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Assessment of the andragogical skills of teachers at the level nursing technician

Avaliação das competências andragógicas dos docentes do nível técnico de enfermagem[a]

Evaluación de las competencias andragógicas de los professores del nível técnico de enfermeira

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Abstract

Objective: To identify how the teaching nurse of the technical level of nursing evaluates his/her andragogical skills as a facilitator of learning, for the exercise of teaching. **Method:** A cross-sectional study with a quantitative approach, developed with 73 teaching nurses, in 30 units of a technical nursing level institution in the State of São Paulo. The data was collected from September to December 2019. The Self-diagnostic Classification Scale of Competencies for the Educator of Adults Role was applied. Wilcoxon's test was used. **Results:** A predominantly female sample (72.6%), with a mean age of 40.3 years (SD=7.4) and teaching time of 9.7 years (SD=6.3). The teachers considered that their current level of competence is in moderate knowledge for the development of each skill, while the level that they wanted to work with adults in teaching and learning processes should be in high knowledge. **Conclusions and implications for practice:** The teachers considered themselves below the desired level, in all the items evaluated in the andragogical skills, as learning facilitators for the teaching exercise. The study presents great innovation relevance, because there is not available in the literature any study that evaluates the andragogical competences of the teachers of the technical nursing level.

Keywords: Professional Competence; Faculty, Nursing; Education, Professional; Education, Nursing; Nursing.

Resumo

Objetivos: Identificar como o enfermeiro docente do nível técnico de enfermagem avalia suas competências andragógicas como facilitador de aprendizagem, para o exercício da docência. **Método:** Estudo transversal com abordagem quantitativa, desenvolvido com 73 enfermeiros docentes, em 30 unidades de uma instituição de nível técnico de enfermagem do Estado de São Paulo. Os dados foram coletados no período de setembro a dezembro de 2019. Foi aplicada a Escala de Classificação Autodiagnóstica de Competências para o Papel do Educador/Instrutor de Adultos. Foi utilizado teste Wilcoxon. **Resultados:** Amostra predominantemente feminina (72,6%), com média de idade de 40,3 anos (DP=7,4) e tempo de atuação docente de 9,7 anos (DP=6,3). Os docentes consideraram que seu nível atual de competência encontra-se em moderado conhecimento para o desenvolvimento de cada competência, enquanto o nível que desejava atuar com adultos em processos de ensino e aprendizagem deveria estar em alto conhecimento. **Conclusão e implicações para a prática:** Os docentes consideraram-se abaixo do nível desejado, em todos os itens avaliados nas competências andragógicas, como facilitadores de aprendizagem para o exercício da docência. O estudo apresenta grande relevância de inovação, pois não há disponível na literatura qualquer estudo que avalie as competências andragógicas dos docentes do nível técnico de enfermagem.

Palavras-chave: Competência profissional; Docentes de enfermagem; Educação profissionalizante; Educação em Enfermagem; Enfermagem.

Resumen

Objetivo: Identificar cómo el enfermero docente del nivel técnico de enfermería evalúa sus habilidades andragógicas como facilitador del aprendizaje para el ejercicio de la enseñanza. **Método:** Estudio descriptivo transversal con enfoque cuantitativo, desarrollado con 73 enfermeras docentes en 30 unidades de una institución de nivel técnico de enfermería en el Estado de São Paulo. Los datos se recogieron de septiembre a diciembre de 2019. Se aplicó la Escala de calificación de aptitudes de autodiagnóstico para la función de educador/instructor de adultos. Se utilizó la prueba de Wilcoxon. **Resultados:** Muestra predominantemente femenina (72,6%), con una edad media de 40,3 años (DE = 7,4) y experiencia docente de 9,7 años (DE = 6,3). Los docentes consideraron que su nivel actual de competencia es de conocimiento moderado para el desarrollo de cada competencia, mientras que el nivel que deseaba trabajar con adultos en los procesos de enseñanza y aprendizaje debía ser de conocimiento alto. **Conclusiones e implicaciones para la práctica:** Los profesores se consideraron por debajo del nivel deseado, en todos los ítems evaluados en las competencias andragógicas, como facilitadores de aprendizaje para el ejercicio de la docencia. El estudio presenta gran relevancia teniendo como característica la innovación, ya que no existe ningún estudio disponible en la literatura que evalúe las competencias andragógicas de los profesores de enfermería a nivel técnico.

Palabras clave: Competencia Profesional; Docentes de Enfermería; Educación Profesional; Educación en Enfermería; Enfermería.

