitative methodology and a systematic review. The items were obtained through abstraction of content and were grouped into four initial dimensions (Implication, Motivation, Satisfaction, and Obstacles). This literature review based the first version on the items from the questionnaire.

Phase II: Content validity. Five nursing professionals who are experts in educational innovation participated; these had PhD or Masters academic level and over 10 years of teaching experience in nursing assignments with clinical practices in different Spanish universities. They received, via e-mail, the initial version of the questionnaire to evaluate through a four-point ascending Likert scale if each of the items fit the construct; also, they were asked to propose new items in an open space where they could express their general opinion on the questionnaire. The experts were given a week to complete the evaluation. One round was sufficient to reach adequate consensus levels. The content validity analysis was conducted by following the methodology by Polit and Beck,⁽¹⁷⁾ the content validity index, CVI, (adequate validity I-CVI ≥ 0.8) was calculated for each item and the global coefficient of content validity (adequate validity S-CVI ≥ 0.8) was calculated for the questionnaire and for each dimension. Content validity results and comments from the experts were considered in the elaboration of the second version of the questionnaire.

Phase III: Pilot test, cognitive pretest and intra-observer reliability. With version 2 of the questionnaire, a pilot test and cognitive pretest were run to detect possible comprehension problems, response of items, and comprehension in general, with a group of 30 nursing care professionals from different health centers near Castellón, a branch of Universidad Jaume I, and where the nursing students conduct their practices. Upon completion, a researcher asked for possible comprehension problems of the items, response categories, encoding, and functioning of the dimensions. Besides, the formal aspect and compliance time were evaluated. This phase also studied intra-observer reliability: in the same sample a re-test was applied with a new delivery of the questionnaire three weeks later, and intra-observer reliability was studied with the intraclass correlation coefficient (ICC; excellent agreement $ICC \geq 0.75$). Also, a first internal consistency analysis was performed with Cronbach's alpha.

Phase IV: Construct validation and internal consistency. To finish the validation process, the questionnaire's psychometric properties were studied in a sample of 249 nursing professionals who mentored nursing students in primary care and hospital care from different Spanish provinces, through convenience sampling. Construct validity was studied with exploratory factor analysis of main components with varimax rotation and the amount of dimensions from the third version of the questionnaire was examined. This version of the questionnaire was introduced into electronic support with Google Drive and the data were collected by sending e-mails that included a presentation letter with the objectives and methodology of the study and the link for the questionnaire. The nursing professionals answered the items from the questionnaire with a five-level Likert-type scale (1: Totally disagree; 2: Disagree; 3: Neither agree nor disagree; 4: Agree; 5: Totally agree). Sociodemographic variables, like age and work environment (primary care, specialized care, or social-health care) were collected. The viability of the factor analysis was confirmed with Bartlett's sphericity test and the Kaiser-Meyer-Olkin test (acceptable KMO test ≥ 0.7). The research group

discussed including items with factor loading below 0.4. The global internal consistency and that of each dimension was studied with Cronbach's alpha coefficient (acceptable consistency $\alpha \geq 0.7$). Statistical analysis was performed via Excel and the SPSS statistical package V21 for IOS operating system. The statistical significance level was established at $p \leq 0.05$.

Ethical considerations. Informed signed consent was obtained from all the experts and nursing professionals participating in the study. The questionnaire sent via e-mail to the nursing care professionals did not request data of personal nature that would permit their identification and their compliance was completely volunteer. All the information was maintained encoded under a password to guarantee data confidentiality. At all times, respect was upheld for the ethical principles of the Helsinki Declaration of October 2013 and the Spanish legislation regarding the protection of data of personal nature, Legislation 15/1999.⁽¹⁸⁾

Results

Table 1 shows the modifications in the number of items and dimensions as the questionnaire's validation process advanced.

After the literature review, the research team constructed the first version (v1) of the questionnaire, with four dimensions: Implication (15 items), Motivation (11 items), Satisfaction (11 items), and Obstacles (6 items).

Content validity: the global S-CVI score was 0.82 points and all the dimensions obtained S-CVI scores above 0.8, except for the dimension of Satisfaction (S-CVI = 0.76). Table 2 shows the eight items eliminated from the first version for having values of I-CVI < 0.8. According to comments by the experts, some of the items from the dimension of Satisfaction and Motivation had small changes in their writing. Thus, version 2 (v2) of the questionnaire was created with 34 items distributed in the same dimensions.

