

琉球大学学術リポジトリ

Perception of research difficulties affects staff nurses' motivation towards research participation : the impact of understanding research value and collegial support

メタデータ	言語: 出版者: 琉球医学会 公開日: 2020-11-24 キーワード (Ja): キーワード (En): Staff nurse, Research difficulties, Research motivation 作成者: メールアドレス: 所属:
URL	http://hdl.handle.net/20.500.12000/0002016909

Perception of research difficulties affects staff nurses' motivation towards research participation: the impact of understanding research value and collegial support

Yumiko Endoh, Takehiko Toyosato, Takao Yokota, Chikako Maeshiro, Misuzu Takahara, Yumiko Henna, Yoko Tamashiro, Midori Kuniyoshi and Yasuko Koja

School of Health Sciences, Faculty of Medicine, University of the Ryukyus

(Received on September 27, 2018, accepted on November 29, 2018)

ABSTRACT

Attitudes towards nursing research, such as researcher motivation or interest, are important in implementing effective studies. However, difficulties relating to research are not obvious; for example, these include characteristics of Japanese clinical nursing research and research motivation. The aim of this study was to clarify the structure of research difficulties, and to identify the impact of research difficulties encountered by staff nurses on their motivation; to reduce the difficulties staff nurses encounter during research; and to establish ambitious research support programs. A staff nurse constitutes a nurse who is on the staff of a hospital without holding a managerial position. We distributed an anonymous self-administered questionnaire to 576 nurses who were employed in a general hospital and analyzed the responses of 308 staff nurses. Exploratory factor analysis was used to investigate the difficulties associated with research. We also performed logistic regression analysis using research difficulties as explanatory variables and the presence or absence of research motivation as the objective variable. Overall, 45.5% of participants expressed research motivation. In exploratory factor analysis of research difficulties, the following five factors were extracted: 1) "exploring research topics and logical thinking," 2) "lack of a research environment," 3) "perception of uncertainty regarding the value of research and lack of support from colleagues," 4) "lack of human resources in nursing research," and 5) "time constraints." Logistic regression analysis revealed the impact of factors related to difficulties associated with nursing research on research motivation. The following research difficulties were significantly associated with research motivation: "exploring research topics and logical thinking," "perception of uncertainty regarding the value of research and lack of support from colleagues," and "time constraints." In particular, the negative influence of "perception of uncertainty regarding the value of research and lack of support from colleagues" factors were significant. For maintaining and increasing research motivation in staff nurses, we suggest the following support: 1) for a research mentor and colleagues to provide emotional support and for organizational managers to build a supportive culture for nursing research, 2) a research mentor who could provide intensive technical and emotional support within the hospital should be included during the stage of research value clarification and an organized research enforcement system needs to be examined, 3) nursing leaders or organizational managers should secure time for their staff to implement research, 4) research programs that collaborate with other researchers and clinical settings should be established to improve research capacity among staff nurses and research mentors. *Ryukyu Med. J., 38 (1~4) 13~24, 2019*

Key words: Staff nurse, Research difficulties, Research motivation

Corresponding Author: Yumiko Endoh, School of Health Sciences, Faculty of Medicine, University of the Ryukyus, 207 Uehara, Nishihara-cho, Okinawa 903-0215, Japan. Tel: 098-895-1269; Fax: 098-895-1268, E-mail: eyumi@med.u-ryukyu.ac.jp

INTRODUCTION

In Japan, more than 80% of medical institutions implement nursing research¹. Furthermore, 60% to 90% of nurses who have been engaged in nursing research in the past are presently implementing research²⁻⁵. Clinical nursing research is conducted through a rotation system or by nomination^{3, 6-9} as part of an in-hospital educational program^{2, 6}. According to reports, 56.7%⁶ and 77.8%¹ of institutions conduct nursing research for periods of less than one-year. These figures suggest that clinical nursing research is implemented in a mandatory manner on a short-term basis at many institutions in Japan. In Japanese surveys, about 50% to 60% of staff nurses report having a motivation towards, or interest in research^{2, 10}. In addition, 65% of nurses positively evaluate the experience of nursing research that is conducted in parallel with normal nursing duties¹¹. Moreover, they recognize that research is not only for improving nursing quality and providing a solution to clinical problems^{6, 12} but it also creates opportunities for personal-growth⁶. In fact, there are reports that nurses who have research experience with less than 5 years of work experience, have a greater ability to accurately perceive a patient's condition and to implement nursing methods dependent on a patient's psychological state³. Moreover, nurses who are involved in voluntary research score highly for abstract judgment, concrete judgment, and cognitive and practical abilities³. These reports indicate an association between taking initiative within their research activity and improvement in practical nursing skills.

Meanwhile, studies show that 43% of Japanese nurses do not want to participate in research¹³, while only 20% do¹⁴. It has been well documented that experience of research participation or experience of research training^{7, 11, 15, 16} and inadequate research knowledge and ability^{14, 17} affect attitude toward nursing research. Moreover, mandatory research implementation and inadequate research knowledge and ability are related to a nurse's sense of burden when asked to implement research^{18, 19}. Although clinical nurses acknowledge that research is a positive experience, they also view it as a heavy burden. Therefore, it is necessary to provide support for researchers so that they can proceed in a motivated manner.