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INTRODUCTION

The term andragogy has its origin in the Greek terms andros (adult man), agein (conduct) and logos (science), that is, a science with the objective of leading adults to learning. This term was first used in 1833 by the German pedagogue Alexander Kapp, who used it to describe the educational theory of the Greek philosopher Plato.[1] Later, the term andragogy was used by a German social scientist, Eugen Rosenstock, in a report for the Frankfurt Academy of Labor in 1921[1] Eugen Rosenstock stated that adult education required teachers, methods and a special philosophy, it was not enough just to transpose the theory of education, based on pedagogy, into the reality of adults.[1]

From the 1970s on, Malcolm Knowles began using the term andragogy to name adult education, according to the conception that adults and children learn in different ways. Adults, unlike children, have the need to make their own decisions, often worrying about impositions that go against their desire to direct themselves. The professionals who act as adult teachers, when faced with this characteristic, strive to provide learning experiences in which adult students are supported to become self-directed learners and no longer dependent.[1] Since then, Malcolm Knowles' ideas have been cited in studies related to Andragogy.[2-6]

Therefore, andragogy is a set of adult learning principles, which are the learner's need to know, the learner's self-concept, the learner's previous experience, the learner's readiness to learn, the learning orientation and the motivation to learn.[1] To work in education with adults, the teacher must develop certain skills and abilities distinct from the work in education with children and adolescents.

In the current context, it is relevant to look at the teacher and the skills he/she should have, because schools that promote good training are represented by individuals who wish to teach (teachers) and others who wish to learn (students).[7]

Competence has several meanings, among which the quality of who is able to appreciate and solve a certain subject, to produce a certain thing or to possess a capacity, ability or aptitude, that is, in a general way, the notion of competence is always associated to action.[8] In this sense, the concept of competence has been emphatically employed with the objective of associating theoretical knowledge with practice, having as a center, the individual capable of such realization.[8] One of the most widespread approaches to skills is usually known as KSA (Knowledge, Skills and Attitudes). The "Knowledge" refers to the intellectual domain of the area of performance, knowledge, information, clear and correct understanding. Ability" is defined as the ability to know how, application, technique and experience. And the "Attitudes" are related to behavior and the ability to make decisions appropriate to each situation, that is, knowing how to be.[9]

To evaluate the teacher's skills in adult education, in 1981 Malcolm Knowles published the instrument "Self-diagnostic Classification Scale of Competencies for the Educator of Adults Role" based on three categories of skills that the teacher/educator should develop to work with adults: learning facilitator, developer and administrator of educational programs for adults.[7,10,11]

A study conducted with 226 undergraduate teachers in the city of São Paulo used the Self-diagnostic Classification Scale of Competencies for the Educator of Adults Role. In this study, it was concluded that the majority of the nursing teachers were far from the maximum level of competence desired, in addition, it was identified the need to previously measure the "current" level of competence of teachers, before proposing the implementation of andragogy as a foundation for teacher training.[7]

Among nursing professionals 75.6% belong to the technical level according to the report of the Federal Nursing Council of 2020.[12] In order to act in teaching at the technical level due to the technical nature of vocational education, many times the teacher who acts in this area is not seen as an education professional, but in order for him/her to be able to perform good quality work, it is necessary to have specific knowledge of the profession and pedagogical knowledge in order to perform the function of a teacher.[13]

The teacher who acts in the medium level formation must have, mainly, the professional experience as a nurse, and the preparation for the magisterium will be carried out in service, in graduation courses or in special programs of pedagogical formation, because in professional education who teaches must know how to do, mainly in nursing education, that is, have the knowledge of the practice and not only the theoretical knowledge. And, besides that, who knows how to do and wants to teach must learn to teach.[14]

Thus, it is emphasized that the present study has as characteristic the innovation, since there is not in the literature any study that deals with the andragogical competences of the nursing teachers of the technical level. Studies related to this theme were developed only with teachers of nursing degree courses,[7,10,11] among other health courses, a study was identified with medical course teachers that aimed to evaluate pedagogical skills from the perspective of the student.[15] An integrative review published in 2017 identified only six studies published between 2001 and 2013 that address the skills needed by teachers in nursing undergraduate programs. Among the studies identified in the review, the results pointed out as essential skills to teaching nurses communication, pedagogical skills, continuing education, ethics and humanization, in addition to understanding the student's time and feelings, constitute links, respect and recognize the autonomy of each one.[16]

It is believed that the results of this study may contribute to the planning of development programs for teachers and technical level educational institutions, regarding the important skills to improve the performance of teachers and students. Therefore, this research is justified.

Therefore, the objective of this study was to identify how the teaching nurse of the technical level of nursing evaluates his/her andragogical abilities as a facilitator of learning, for the exercise of teaching.

METHOD

Descriptive, cross-sectional study, with quantitative approach, carried out in 30 units of the National Service of Commercial

Learning (Senac), being three in the capital, three in the metropolitan region and 24 in cities of the interior of the State of São Paulo.

