ORIGINAL RESEARCH

Cross-sectional online survey of nursing graduates' academic difficulties and related factors

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ABSTRACT

Objective: The aim was to explore the ratio of and differences in academic difficulties experienced by nursing graduates with associate or diploma degrees and baccalaureate degrees and the factors related to these difficulties.
Methods: A quantitative cross-sectional online survey was conducted with graduate students in the master's program in nursing from 144 graduate schools throughout Japan. Data were collected from November 2014 to December 2014. Of 1,366 potential respondents, 304 completed the survey (22.3%) and the data of 268 respondents who met the criterion were included in analysis. Experience of academic difficulties was regressed onto characteristics of respondents, such as nursing degree, Self-Directed Learning Readiness (SDLR) score, and having experience in academic activities.
Results: Of the respondents, 227 (84.7%) reported they have always or frequently experienced academic difficulties. However, there was no difference in the extent of academic difficulties experienced by respondents with the different nursing degrees. Not having experience in academic activities (odds ratio [OR] = 2.05; 95% confidence interval [CI], 1.02-4.25) and reporting SDLR score less than 150 points (OR = 2.40; 95% CI, 1.18-4.83) were significantly associated with academic difficulties in the graduate school.
Conclusions: Most respondents experienced academic difficulties. To promote effective education in the graduate school, pre-educational programs conducted by universities where students can gain experience in academic activities may be effective in reducing academic difficulties experienced by them. Simultaneously, examining how to inculcate an autonomous learning attitude is necessary for both nursing graduate students and graduate schools.

Key Words: Academic difficulty, Academic experience, Nursing graduate, pre-educational programs, Self-Directed Learning Readiness

1. INTRODUCTION

Advanced nursing care in collaboration with other professionals is increasingly required to accommodate the changes in patients' conditions, advancements in medical care, needs of a rapidly aging society, changes in disease structure, and requirements of new skills in terms of evidence based practices and information technology.[1] Consequently, graduate nursing education has become more important in the recent years, and registered nurses (RNs) must make an effort to pursue further education.[2] Moreover, it is also important for RNs from the viewpoint of continuous education and training for career development.[3] However, concerns about academic difficulties experienced by graduate nursing students exist in Japan.[4]

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A large number of RNs, regardless of their nursing degrees, intend to pursue graduate education.[5,6] While RNs are generally required to hold baccalaureate degree to enroll into graduate school, majority of RNs hold only diploma or associate degrees in most developed countries.[7,8] In such cases, diploma or associate degree-holding RNs have to return to school to pursue a baccalaureate course. However, in Japan, according to the School Education Act partially amended in 1998, diploma or associate degree-holding RNs were permitted to enroll themselves into graduate schools without pursuing a baccalaureate course. After the amendment, with the increase in the number of graduate schools in the nursing discipline (14 programs in 1997 and 185 programs in 2016),[9] nurses with various academic backgrounds have more choices now than earlier.[10] In fact, around 30% of Japanese diploma or associate degree-holding RNs intend to pursue a graduate course.[11,12]

However, there are obvious quantitative and qualitative differences between the kind of education provided by a baccalaureate course and that by other courses;[13] hence, it is difficult to provide graduate level education to RNs without a baccalaureate degree, even though they can pursue graduate school courses without the degree.[4] Diploma or associate degree-holding RNs also reported more concerns about their academic ability than baccalaureate degree-holding RNs.[14] Thus, diploma or associate degree-holding RNs may experience academic difficulties in graduate schools. However, studies have not been conducted to explore this. Hence, the aim of this study was to explore the ratio of academic difficulties experienced by nursing graduates, especially associate or diploma degree-holding nurses and the factors related to these difficulties.

2. METHOD

2.1 Design and participants

A quantitative cross-sectional online survey was conducted to investigate factors related to nursing graduates' academic difficulties. The respondents were graduate students in master's program in nursing from 144 graduate schools throughout Japan. The Uniform Resources Locator of the questionnaire used in the survey was emailed to the students of 42 graduate schools (18 national, 16 prefectural or municipal, and 8 private universities, and the estimated number of respondents were 1,366) during sampling for the present study. The survey data were collected from November 2014 to December 2014. An informed consent form was included in the survey. The respondents were free to withdraw participation without any penalty. Those who responded were assumed to have provided their consent to participate. The inclusion criterion was that respondents fully complete the questionnaire with no missing data. A total of 304 questionnaires were anonymously returned (estimated response rate = 22.3%), and the data of 268 respondents who met the criterion were included in the study.

2.2 Ethical approval

This study was approved by the Ethical Committee of Tokyo Medical and Dental University, School of Medicine (Reference number 1870).

2.3 Measures

The survey items were constructed after a thorough review of the available literature and discussion among the authors. The survey included the following aspects: academic difficulties in graduate school, demographic characteristics of respondents, and factors potentially related to academic difficulties in graduate school including motivations for applying to a graduate school, experience in academic activities and the degree of SDLR.