Table 1. Validation process through phases

Phase	Activities	Number of items	Number of dimensions
I	Literature review	43	4
II	Content validity	34	4
III	Pilot test, cognitive pretest, intra-observer reliability	33	4
IV	Construct validity, reliability	33	5

Table 2. Items eliminated from the first version of the questionnaire for having values of I-CVI<0.8

Dimensions and Items	I-CVI
Implication	
I know the current academic situation of the student I mentor	0.6
Mentoring students has encouraged me to conduct research projects	0.4
Since the university, the contact me frequently	0.6
Motivation	
I find it entertaining	0.6
I can learn skills that I could use in other areas in my life	0.6
It is what I should do to feel good	0.4
It is seen well by the service supervisor	0.6
Satisfaction	
The practices conducted and the skills established in the degree program are related	0.6

The phase that ran the pilot test and the cognitive pretest included 30 questionnaires and three were discarded because they were not filled out correctly. The writing of the items was not modified, but the item from the dimension of Motivation 'I mentor students because I work in a university hospital' was eliminated given that it was not well taken by the primary care nursing professionals. It was estimated that the time to complete the questionnaire was between 10 and 12 minutes and the most appropriate format to reach the professionals was an on-line questionnaire.

Intra-observer reliability results after three weeks were excellent with global ICC = 0.852 and the values of each dimension were: Implication ICC = 0.851, Motivation ICC = 0.819, Satisfaction ICC = 0.854, and Obstacles ICC = 0.79.

To evaluate construct validity and internal consistency, 249 questionnaires correctly filled out were collected. The mean age of the nurses surveyed was 42.26 years (sd = 9.02; 95%CI 41.23-43.48 years); 75.1% (n = 187) worked

in specialized care (95%CI 69.8%-80.09%). The viability of the factor analysis was confirmed with the KMO test ($p = 0.862$) and Bartlett's sphericity test ($X^2 = 4258.726$, $p < 0.001$), verifying that correlations between pairs of variables could be explained by other variables and that the correlations were different from zero, respectively. With the principal components analysis method, with varimax rotation and a factor solution with five factors, 55.4% of the variance was explained. The first factor explained 15.08% of the total accumulated variance and corresponding to the dimension of Implication, composed of eight items. The second factor explained 11.39% of the variance (26.47% of the accumulated variance); corresponding to the dimension of Motivation, with six items. The third factor corresponded to the dimension of Satisfaction, with eight items, and explained 10.77% of the variance (37.24% of the accumulated variance). The fourth factor explained 10.41% of the variance (47.65% of the accumulated variance) and corresponded to the dimension of Obstacles, comprised of six items. A fifth factor appeared, denominated Commitment

Table 3. Rotated component matrix and construct of the definite version of the questionnaire

Items	Dimensions*				
	I	M	S	O	C
I know the university's student evaluation systems	0.856	0.251	0.005	-0.035	0.068
I use the evaluation systems applied	0.845	0.192	-0.052	-0.035	0.095
I fill out the student evaluation guides	0.81	0.122	0.042	-0.037	0.028
I conduct student attendance control	0.726	-0.05	0.199	-0.068	0.027
I know the learning results that student must acquire when they attend practices	0.271	0.241	0.043	-0.059	0.328
I plan the practices	0.72	0.227	0.16	-0.127	0.163
I know the university's student evaluation systems	0.698	0.268	0.145	-0.102	0.071
I know the Nursing Degree course being taken by the students I mentor	0.419	-0.236	0.379	-0.037	0.115
I am satisfied with the results the students obtain during the period of practices	0.421	0.49	0.369	-0.16	-0.064
I am satisfied with my participation as mentor of practices	0.365	0.587	0.199	-0.186	0.183
It generates personal interest in me	0.159	0.585	0.118	-0.013	0.428
I find it pleasant and interesting	0.144	0.617	0.109	-0.131	0.424
I like to transmit my knowledge to others	0.083	0.723	0.073	0.025	0.266
I consider that the practices permit acquiring and developing professional skills	0.069	0.606	0.114	-0.125	-0.054
I believe the practices are conducted in the most adequate academic course period	-0.124	0.49	0.231	-0.085	0.071
I have been informed and have resources are at my disposition	0.343	0.119	0.73	-0.116	0.069
I am satisfied with the treatment I have received from the university professors	0.301	0.338	0.603	-0.162	-0.024
I have been informed and have resources are at my disposition	-0.081	-0.065	0.317	-0.042	0.117
We establish objectives jointly between professors and clinical nurses	0.257	0.193	0.71	-0.1	0.082
The existing coordination between the university and the practice center is satisfactory	0.244	0.214	0.768	-0.163	-0.055
I am satisfied with the organization of the clinical practices	0.173	0.406	0.665	-0.169	-0.054
I have greater recognition from my supervisors	0.134	0.089	0.578	0.035	0.304
It is an obstacle due to the responsibility it provokes	-0.002	-0.126	-0.082	0.787	-0.132
It is an obstacle to mentor students due to the fatigue caused by the work day	-0.012	-0.083	-0.113	0.774	-0.141
It is an obstacle due to the additional work load it supposes	-0.047	-0.168	-0.03	0.863	-0.161
It is an obstacle due to the time required	-0.069	-0.112	-0.058	0.837	-0.172
It is an obstacle due to the poor teaching methodology I have	-0.122	0.039	-0.034	0.506	0.192
It is an obstacle to work shifts	-0.16	-0.142	-0.26	0.417	0.132
Mentoring students has promoted in me an active attitude toward formation	0.436	0.108	0.408	-0.096	0.469
I believe mentoring students in practices is a function of nursing professionals	0.173	-0.02	0.248	-0.248	0.53
I feel it necessary to have courses for the formation of practice mentors	0.151	-0.074	-0.039	0.058	0.662
It is a professional commitment	0.007	0.258	0.357	-0.113	0.658
It is a moral and ethical commitment that is necessary to assume	-0.176	0.307	0.207	-0.077	0.517