The population eligible for this study was composed of 271 teachers who worked in Senac units. The invitation was sent to all, having accepted to participate in the survey and answered questionnaires 73 (26.9%) teachers. The inclusion criteria for the study were teaching nurses who work in the function giving theoretical and/or practical classes, being excluded teaching nurses who were on vacation or on leave, during the period of data collection.

The teachers were approached through the institutional e-mail in which an invitation to participate in the study was sent with guidelines on its objectives and procedures. The data was collected from September to December 2019.

The instruments were answered online by Google Forms®. To access the surveys, the participant accessed a link sent via email. When accessing this link, the participant initially had access to the Free and Informed Consent Term (FICT). When accessing the FICT, the participant marked on the link whether or not he/she would accept to participate in the survey. After accepting, the subjects accessed the instruments: the sample characterization questionnaire and the Self-diagnostic Classification Scale of Competencies for the Educator of Adults Role.[1]

The Self-diagnostic Classification Scale of Competencies for the Educator of Adults Role was built in 1981 by Malcolm Knowles. It is a scale of self-assessment about the current and desired skills of the teacher to work with adults in teaching and learning processes. The complete scale is composed by 55 items distributed in three categories of competences that the teacher/educator should develop to work with adults: learning facilitator, developer and administrator of educational programs for adults, totaling 55 items.[1] This study used the competences as "Learning Facilitator", composed by 29 items and two dissertation questions. divided in four domains: I - Conceptual and theoretical structure of adult learning (5 items), II - Design and application of learning experiences (7 items), III - Helping learners to be self-directed (3 items) and IV - Selecting methods, techniques and materials (14 items). Each item describes the teacher's ability on a Likert scale, from 0 to 5 [0 - absent, 1 - very low knowledge, 2 - low knowledge, 3 - moderate knowledge (conceptual understanding), 4 - high knowledge and 5 - very high knowledge (expert or specialist)]. The subject must write the letter "A" in the option in which he or she considers the current level of development for each competence, and the letter "R" must correspond to the point in which he or she wishes to be acting with adults in teaching and learning processes.[1]

The data obtained through Google Forms® was transcribed to a database built with the Microsoft Excel® tool. After the database was built, the data from the spreadsheet was transported to Stata® software version 15.0. The significance level adopted for all tests was 0.05.

The first stage of the analysis consisted of a descriptive analysis of the socio-demographic and professional information of the teachers. Measurements of position (mean and median) and measures of dispersion (standard deviation, minimum and maximum) were calculated. The categorization of the information, necessary for the application of the mean difference tests, was also performed, and the frequencies were calculated.

The second step is the analysis of the scores of the current and desired levels for each question belonging to the five domains of competence that facilitate learning. For this purpose, measures of position and dispersion were initially calculated. Later, the scores of each level in each question were analyzed for verification. In this test, the distribution is considered to be significantly the difference from the normal distribution when the p-value is less than 0.05. Therefore, normal distributions are those with a p-value higher than 0.05. All analyzed distributions presented a p value lower than 0.05, allowing us to conclude, therefore, that they had a non-normal distribution. The analysis of results of the Shapiro-Wilk test led to the choice of the non-parametric Wilcoxon test to compare the results of the current level and the desired level, for each question.

Then, the same position and dispersion parameters were calculated, this time for the domains and considering the current and desired levels. Once again the distribution of results was tested with the Shapiro-Wilk test, and again its result indicated the use of the non-parametric test of Wilcoxon signals, to identify the existence of statistically significant differences ($p<0.05$), between the results of the current level and the desired level in each domain.

The study was approved by the Research Ethics Committee of Univeritas UNG Guarulhos University (CAAE Protocol: 13324819.2.0000.5506; Opinion Number: 3.520.027). The guidelines contained in Resolution 466/12 of the National Health Council were obeyed, regarding the ethical aspects with the institution and with the subjects who participated in the research.[17]

RESULTS

Of the 73 teachers, 53 (72.6%) were female, 51 (69.9%) were between 31 and 45 years old, 51 (69.5%) worked 30 to 40 hours a week and 67 (91.8%) taught theoretical classes and internships. The time of teaching varied from 1 to 38 years, with an average of 9.7 years (SD = 6.3), while the time of teaching at Senac varied from 1 to 21 years, with an average of 5.7 years (SD = 4.4). Regarding education, 50 (68.5%) were specialists, 32 (43.8%) of whom were teaching specialists (Table 1).

The results of the items of the Self-Diagnostic Skill Rating Scale for the Role of the Adult Educator/Instructor showed that, in relation to the "Learning Facilitator" competence, teachers presented a higher average (3.7; SD = 0.9) for the current competence level (A), in item 3 ("Ability to create a physical and psychological environment in which respect, trust, sincerity, support and security are mutual") of domain II (Design and application of learning experiences). Regarding the desired level of competence (D), the teachers presented a higher average of 4.7 (SD = 0.7), in item 12 ("Ability to invent new techniques in order to adapt them to new situations") of domain IV (Select methods, techniques and materials) (Table 2).