Academic difficulties experienced in graduate school were measured using the question "Have you ever experienced academic difficulties, especially related to conducting research in your graduate school?" with a 4-point Likert scale ranging from "always", "frequently", "little" to "none". Respondents were dichotomized to maintain sufficient number of observations in each group (Experience difficulties: always and frequently; Do not experience difficulties: little and none).[15]

In terms of the demographic characteristics of respondents, the following items were included: age, gender, employment status (full-time, part-time, or unemployed), living arrangement (living alone or with other persons, living with a spouse or children, or living with a spouse and children), and providing nursing care to family members (whether respondents provided nursing care to family member regardless of whether they lived with the family member requiring care). The respondents who provided nursing care to family members were categorized as "present" and all others were categorized as "not present".

As factors potentially related to academic difficulties in the graduate school, the following items were included: type of university (national, prefectural or municipal, or private), nursing degree (baccalaureate or associate/diploma), motivations for applying to graduate school, experience in academic activities, degree of self-directed learning readiness (SDLR).

In terms of motivations for applying to a graduate school, respondents were asked whether they were actively motivated, passively motivated, or had both, active and passive motivations for applying to graduate school. Active motivation included the following items: solving clinical problems,

aspiring for desired jobs such as those of university faculty, clinical nurse specialist, or researcher, and acquiring a graduate degree. Passive motivation included the following items: "someone encouraged me to apply to the graduate school", "I am tired of working at a clinical site", and "without any particular reason". Responses to these items included "yes" or "no". Those who responded with a "yes" to one or more active motivation items and with a "no" to all passive motivation items were categorized as the "active motivation" group. Those who responded with a "yes" to one or more passive motivation items and with a "no" to all active motivation items were categorized as the "passive motivation" group. Those who responded with a "yes" to one or more active and passive motivation items were categorized as "both motivations" group.

Experience in academic activities referred to whether respondents had experience of having engaged in academic activities, including writing a paper, presenting at a conference, or writing a chapter for a book. Those who responded with a "yes" to one or more of these experiences were categorized as "present" and all others were categorized as "not present."

The degree of SDLR was measured using the Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE). Self-directed learning (SDL) is described as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes."[16] SDLR is the extent to which an individual has the characteristics, capabilities, and attitudes required for SDL. SDLR in graduate nursing students is essential to enhance the educational effectiveness of nursing graduate schools.[17] The SDLRSNE consists of three factors and 40 items rated on a 5-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". The three factors were "Self-management" (13 items; e.g., "I have good management skills"), "Desire for learning" (12 items; e.g., "I want to learn new information"), and "Self-control" (15 items; e.g., "I am responsible for my own decisions/actions"). Scores ranged from 40 to 200 points, and 150 points was the cut-off for having SDLR.[18,19] We used the Japanese version of the SDLRSNE for our respondents.[10,17]

2.4 Data analysis

The dependent variable in this study was presence or absence of academic difficulties experienced in graduate school. We used a logistic regression model owing to the categorical nature of this variable. Modeling was based on four steps outlined by Hosmer et al.[20] First, we conducted univariate analysis to understand the relationship between the dependent variable and the set of covariates. *T*-test and chi-square test were used for analyzing continuous variable and categorical variable respectively. The variables that had a *p*-value less than .05 in the univariate analysis were included in a multiple logistic regression model. Then, we used the Wald test for each covariate in the model to assess its contribution to the model; covariates with a *p*-value less than .05 were retained. Second, the variables not retained were added one at a time to assess changes in the beta. If the variables changed beta of other covariates by more than 20%, they were included in this model. Finally, we examined goodness of fit of this model. We did not check interaction effect because of problems with convergence. All statistical analyses were conducted using SAS version 9.4 software for Windows (SAS Institute Inc., Cary, NC).

3. RESULTS

The characteristics of respondents and the results of univariate analysis to identify factors related to academic difficulties in graduate school are shown in Table 1. Regarding demographic characteristics, the mean ages were 37.5 in experience difficulties group and 37.9 in do not experience difficulties group, and more than 80% of participants in both groups were female. Of the respondents, 227 (84.7%) reported that they have always or frequently experienced academic difficulties. However, there was no significance difference in the distribution of baccalaureate degree-holding nurses and diploma or associate degree-holding nurses between experience difficulties group and do not experience difficulties group. Not having experience in academic activities and the score of less than 150 on SDLRSNE were significantly related to experience of academic difficulties and selected as covariates for multiple logistic regression.

Table 2 shows the results of multiple logistic regression analysis to identify factors associated with academic difficulties in graduate school. Both the covariates had *p*-value less than .05 on the first step of model building, and then we omitted second step. Goodness of fit of the model showed acceptable levels. As a result, participants who did not have experience in academic activities (odds ratio [OR] = 2.05; 95% confidence interval [CI], 1.02-4.25) and who scored less than 150 points on SDLRSNE (OR = 2.40; 95% CI, 1.18-4.83) were significantly associated with experience of academic difficulties in graduate school.