(*): I: Implication S: Satisfaction; M: Motivation; O: Obstacles; C: Commitmet

and composed of five items. This new dimension explained 7.75% of the variance (55.4% of the accumulated variance). Table 3 shows the rotated component matrix in search of a simpler and more interpretable structure to observe in which factor each item obtains better saturation. The table also shows the definite version of the questionnaire (v4) after the factor analysis, illustrating a questionnaire made up of 33 items distributed into five dimensions (it uses a five-level Likert-type scale and permits obtaining a global score as the sum of the score of the items, with a range between 33 and 165 points), which offer information on: Implication, Motivation, Satisfaction, Obstacles, and Commitment of nurses in mentoring students. The questionnaire was denominated IMSOC, corresponding to the initials of its dimensions (Implication, Motivation, Satisfaction, Obstacles, and Commitment), and it is in the process of intellectual property registration.

The questionnaire's internal consistency was excellent, with a value of $\alpha = 0.837$. The values of the questionnaire's dimensions were: Implication $\alpha = 0.875$, Motivation $\alpha = 0.824$, Satisfaction $\alpha = 0.811$, Obstacles $\alpha = 0.811$, and Commitment $\alpha = 0.713$.

Discussion

Fifty percent of learning in the nursing degree program occurs in the clinical setting and clinical nursing professionals assume the mentorship of nursing students. It is important to know the level of participation in the formation and the related factors⁽¹⁹⁾ through validated tools. The results of the questionnaire elaboration show adequate content validity, temporal stability, and internal consistency, according to the literature proposed.⁽¹⁷⁾ Two items from the dimension of Implication and one from the dimension of Satisfaction obtained factor loading in their respective dimensions considered insufficient by other authors,⁽²⁰⁾ although the research team decided to keep them because of their practical relevance against the statistical relevance, given that these contributed important information to know how

clinical nurses assess the organization of the practices.

Student mentoring during clinical practices has been debated in nursing literature for over 25 years.⁽²¹⁾ According to Jokelainen *et al.*,⁽⁷⁾ comparative studies must be conducted with different approaches of clinical mentorship that help to determine the best methods to train future professionals in clinical settings, but for this it is necessary to establish a series of valid and reliable tools that permit gathering relevant information to make this comparison. The IMSOC questionnaire offers relevant information on the level of participation from nursing care professionals in mentoring students and has adequate psychometric properties, which can be useful to improve the evaluation of clinical practices in different contexts and organizational models.

In addition, the IMSOC questionnaire may be used to evaluate the effect of the formation of mentors in their level of participation or to select mentors and practice units, along with other tools, like the Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale (CLES+T)^(22,23) that permits evaluating the adaptation of the learning environment in the practice units. The difference between both is that the IMSOC questionnaire permits knowing beforehand the level of implication or participation of the mentors and the CLES+T questionnaire offers information from the students' perspectives and it is administered when the students have already done the clinical practices.

It is worth highlighting that the validation process of a questionnaire is a live and continuous process and that in spite of the good psychometric properties obtained, it is possible to continue working on it, given that this study was conducted within the Spanish context – limiting its application within the international setting – making it necessary to develop transcultural adaptation and validity studies in other contexts different from the Spanish. A limitation may be the fact that a round with five experts was carried out and this may have influenced upon the definite version, given that the modifications made after the first round

were not subjected to a new round, although the experts were selected with stringent criteria and the results of content validity were adequate, according to criteria by Polit *et al.*⁽¹⁷⁾ Additionally, questionnaires validated with a panel of three experts and one round can be found in literature.⁽²⁴⁾ Besides, the criterion validity could not be studied because no Gold Standard was found that would permit a comparison.

To conclude, the IMSOC questionnaire has been validated to determine the level of nurse participation in the mentorship of nursing students with adequate validity and reliability in the Spanish context. This questionnaire offers information on the implication, motivation, satisfaction, obstacles, and commitment of nursing care professionals in the mentorship of students and may be used to select practice mentors, compare different models of clinical mentorship, or evaluate intervention strategies to promote nurse participation in mentoring students during clinical practices. It is pertinent to continue investigating the factors that can affect the level of implication of nurses in student mentorship.

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