Table 1. Distribution of study subjects according to sociodemographic variables (n = 73). State of São Paulo, Brazil, 2019.

Variables	N	(%)	Mean	(SD)*	Median	(Interval)
Sex						
Female	**53**	**(72.6)**				
Male	20	(27.4)				
Age	73	(100)	40.3	(7.4)	40.7	(27.2 – 60.8)
Training time (in years)*	73	(100)	12.6	(5.7)	12.0	(3.0 – 38.0)
Post-graduation	73	(100)				
Specialization	**50**	**(68.5)**				
Masters	15	(20.5)				
Doctorate	5	(6.8)				
Post-doctorate	2	(2.7)				
Does not have	1	(1.4)				
Teaching Specialization	**32**	**(43.8)**				
Teaching time (in years)	**73**	**(100)**	**9.7**	**(6.3)**	**9.0**	**(1.0 – 38.0)**
Teaching time at Senac (in years)	73	(100)	5.7	(4.4)	5.0	(1.0 – 21.0)
Teaching Performance						
Theoretical classes and internships	**67**	**(91.8)**				
Theoretical classes only	6	(8.2)				
Acts as a nurse in a health institution						
Yes	**58**	**(79.5)**				
No	15	(20.5)				
Weekly workload at Senac	73	(100)	31.7	(7.8)	32.0	(6.0 a 40.0)

*Standard deviation

In all the evaluation items of the current level of competence the teachers considered it to be in the average of 2 to 3 points (low to moderate knowledge) in the Self-diagnostic Classification Scale of Competencies for the Educator of Adults Role. When assessing the desired level of competence, teachers scored on average above 4 (high knowledge) on all items on the scale. All results comparing the current and desired competence score were statistically significant ($p<0.05$) (Table 2).

Table 3 presents the results of the competence assessment "Learning Facilitator", by domains. The mean values of the current (A) and desired (D) competence level were close. For the current competence level (A), domains II "Design and application of learning experiences" and IV "Select methods, techniques and materials" showed the highest mean of 3.3 (SD = 0.8), in both domains. On the other hand, domain III "Helping learners to be self-directed" showed the lowest average for the current competence level (A) 3.0 (SD = 0.9). For the desired competence level (D), domain IV "Select methods, techniques and materials" presented a higher average of 4.6 (SD = 0.9). Lower means were identified in domains I "Conceptual and theoretical structure of adult learning" and III "Helping learners to be self-directed", in the value of 4.4 (SD = 0.8).

In Figure 1, a statistically significant association was observed between the means of the desired competence domains among the teachers ($p = 0.028$).

DISCUSSION

Regarding the sample characterization, a predominantly female population (72.6%) and aged between 31 and 45 years were identified. Most of them had post-graduation courses, 43.8% of which were specialized in teaching, with an average teaching time of 9.7 years (PD = 6.3), the average teaching time in the Institution was 5.7 years (PD = 4.4), 67 (91.8%) worked in theoretical and practical classes, and 58 (79.5%) worked in the assistance area in health institutions. A study, carried out with nursing undergraduate teachers, had compared with the sample of this study the majority of female participants who worked both in theoretical and practical classes and worked in a workload of 30 to 40 hours per week, but with regard to the training of teachers who work at the higher level, it was observed a higher

Table 2. Description of the results of the competence Facilitator of the learning, by items, according to teachers of the technical course of nursing (n = 73). State of São Paulo, Brazil, 2019.

Domains	Item	Level	Mean	(SD)*	Median	Minimum	Maximum	*p-value***
(I) Conceptual and theoretical structure of adult learning	1	A***	3.0	0.9	3	0	5	0.000
		D****	4.4	0.8	4	1	5	
	2	A	2.9	1.0	3	0	5	0.000
		D	4.3	0.9	5	1	5	
	3	A	3.1	0.9	3	0	5	0.000
		D	4.4	0.8	5	1	5	
	4	A	3.0	1.1	5	0	3	0.000
		D	4.4	0.8	5	1	5	
	5	A	3.5	1.0	4	0	5	0.000
		D	4.5	0.8	5	1	5	
(II) Design and application of learning experiences	1	A	2.8	1.2	3	0	5	0.000
		D	4.3	0.9	5	1	5	
	2	A	3.2	0.9	3	1	5	0.000
		D	4.4	0.9	5	1	5	
	3	A	**3.7**	**0.9**	**4**	**1**	**5**	**0.000**
		D	4.6	0.8	5	1	5	
	4	A	3.7	0.9	4	1	5	0.000
		D	4.6	0.8	5	1	5	
	5	A	3.4	0.9	4	1	5	0.000
		D	4.5	0.8	5	1	5	
	6	A	3.3	1.0	3	0	5	0.000
		D	4.5	0.9	5	1	5	
	7	A	3.2	1.0	3	0	5	0.000
		D	4.5	0.8	5	1	5	
(III) Helping apprentices to be self-directed	1	A	3.0	1.0	3	0	5	0.000
		D	4.4	0.9	5	1	5	
	2	A	3.1	1.0	3	0	5	0.000
		D	4.4	0.9	5	1	5	
	3	A	3.0	1.0	3	0	5	0.000
		D	4.5	0.8	5	1	5	
(IV) Select methods, techniques and materials	1	A	3.1	0.9	3	0	5	0.000
		D	4.5	0.8	5	1	5	
	2	A	3.3	1.0	3	0	5	0.000
		D	4.6	0.8	5	1	5	
	3	A	3.4	1.0	4	1	5	0.000
		D	4.6	0.7	5	1	5	
	4	A	3.1	0.9	3	1	5	0.000
		D	4.5	0.8	5	1	5	