Table 1. Characteristics of participants and the results of univariate analysis to identify factors related to academic difficulties in graduate school (N = 268)

	Experience difficulties (n = 227) n (%)	Do not experience difficulties (n = 41) n (%)	*p*-value
Demographic characteristics			
Age, mean ± SD	37.5 ± 8.2	37.9 ± 9.2	.797
Gender			
Male	29 (12.8)	7 (17.0)	.458
Female	198 (87.2)	34 (83.0)	
Employment status			
Full-time	97 (42.7)	19 (46.3)	.734
Part-time	38 (16.8)	8 (19.5)	
Unemployed	92 (40.5)	14 (34.2)	
Living arrangement			
Living alone or with other persons	129 (56.8)	20 (48.8)	.619
Living with a spouse or children	35 (15.4)	8 (19.5)	
Living with a spouse and children	63 (27.8)	13 (31.7)	
Providing nursing-care to family members			
Present	11 (4.8)	2 (4.9)	.992
Not present	216 (95.2)	39 (95.1)	
Factors potentially related to academic difficulties			
Type of university			
National	88 (38.8)	21 (51.2)	.113
Prefectural or municipal	68 (30.0)	6 (14.6)	
Private	71 (31.2)	14 (34.2)	
Nursing degree			
Baccalaureate	103 (45.4)	16 (39.0)	.451
Associate or diploma	124 (54.6)	25 (61.0)	
Motivations for applying to graduate school			
Active motivation	94 (41.5)	17 (41.5)	.838
Passive motivation	7 (3.0)	2 (4.9)	
Both motivations	126 (55.5)	22 (53.6)	
Experience in academic activities			
Present	112 (49.3)	27 (65.9)	.050*
Not present	115 (50.7)	14 (34.1)	
SDLRSNE			
< 150	174 (76.7)	24 (58.5)	.015*
≥ 150	53 (23.3)	17 (41.5)	

* $p < .05$, ** $p < .01$

4. DISCUSSION

Although more than 80% of the respondents experienced academic difficulties, we did not find a difference in the ratio of these difficulties among nurses holding different degrees. This could be because all respondents met certain criteria, as they cleared the entrance examination, and thus were homogenous in this regard. The other reason was that academic difficulties of graduate students may not depend on the degree that they pursue.

Experience in academic activities was significantly related to not experiencing academic difficulties. Although 80% of Japanese hospitals with more than 100 beds permit RNs

to conduct nursing research as a part of their professional education, most research methods used by them were inappropriate.[21] Such research opportunities can be considered as concrete experiences acquired during the course of graduate school including skills such as reflective observation, enabling students to learn the implications of gaining this knowledge. Additionally, they can plan the implementation of, and actively conduct experimentation. This cycle of experimental learning may mitigate the academic difficulties of students.

The other factor related with academic difficulties was SDLR. Past studies reported that students who had sufficient SDLR tended to have better academic performance.[22,23] Furthermore, SDLR is required in complex learning situations in which students need to determine their learning needs or choose and implement appropriate learning strategies.[24] Studying in graduate school entails facing complex learning situations. Further, flexible learning systems such as e-learning and night or weekend classes that are increasingly common in graduate schools require an autonomous learning attitude.[10,25] Therefore, respondents who did not have sufficient SDLR were found to experience academic difficulties.

Table 2. Results of multiple logistic regression to identify factors associated with academic difficulties in graduate school (N = 268)

	OR	95% CI	*p*-value
Factors potentially related to academic difficulties			
Experience in academic activities			
Present	1		
Not present	2.05	[1.02, 4.25]	.046*
SDLRSNE			
< 150	2.40	[1.18, 4.83]	.014*
≥ 150	1		

Note. OR = Odds Ratio, CI = Confidence Interval, * $p < .05$; Hosmer-Lemeshow test Chi-sq = 0.03, $p = .986$, Goodness of fit test (deviance) $p = .865$, Maximum likelihood test Chi-sq = 9.63, $p = .008$.

This study had several limitations. First, the relatively poor response rate from graduate schools resulted in a small sample size. Thus, the representativeness of the sample might have deteriorated. However, the response rate may have been underestimated because many graduate schools do not meet their quota for enrolling students. Second, the validity and reliability measures of the tools used in the survey may be insufficient even though we conducted thorough discussions to prepare the items. Further studies using tools with greater validity and reliability measures are thus needed.

5. Conclusion

The current study revealed that more than 80% of respondents experienced academic difficulties. To promote effective education in graduate schools, pre-educational programs conducted by universities where students can acquire experience in academic activities may effectively reduce academic difficulties. Simultaneously, examining how to improve an autonomous learning attitude is necessary for both nursing graduate students and graduate schools.

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YO contributed to the study during its conception, design, acquisition of data, analysis and interpretation of data, and in drafting the manuscript. RM contributed to the study during its conception, interpretation of data, and in critically revising manuscript.

Conflicts of Interest Disclosure

The authors have disclosed no potential conflicts of interest, financial or otherwise.

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