Original article

The self-efficasy of post graduate nursing students in Shahid Beheshti college of nursing and midwifery in rasht

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Abstract

Background and Purpose: Research self-efficacy is an important subject in university education. Research is considered essential to the development of societies. As such, postgraduate students require research courses in their curricula in addition to regular educational contents.

Materials and Methods: This descriptive, cross-sectional study was conducted on two groups of postgraduate students (master's degree) of nursing education and critical care nursing at Guilan University of Medical Sciences during 2008-2010 using a reliable research self-efficacy scale. Overall and individual dimensions of research self-efficacy in both groups were analyzed using descriptive and inferential statistics, Chi-square and independent T-test.

Results: No significant differences were observed between the study groups in the overall and individual dimensions of research self-efficacy. However, score of research self-efficacy was slightly higher in critical care nursing students compared to the nursing education group. In addition, score of self-efficacy in the dimension of qualitative research had no significant difference between the two groups (P<0.06).

Conclusion: Changes in the curriculum of postgraduate nursing students require the systematic modification of the current courses and integrated designing methods at Guilan University of Medical Sciences, as well as other universities across the country. Furthermore, research self-efficacy of students could be improved through the review of syllabi, revision of research methodology, and implementation of research seminar projects for master's students of nursing education. In this regard, providing qualitative and integrated research methods could be beneficial as well.

Keywords: Nursing, Postgraduate student, Research self-efficacy

Introduction

Research is essential to the development of societies and lack of research support is associated with no scientific or logical action in a specific field. Students are the core of every higher education system, and different university departments aim to effect changes in the behavior and performance of students (1). Social systems, such as universities, have different goals based on the needs and progress of the society. In this regard, most experts have emphasized three main purposes for universities, including training or teaching, research and services (2).

Research, learning, and teaching are fundamental skills in students, especially at higher education levels. These elements play a pivotal role in the improvement of educational processes and provision of scientific services in the community.

Research beliefs remarkably affect the willingness of individuals to perform research

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and experimentation (3). Many students are unsure of their ability to conduct a research task and do not believe that practice and effort lead to success. Therefore, they become anxious and feel incompetent when it comes to performing a research task, especially during the related assessments. On the other hand, students who consider themselves competent are more likely to conduct research projects with success (4).

For graduate students, integration of education and research is of paramount importance. In fact, these students are required to accomplish both education and research courses (3). At a university, professors are responsible for the training of students on research and experimentation. In the field of medicine and the associated academic disciplines, professors are commonly preoccupied with the training of students who attempt to conduct research independently after acquiring the essential techniques (5).

Research self-efficacy is defined as the confidence of students in their ability to accomplish various research activities, ranging from library research to designing and completing scientific projects (6). Research self-efficacy is the milestone of success during the postgraduate period and enhances the performance of academic students (3).

Several studies have denoted the association of research self-efficacy with social factors, as well as educational and research setting; such example is the role of consulting professors in research processes. In a study, Lu et al. reported a significant difference between the perception of consulting professors and self-confidence of students in terms of research self-efficacy ($P<0.001$) (7). According to another study, research self-efficacy of academic students is positively correlated with social factors, as well as the components of educational and research environment of the university ($P<0.03$) (3).

According to the findings of another study, the majority of professors in Semnan University of Medical Sciences (Iran) claimed that postgraduate students in this university were mostly uninterested in research tasks or were not sufficiently familiar with the principles of research. In this regard, the most significant barriers against student research were reported to be lack of material value, long teaching hours, private surgeries, managerial positions, lengthy administrative stages, and absence of early research funds (8).

According to the literature, graduate students have average research self-efficacy and rarely feel successful in the associated components of this educational concept (4). Students have been shown to have moderate skills in some of the aspects of research self-efficacy, such as the overall score of research self-efficacy, preliminary tasks, and research cooperation, while they have been reported to be highly capable in other aspects, such as conducting research, data analysis, and producing results. It is noteworthy that components of research self-efficacy have significant differences among academic students (6).

In Iran, postgraduate university courses aim to train committed and skilled workforce in nursing and discover research strategies in the associated sciences, which have been established to achieve self-sufficiency and compensate for the lack of experts in health education, research, and services (9).