* Standard Deviation; **Wilcoxon Test; ***Current; ****Desired

Table 2. Continued...

Domains	Item	Level	Mean	(SD)*	Median	Minimum	Maximum	*p-value***
(IV) Select methods, techniques and materials	5	A	3.2	0.9	3	1	5	0.000
		D	4.5	0.8	5	1	5	
	6	A	3.2	1.0	3	0	5	0.000
		D	4.6	0.8	5	1	5	
	7	A	3.2	1.0	4	0	5	0.000
		D	4.6	0.7	5	1	5	
	8	A	3.4	0.9	3	1	5	0.000
		D	4.6	0.8	5	1	5	
	9	A	3.5	1.0	4	1	5	0.000
		D	4.6	0.7	5	1	5	
	10	A	3.1	1.0	3	0	5	0.000
		D	4.5	0.8	5	1	5	
	11	A	3.5	1.0	4	0	5	0.000
		D	4.6	0.7	5	1	5	
	12	A	3.4	1.1	4	1	5	0.000
		D	**4.7**	**0.7**	**5**	**1**	**5**	
	13	A	3.1	1.0	3	1	5	0.000
		D	4.5	0.8	5	1	5	
	14	A	3.1	1.0	3	1	5	0.000
		D	4.4	0.9	5	1	5	

* Standard Deviation; **Wilcoxon Test; ***Current; ****Desired

Table 3. Description of the results of the competence "Facilitator of learning", by domain, according to teachers of the technical course of nursing (n = 73). State of São Paulo, Brazil, 2019.

Domains	Level	Mean	(SD)*	Median	Minimum	Maximum
(I) Conceptual and theoretical structure of adult learning	A**	3.1	0.9	3.2	0	5
	D***	**4.4**	**0.8**	**4.8**	**1**	**5**
(II) Design and application of learning experiences	**A**	**3.3**	**0.8**	**3.4**	**0.9**	**5**
	D	4.5	0.8	4.9	1	5
(III) Helping apprentices to be self-directed	**A**	**3.0**	**0.9**	**3.0**	**0**	**5**
	D	**4.4**	**0.8**	**5.0**	**1**	**5**
(IV) Select methods, techniques and materials	**A**	**3.3**	**0.8**	**3.4**	**0.9**	**5**
	D	**4.6**	**0.9**	**0.7**	**1**	**5**

* Standard deviation; ** Current; *** Desired

percentage of specialists, masters and doctors.[7,10,11] Thus, it is evident that the teachers in the area of nursing, especially those who participated in this study who act in the medium level, has a profile of experience in teaching being mostly specialists, acting in theoretical and practical classes and with experience and knowledge of practice. This professional profile is generally recommended to act in a medium level course, mainly in what concerns the experience in the practice, because it is relevant that the teacher has knowledge of the practice to teach the students of a technical nursing course. A study that evaluated the perception of medical students about teaching skills identified the need reported by students to combine theory and practice to obtain a quality teaching-learning process emphasizing that effective practical activities can contribute to the assimilation of theoretical knowledge.[15] Thus, it is evident that the importance of the practical knowledge of the teacher who works in health