By recruiting postgraduate nursing students in critical care units since 2008 in Rasht and allocating only two theoretical and practical units for research methodology courses, university instructors implemented an integrated design in research methodology. In this process, in addition to theoretical subjects, practical skills were presented in the form of four exercises.

The first exercise consisted of questions about problem statement, reasons for interest in the subject matter, identification of W (why, what, when, where, who, and whom) in the research title and providing references at end of each exercise. The second exercise focused on the objectives, hypotheses, assumptions, variables, confounding factors, and research limitations, while the third exercise included the summary of three relevant original articles. Finally, the fourth exercise focused on research setting and population, samples and sampling methods, and tabulation of results.

After the presentation of the predetermined topics, the instructors explained the exercises and asked students to deliver the assignments

within one week, which were duly returned to the students after correction by the instructors. This process continued until the completion of the last exercise when the students were required to present their corrected exercises in the form of a research project. After the presentation of the first session of problem statement, students had the opportunity to defend their proposed title in the presence of instructors within two sessions, and if approved by the instructors, they were asked to develop their own exercises accordingly.

In the traditional approach, two theoretical and practical units of research methodology were taught during one semester, and students were not required to deliver a practical project. Instead, for the practical assignment, students were asked to critically review an English article and deliver a final report.

In the following semester, students were required to produce relevant exercises as their research seminar project. The assigned research project was written and completed after two semesters. With the exception of the number of units, research topics were similar in both groups (critical care and nursing education students). In addition, the critical care group received a training session on qualitative research, which was not provided for the nursing education group. Therefore, the researchers decided to assess the effects of the aforementioned plans on the research self-efficacy of students during 2008-2010.

Since the level of research self-efficacy remains unclear among the graduate students of Shahid Beheshti School of Nursing and Midwifery in Rasht city (Iran), this study aimed to determine research self-efficacy among these students during 2012-2013.

Materials and Methods

This descriptive, analytical, cross-sectional study was conducted to evaluate the level of research self-efficacy among the postgraduate students of Shahid Beheshti School of Nursing and Midwifery in Rash city, Iran during 2012-2013.

Study setting was Shahid Beheshti School of Nursing and Midwifery in Rash city, and sample population consisted of master's students of nursing education and critical care nursing students. Inclusion criteria were postgraduate students and willingness to participate in the study.

To obtain the required data, self-report questionnaires were sent to the participants via email (due to the inaccessibility of some of the students). Data were collected using a two-part questionnaire. The first part focused on social and personal information of the postgraduate students, including age, gender, graduation status, date of thesis defense presentation, teaching and clinical experience, history of publications, research activities (e.g., participation in domestic and foreign conferences and article presentation in the form of a poster or lecture). The second part of the questionnaire consisted of data regarding the research self-efficacy of postgraduate students.

In this study, research self-efficacy of students was assessed using the scale proposed by Salehi et al. (4), which encompasses the seven factors of Lawrence Newman and other dimensions considered in previous scales to assess research self-efficacy.

In developing their research self-efficacy scale, Lawrence Newman & Foster took into account the components that had been overlooked in previous scales to assess research self-efficacy. These components were choice of appropriate tests, validity and reliability of tools, data collection in various tests, statistical index reports, translation, and qualitative research. Based on these dimensions for the evaluation of research self-efficacy, we developed 120 items in the scale, which were reduced to 57 items after consultation with experts. Additionally, items 43 and 44, which did not theoretically match the other components, were eliminated after evaluating the questionnaire in the original samples via exploratory factor analysis (3).

Final scale of research self-efficacy consisted of 55 items and seven subscales, as follows: self-efficacy in statistics and analysis (13 items), self-efficacy in conceptualization (12 items), self-efficacy in methodology and execution (11 items), self-efficacy in qualitative research (10 items), self-efficacy in report writing (6 items), self-efficacy in research skills (10 items), and self-efficacy in research ethics (3 items).

Items were scored based on a five-point Likert

scale (limited research expertise=1, high research expertise=5). Validity and reliability of the scale of research self-efficacy was confirmed by Salehi et al. in 2012, who reported good fit and construct validity via confirmatory factor analysis. In addition, reliability of this scale was confirmed at the Cronbach's alpha of 0.97.

Internal consistency was used to assess the aforementioned subscales, and Cronbach's alpha was estimated at 0.92, 0.91, 0.9, 0.92, 0.88, 0.76, and 0.83 for subscales of self-efficacy in statistics and analysis, conceptualization, methodology and execution, qualitative research, report writing, research skills, and research ethics, respectively. Based on the study by Salehi et al., each of the subscales was scored as low, moderate, and high (Table 2) (4).

In this study, participants were selected from the postgraduate students of academic years 2008, 2009, and 2010 via census sampling. The nursing education group consisted of 11 students from the class of 2008, 10 students from the class of 2009, and 16 students from the class of 2010. Participants in the critical care nursing students nursing group included six students from classes of 2008, 2009 and 2010.

Data analysis was performed in SPSS V.21 using descriptive (frequency distribution, mean and standard deviation) and inferential statistics (independent T-test, ANOVA, and regression analysis).

Results

In total, 56 postgraduate students (master's degree) selected from Shahid Beheshti School of Nursing and Midwifery in Rasht city were enrolled in this study, and 47 questionnaires were completed by the students. Mean age of the participants was 29.43±5.39 years.

Among the selected students, 76.6% were female, 53.3% were single, 46.6% were local, 48.9% had prior experience of teaching, 80.9% had clinical experience, and 17% had published articles. Moreover, 46.8% of the participants had prior research activities, and 6.4% and 59.6% of these students had participated in foreign and domestic conferences, respectively. In addition, 38.3% and 25.5% of the participants had presented their articles in the form of posters and lectures, respectively.

In this study, total score of research self-efficacy in the postgraduate students of Shahid Beheshti School of Nursing and Midwifery of Rasht city was at an average level (mean: 168.1053±37.34). Among different dimensions of research self-efficacy, the subscale of qualitative research was rated as poor with mean score of 11.2±5.79. Scores of different dimensions of research self-efficacy in the study groups are presented in Table 1.

Total score of research self-efficacy among the postgraduate students of Shahid Beheshti School of Nursing and Midwifery of Rasht city was within the moderate range. Furthermore, score of nursing education group was low in the subscale of qualitative research, while students of critical care

Table 1. Frequency distribution of personal and social details of postgraduate students of nursing education and critical care nursing students

Variable Frequency (%)		MSc of nursing education	MSc of critical care nursing
		Frequency (%)	
Gender	Female	31 (79.5)	5 (62.5)
	Male	8 (20.5)	3 (37.5)
Age (mean ±SD) (year)		28.5±4.79	33.87±5.59
Marital status	Single	2 5(64.1)	1 (12.5)
	Married	14 (35.9)	7 (87.5)
Place of residence	Local	16 (41)	4 (50)
	Non-local	23 (59)	4 (50)
Graduation status	Yes	13 (33.3)	3 (37.5)
	No	26 (66.7)	5 (62.5)
Academic semester	Graduated	11 (28.2)	3 (37.5)
	3rd	12 (30.8)	-
	5th	16 (41)	5 (62.5)
Teaching experience	Yes	20 (51.3)	3 (37.5)
	No	19 (48.7)	5 (62.5)
Clinical experience	Yes	31 (79.5)	7 (87.5)
	No	8 (20.5)	1 (12.5)
Published articles	Yes	8 (20.5)	-
	No	30 (76.9)	8 (100)
Participation in domestic conferences	Yes	3 (7.7)	3 (37.5)
	No	33 (84.6)	5 (62.5)
Participation in foreign conferences	Yes	3 (7.7)	-
	No	33 (84.6)	8 (100)

Table 2. Mean scores of research self-efficacy dimensions in nursing education and critical care nursing students