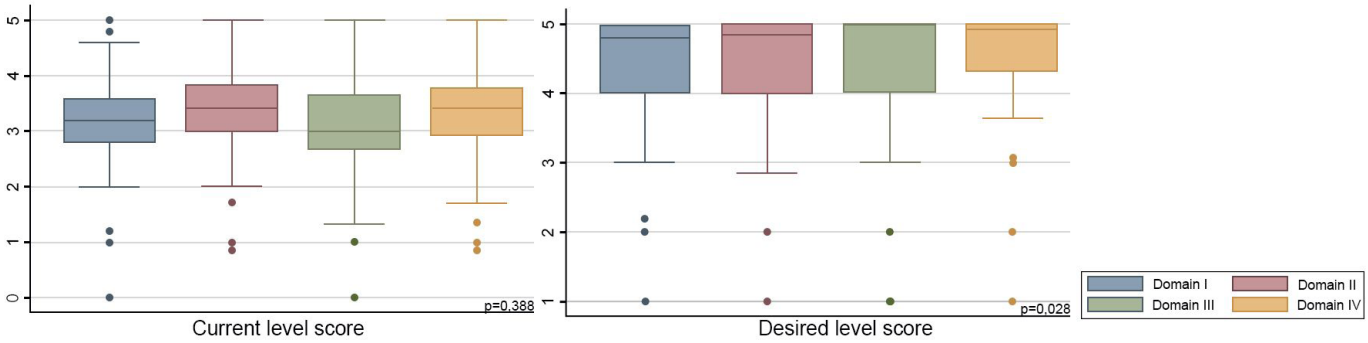

Figure 1. Box plot of comparison of the averages of the domains of competence "Facilitator of Learning" considering the current level of competence and the desired one, according to the teachers of the technical course of nursing (n = 73). State of São Paulo, Brazil, 2019.

area courses, mainly in technical courses, because the practical activities bring the student closer to the dynamics of operation of health institutions and the biopsychosocial reality of the patient contributing to the improvement of training.[15]

The analysis of the results of the Self-diagnostic Classification Scale of Competencies for the Educator of Adults Role allowed us to identify that there was a statistically significant difference ($p < 0.001$), between the current competence level and the desired level in all items. In domain I "Conceptual and theoretical structure of adult learning", it was identified that item 5 ("Skills to conceptualize and explain the teacher's role as facilitator and source of resources for self-directed learners") was the item in which the teachers considered to have greater ability, as well as greater interest in developing. Item 2 ("Skills to describe the differences in assumptions about youth and adults as learners and the implications of these differences for teaching") highlighted less skill and less need to develop.

The teacher who works in adult education must understand that the proposal of andragogy is a process of acquisition of skills and self-direction of the student.[1] However, in general teachers are trained and learn by means of pedagogy and base their activities on teaching based on models they had when they were students, thus not being led to develop skills according to the andragogical conception[18] and the use of methodological resources.[7] In addition, the student is also not prepared to assume self-direction and develop a self-directed attitude, because throughout his academic career he has also learned under the pedagogy foundation.[7]

In domain III "Helping Learners to Be Self-Directed", teachers considered that item 1 ("Skills to explain the conceptual difference between didactic instruction and self-directed learning") was the skill they least wanted to develop, and item 3 ("Skills to model the role of self-directed learning in their own behavior") got the lowest score at the current level of competence and the highest score at the desired level. In this domain, it was identified that the item in which teachers wish to reach a higher level of competence is the one in which they are least qualified. Some skills related to the andragogic aspects of self-directed learning presented lower scores, although 43.8% of the teachers who participated in the study were teaching specialists, this highlights that even with teaching experience and specialization in the area the teachers still have difficulty in working with self-directed learning. According to Self-Directed Learning theory, adults are self-directed learners.[1] Adult learners tend to want to take responsibility for themselves in the planning, implementation and evaluation of their learning activities.[1]

In domain IV "Selecting methods, techniques and materials", items 10 ("Ability to use audience participation methods effectively") and 4 ("Ability to prove a rational analysis for selecting a particular method, technique or material to achieve specific educational goals") were identified as lower current levels of competence. In item 4, the lowest desired score was also identified. Teachers stated that they have a greater command of item 9 ("Ability to use various experimental methods and simulations effectively"), as well as a greater need to develop item 12 ("Ability to invent new techniques in order to adapt them to new situations"). Throughout their academic career, teachers develop more skills to work with theoretical content, as it is an aspect valued by pedagogy. In general, the focus on the teaching and learning process and the use of methodological resources are not usual in the practice of teachers who have learned to value theoretical content[7] Thus, for teachers who work at the secondary level it becomes even more challenging to develop skills to work with adults considering the professional education in which it is relevant to have the knowledge of the practice and, therefore, one should know how to do and teach.[14]

Compared to the results of the study with the nursing undergraduate teachers,[7,10,11] after the analysis of the four domains present in the competence "Facilitator of learning", it was identified that the teachers of the technical level were more qualified in all the items that compose the four domains, as well as the teachers of the superior level demonstrated greater desire for development in 24 of the 29 items present.