Dimensions of research self-efficacy	Minimum score	Maximum score	Nursing education group	Critical care nursing group	Low	Moderate	High
			Mean±SD	Mean±SD			
Conceptualization	12	60	39.71±8.05	38.00±4.53	12-28	28-44	44-60
Statistical and analytical assessment	13	65	38.31±12.5	38.37±7.36	13-30.33	30.13-47.46	65-47.46
Report writing	6	30	18.86±5.36	22.85±11.14	6-14	14-22	22-30
Research ethics	3	15	11.89±2.7	10.25±3.37	3-7	7-11	11-15
Qualitative research	5	25	10.45±5.81	14.62±4.56	5-11.66	11.66-18.33	18.33-25
Research skills	5	25	17.10±3.64	16.50±2.87	5-11.66	11.66-18.33	18.33-25
Research methodology	11	55	34.14±9.49	32.5±4.75	11-25.66	25.66±40.33	40.33-55
Total score	55	275	164.5±37.44	170.25±24.74	55-128.33	128.33-201.66	201.66-275

nursing had high scores in report writing dimensions of research self-efficacy.

According to the results of independent T-test, the two study groups had no significant difference in the dimensions of research self-efficacy. However, mean score of research self-efficacy was slightly higher in students of critical care nursing compared to the nursing education group with no significant difference in this regard. Moreover, while the two groups were notably different in terms of the subscale of qualitative research, the difference was not considered statistically significant (P=0.06). Furthermore, our findings indicated that the total score of research self-efficacy was not significantly different between male and female postgraduate students (P=0.81).

In this study, research self-efficacy of graduated master's students of nursing education was significantly higher compared to master's students of the fifth semester by 42.705 (P<0.001). Moreover, students with published articles were observed to have higher research self-efficacy by 17.361 compared to those with no published articles (P<0.001).

Table 3. Relationship of total score of research self-efficacy with personal and social information

Research self-efficacy	Independent T-test significance level
Marital status	≤0.007
Place of residence	≤0.649
Teaching experience	≤0.488
Clinical experience	≤0.609
Published articles	≤0.003
Research activity	≤0.013
Age (year)	Pearson's correlation-cefficient r=-0.011 P≤0.949

Discussion

According to the results of the present study, total score of research self-efficacy among postgraduate students was within the medium range (Table 2). Furthermore, the results indicated that the ability of students was average in overall research self-efficacy score, preliminary tasks, and cooperation. However, they proved to be highly capable in skills such as conducting research, data analysis, and presentation of results (6). In the current study, no significant difference was observed between the two groups in the dimensions of research self-efficacy, while significant differences were reported in this regard in another study conducted on the postgraduate students of Ferdowsi University of Mashhad, Iran (6).

Findings of the present study indicated that the mean score of the dimension of qualitative research was different between the study groups, so that the scores obtained by postgraduate students of nursing education were low, and the scores of critical care nursing postgraduate students were medium (Table 2). Low scores of research self-efficacy in certain areas, such as qualitative research skills, could be attributed to the poor understanding of postgraduate students in this regard, which highlights the need for the reinforcement of curriculum subjects in this field of education (4).

Table 4. Relationship of dimensions of research self-efficacy with personal and social information

Clinical experience with skills and expertise area	P≤0.011
Research activity with conceptualization	P≤0.049
Research activity with implementation of methods	P≤0.043

Table 5. Linear regression analysis of factors associated with research self-efficacy in postgraduate students of Shahid Beheshti School of Nursing and Midwifery of Rasht city, Iran

Associated factors		Coefficient of beta	Standard Minimum	95% Confidence interval		Hypothesis test		
				Minimum	Maximum	Chi-square	df	*P*-value
Semester	Graduated	42.705	12.1547	18.882	66.528	12.344	1	0.001
	3rd	22.674	14.2398	-5.236	50.583	2.535	1	0.111
	5th	Reference						
Published articles	Yes	17.361	13.9838	-10.046	44.769	1.541	1	0.001
	No	Reference						

In Shahid Beheshti School of Nursing and Midwifery of Rasht city, the syllabus of the research methodology course contains subjects in relation to qualitative research for the students of critical care nursing, whereas this subject matter is not considered for nursing education students. Therefore, nursing education postgraduate students were expected to obtain lower scores in the dimension of qualitative research. Moreover, out of the five factors considered in the assessment of research experience in factor analysis, "university environment" with mean score of 2.26 (out of 5) and "practical skills" with mean score of 3.78 (out of 5) accounted for the lowest and highest scores.