In certain skills, there were similarities in the self-assessment of teachers at the technical level and of undergraduate teachers in nursing, which could be identified in domains I "Conceptual and theoretical structure of adult learning" and II "Design and application of learning experiences"[7,10,11] This convergence brings

the reflection that some skills can be both for teachers working at the technical level and for those working at the higher level. The divergences were evidenced in domains III "Helping learners to be self-directed" and IV "Selecting methods, techniques and materials". There are some specificities that could justify these divergences, like the fact that, in the technical level, the teacher in general ministers several disciplines and has a more technical look, having as a teacher characteristic the "know how", due to the professional doings inherent to the technician in nursing. In the superior level, the teachers in general are responsible for ministering specific disciplines, since the professional nurse needs more in-depth knowledge for its performance and exercises the function of supervision of the internships in the health services, having, therefore, the need for a formation of greater complexity.

A literature review that investigated the scientific production on Andragogy in Health Sciences, from 1999 to 2009, identified that the Nursing area was responsible for a greater volume of publications on this topic.[19] The results show that Nursing is an area with great interest in the Andragogy theme and that this may be related to the aspect that traditionally approaches education as one of the tools for the exercise of the profession.[19]

Although the survey conducted in the online format allows an ease of data collection by several factors, such as the convenience of the participant in answering the questionnaire at home in a virtual way, which could result in increased responses received, because the researcher does not have the work, time and money spent on printing and applying the questionnaires personally,[20,21] however, this form of data collection has limitations such as the individual questions of participants in the use of electronic tools, the exclusion of the digital illiterate and the impossibility of knowing the circumstances in which the questionnaire must be answered.[21]

These limitations can lead to low rates of return on questionnaires, the literature reports that the rate of return on questionnaires is around 25%[15] and some studies have identified a rate of 25.2% to 67%.[20,22,23] In this study, the rate of return was 26.9%, keeping within the range predicted by the literature.[20,22,24]

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

In general, the participants of this study stated that they are at a moderate level of competence, in all the items evaluated, already at the desired level the majority reported that they would like to be at a higher level of knowledge. Regarding the domains, the participants declared more current development in the domains "Design and application of learning experiences" and "Select methods, techniques and materials". In relation to the desire to develop, they pointed out the domain "Select methods, techniques and materials" as an aspect that still needs to be developed. Thus, the results suggest that teachers' current level of competence is not as high as the level of competence they wish to find, which suggests that teachers recognize that they need to develop more competence to work in adult education at the mid-level of nursing and achieve the level of competence they aim for. As a limitation of this study, the scarcity of other studies that relate the andragogical skills of nursing teachers of technical level training is highlighted, which makes difficult the comparison and discussion of results, being then made the comparison with the results of studies conducted with higher education nursing teachers and other areas. In addition, another limitation that deserves commenting is the random sampling used in this survey. This type of sampling may lead to a possible bias in the research, because the teachers who agreed to participate in the study may be those who consider themselves more competent.

However, this study presents relevance that deserves to be commented as the possibility to be used as a base for the conduction of future studies with teachers of the technical level of nursing. Future studies may develop interventions in teacher training processes for individual and institutional development with the objective of improving the performance of teachers as courses on teaching and learning themes focused on adult education, which will impact the improvement of teaching for students at the technical level of nursing.

AUTHOR'S CONTRIBUTIONS

Study design. Rejane Faria Habyak Prado. Noélle de Oliveira Freitas.

Data collection or production. Rejane Faria Habyak Prado.

Data analysis. Rejane Faria Habyak Prado. Noélle de Oliveira Freitas.

Interpretation of the results. Rejane Faria Habyak Prado. Noélle de Oliveira Freitas.

Writing and critical review of the manuscript. Rejane Faria Habyak Prado. Noélle de Oliveira Freitas

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Responsibility for all aspects of the content and integrity of the published article. Rejane Faria Habyak Prado. Noélle de Oliveira Freitas.

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REFERENCES

1. Knowles MS, Holton 3rd EF, Swanson RA. Aprendizagem de resultados: uma abordagem prática para aumentar a efetividade da educação corporativa. 2ª ed. Rio de Janeiro: Elsevier; 2011
2. Botma Y, Seale I, Spies C. Adult learning: What nurse educators need to know about mature students. Curationis. 2015;38(2):1494. http://dx.doi.org/10.4102/ curationis.v38i2.1494. PMid:26842085.
3. Hamilton B, Leigh K, Whitted K. Integration of Andragogy into Preceptorship. J. Adult Educ. 2015;42(1):9-17.
4. Dalby D, Norrie P. How adult are our learners? A cross-sectional exploration of the learning characteristics of nursing students in a United Kingdom University. J Res Nurs. 2007;12(4):319-29. http://dx.doi.org/10.1177/1744987107075254.
5. Jinks AA. Applying Education Theory to Nursing Curricula: nurse teachers' definitions of student-centred andragogical teaching and

learning concepts. J Furth High Educ. 2006;23(2):221-30. http://dx.doi.org/10.1080/0309877990230206.