In a study entitled "Challenges and Solutions of Master's Nursing Education" by Vakizadeh, unfavorable conditions for postgraduate nursing research in the clinical environment was reported to be a major issue (9). Given the importance of the enhancement of the quality of clinical care, the education system should pay special attention to clinical research since implementation of evidence-based nursing practice is the utmost purpose of nursing research. Despite different academic qualifications, all nurses are expected to participate in research activities. In addition to training and experience in this area, support of the educational system is considered a vital contributing factor in this regard. To carry out research and experimentation, nurses need adequate time, financial resources, consultation, and prepared research participants. Available resources could encourage nurses with master's qualification to conduct useful research with various subjects (10).

Findings of the current study were indicative of no significant difference between male and female postgraduate students in terms of research self-efficacy or any of the associated subscales, which is in congruence with the results obtained by Yamani et al. (11). In another study in this regard, no significant correlation was reported between the scores of barriers against research activity and gender of students in Arak University of Medical Sciences (Iran) (12). However, a significant relationship was observed between the score of personal barriers against research activity of male and female students, so that the scores obtained by women were higher compared to men (13).

According to the literature, factors such as high grades, university ranking, credibility of laboratory courses, gender of students, specialization, and frequency of meeting with professors and peer groups are among the most important predictors of research self-efficacy in academic students. Furthermore, male students have been reported to achieve higher mean scores in research experience scale compared to female students (14), with a significant difference only in the subscales of skills and expertise, where female students have been shown to obtain higher scores.

Superior research self-efficacy of female students could be attributed to a variety of factors, including the higher tendency of male toward marriage with educated women, availability of more leisure activities for men, financial problems, and greater willingness of women for social activities. On the other hand, in our society, men are expected to be economically privileged to manage everyday life rather than accomplish in research and academic courses (3).

In their study, Ramin Roshanian et al. claimed that master's students of psychology and educational sciences at Khorazmi University of Tehran (Iran) had high research self-efficacy based on Philips & Russell Research Self-Efficacy Scale in dimensions

of practical research, report writing and research planning. This was attributed to factors such as the use of statistical and research methods, previous experience in research and education, and self-efficacy in computer skills. On the other hand, a limited number of students achieved low research self-efficacy scores, which was reported to be due to lack of prior knowledge of computer skills and use of statistical software (15).

Limitations of the present study were the small sample size and inability to generalize the obtained results.

Conclusion

According to the results of this study, changes in the planning of nursing master's curriculum require the systematic adjustment of current courses and implementation of an integrated design in Shahid Beheshti School of Nursing and Midwifery of Rasht, as well as other universities across the country. In certain universities, such methodology could be applied as a pilot experiment through the examination of the quality and applicability of the theses produced by postgraduate students using valid tools based on the number of published articles and research status of students.

Integrated design of teaching research methodologies should be assessed in different courses in larger sample sizes, and the obtained results should be compared using deductive statistics. Furthermore, review of the current syllabi, providing new contents based on the needs of students, and enhancing the knowledge and skills of master's degree nursing students are recommended in order to construct efficient and up-to-date research plans, such as qualitative and integrated techniques.

According to the findings of this study, previous experience of qualitative research was the main strength of critical care nursing students with the focus on contemporary subjects. As such, it seems that research self-efficacy of these postgraduate students could be improved through the comprehensive review of their syllabus, revision of research methodology, and encouraging students to participate in research seminars of nursing during postgraduate levels. In addition, providing qualitative and integrated research methods could be beneficial in this regard.

Based on the results of this study, it could be inferred that universities are in need of promoting research-based education at the postgraduate level. As is known, university professors intend to train research-oriented students, and the professors of medicine and the associated disciplines are commonly preoccupied with the training of the students who are willing to conduct research independently after acquiring the necessary skills. In conclusion, given the importance of research for academic students, special attention must be paid to motivational factors in order to reinforce the capabilities of postgraduate students to carry out productive research and experimentation.

Conflicts of interest

None declared.

Authors' contributions

All authors contributed to the implementation of the educational process, study sampling, and drafting of the manuscript.

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