6. Loeng S. Various ways of understanding the concept of andragogy. Loeng. Cogent Education. 2018;5(1):1496643. http://dx.doi.org/10.1080/2331186X.2018.1496643.
7. Draganov PV, Sanna MC. Avaliação das competências dos professores de enfermagem para facilitar a aprendizagem de adultos. Cogitare Enferm. 2015;20(3):556-64. http://dx.doi.org/10.5380/ce.v20i3.41104.
8. Pinhel I, Kurcgant P. Reflexões sobre competência docente no ensino de enfermagem. Rev Esc Enferm USP. 2007;41(4):711-6. http://dx.doi.org/10.1590/S0080-62342007000400024. PMid:18193629.
9. Banov MR. Recrutamento, Seleção e Competências. São Paulo: Atlas; 2015. p.28.
10. Draganov PV, Sanna MC. Avaliação das competências dos professores de enfermagem para administrar programas educativos para adultos. Esc Anna Nery. 2014;18(1):167-74. http://dx.doi.org/10.5935/1414-8145.20140025.
11. Draganov PV, Sanna MC. Competências andragógicas dos docentes enfermeiros que atuam na graduação em enfermagem paulistana. Trab Educ Saúde. 2016;14(1):155-82. http://dx.doi.org/10.1590/1981-7746-sip00098.
12. Conselho Federal de Enfermagem. Enfermagem em números [Internet]. Brasília: COFEN; 2020 [citado 2020 Dez 01]. Disponível em: http://www.cofen.gov.br/enfermagem-em-numeros.
13. Gomes HM, Marins HO. A ação docente da educação profissional. São Paulo: Senac; 2004. p. 97-8.
14. Ministérios da Educação. Referências curriculares nacionais da educação profissional de nível técnico [Internet]. Brasília: 2000 [citado 2018 Nov 12]. Disponível em: http://portal.mec.gov.br/setec/arquivos/pdf/introduc.pdf
15. Belfor JA, Sena IS, Silva DKB, Lopes BRS, Koga Júnior M, Santos BÉF. Competências pedagógicas docentes sob a percepção de alunos de medicina de universidade da Amazônia brasileira. Ciênc. Saúde Coletiva. 2018;23(1):73-82. http://dx.doi.org/10.1590/1413-81232018231.21342017. PMid:29267813.
16. Alberton JA, Dariff MST, Vendruscolo C, Kloh D, Zanatta EA, Pereira I. Competências necessárias ao docente em cursos de graduação em enfermagem: revisão integrativa. Rev Educ. 2017;12(2):111-22.
17. Resolução n. 466 de 12 dezembro 2012 (BR). Diretrizes e normas regulamentadoras sobre pesquisa envolvendo seres humanos. Diário Oficial da União, Brasília (DF), 12 dez 2012.
18. Thompson JE. Competencies for midwifery teachers. Midwifery. 2002;18(4):256-9. http://dx.doi.org/10.1054/midw.2002.0329. PMid:12473440.
19. Draganov PB, Friedländer MR, Sanna MC. Andragogia na saúde: estudo bibliométrico. Esc Anna Nery. 2011;15(1):149-56. http://dx.doi.org/10.1590/S1414-81452011000100021.
20. Cucick CD, Faleiros F, Goes FSN, Käppler C, Pontes FAR, Silva SSC. Uso de questionário online e divulgação virtual como estratégia de coleta de dados em estudos científicos. Texto Contexto Enferm. 2016;25(4):e3880014. http://dx.doi.org/10.1590/0104-07072016003880014.
21. Clarke MJ, Diguiseppi C, Edwards PJ, Kwan I, Roberts I, Wentz R et al. Methods to increase response to postal and electronic questionnaires. Cochrane Database Syst Rev. 2009 jul 8;(3):MR000008. PMid:19588449.
22. Castro AE, Schuch VFJr, Vieira HC. O uso de questionários via e-mail em pesquisas acadêmicas sob a ótica dos respondentes [Internet] XIII SEMEAD – Seminários em Administração; 2010 set.; São Paulo. São Paulo: USP. [citado 5 abr 2020]. Disponível em: http://sistema.semead.com.br/13semead/resultado/trabalhosPDF/612.pdf
23. Guedes LFA, Vasconcellos L. Vantagens e Limitações dos Questionários Eletrônicos via Internet no Contexto da Pesquisa Científica [Internet] XIII SEMEAD – Seminários em Administração; 2007 ago 9-10; São Paulo. São Paulo: USP. [citado 3 abr 2020]. Disponível em: http://sistema.semead.com.br/10semead/sistema/resultado/an_resumo.asp?cod_trabalho=420
24. Marconi MA, Lakatos EM. Fundamentos de metodologia científica. São Paulo: Atlas, 2005. p.202.

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