The barriers to research implementation for clinical nurses have been identified as follows: challenge concerning securing time for research, insufficient funding and support from the organization^{11, 20-22}, inadequate knowledge and research skills^{11, 14, 21, 23}, negative impressions for conducting research, and the preconceived idea that nursing practices cannot be changed by nurses^{24, 25}. Studies have reported that many nurses who have difficulty in deciding on a research topic and expressing a research question are unwilling to do research^{14, 18}. However, studies focusing on the relationship between difficulties encountered in research and research motivation have focused on qualitative research^{18, 19} or reviews^{20, 24}. Moreover, there is no clear understanding of the relationship between research difficulties, which include characteristics of Japanese clinical nursing research such as rotation and short-term implementation, and research motivation.

Therefore, the aim of this study was to clarify the structure of research difficulties, and to identify the impact of such difficulties encountered by staff nurses on their motivation; to reduce the difficulties that staff nurses encounter during research; and to establish ambitious research support programs.

METHODS

Participants and procedures

Participants for this study were 576 nurses working at one general hospital in Okinawa Prefecture, Japan. We set the number of participants by referring to the study of Minamisawa et al. (1998) for Japanese nurses². Calculations based on the following ratios determined the target sample size to be 369 nurses: those nurses having research motivation (60%), required accuracy (5%), and confidence rate (95%).

We distributed an anonymous self-administered questionnaire about the state of nursing research between August and September 2014. Before implementing the survey, we explained the objective and ethical considerations of this study to the director of nursing at the participating institution and obtained the director's permission for the nurses to take part in this study. Copies of the survey request form and questionnaire were subsequently distributed to all participants via the nursing

department. After entering responses, participants sealed the questionnaires in an envelope and submitted them to the nursing department, from where the questionnaires were collected directly by the researchers. A total of 477 questionnaire forms were recovered (82.8% recovery rate). Of the 477 nurses who responded, 113 nurses were excluded for omitting answers to questions on age, sex, job title, research motivation, and research difficulties. An additional 56 nurses were excluded for having a managerial position higher than deputy chief, leaving 308 responses ultimately subject to analysis (64.6% valid response rate). While examining the relationship between a nurse's research motivation and descriptive variables such as age, years of nursing experience, experience in serving as a principle investigator of research, work-shift duties, etc., a significant relationship was identified between a nurse's research motivation and his or her position. Specifically, there was a statistically significant difference in research motivation between nurses who held managerial positions and those staff nurse counterparts without such responsibility. Therefore, nurses who held managerial positions were removed from our analyses.

Measures

Participant characteristics

Participants were asked to provide information on their age, years of professional experience, education, employment status, and work type.

Experience in nursing research implementation, research group organization, and research motivation

In Japan, clinical nursing research is often implemented by groups of several researchers rather than by a single researcher^{19, 26}. Thus, we questioned participants about their experiences of the implementation of nursing research and research group organization (as principal investigator). We assessed research motivation by asking, "Do you intend to implement more research in the future?" to which they could respond on a four-point scale ranging from "not at all (1)" to "definitely (4)." Participants who answered "Not at all" or "Probably not" were allocated to the no research motivation group, whereas participants

who answered with "Probably" or "Definitely" were allocated to the research motivation group.

Research difficulties

Although a questionnaire aimed at measuring barriers to research utilization has been developed²⁷, there is currently no questionnaire formulated to measure nursing research difficulties (hereinafter, research difficulties). Therefore, in the current study, we set out to measure research difficulties specifically for Japanese clinical nurses using a proprietary set of questions created with reference to earlier research^{1, 9, 14, 18, 28} such as: "there are limited human resources regarding research guidance in the hospital," or "there is no organization supporting research activities within the hospital." The validity of the questions was examined by nine members of the same faculty. Twenty questions chosen for the evaluation were answered on a four-point scale ranging from "strongly disagree (1)" to "strongly agree (4)." A higher score indicated greater research difficulties.

Statistical analysis

We calculated descriptive statistics for backgrounds, experience in implementing nursing research, and motivation for research. To compare individual backgrounds and experience of nursing research implementation, based on the presence or absence of research motivation, χ^2 tests or the Mann-Whitney U test was performed. An exploratory factor analysis using the principal factor method and promax rotation was performed to clarify the structure of research difficulties. The criterion for adopting factors was an eigenvalue of ≥ 1 and the reliability of the scale was verified by calculating Cronbach's alpha for each extracted factor. The analytical method was a binomial logistic regression analysis using the presence or absence of research motivation as the objective variable and research difficulties as the explanatory variables. Statistical analysis was performed using (SPSS) ver.22.0J (IBM Corp., Armonk, New York, USA); a p-value of < 0.05 was considered to indicate statistical significance.

Ethical considerations

Participants completed the survey after they had read a written statement about the study purpose, the voluntary nature of participation, and their guaranteed right to refuse to answer questions.

Answering and returning the questionnaire was considered to indicate consent for participation. The study protocol was approved by the ethical committee on epidemiological research, University of the Ryukyus (approval number: 243).

RESULTS

Table 1 shows the relationship between characteristics, research experience, and motivation towards nursing research by staff nurses. Data for age and years of nursing experience were not normally distributed, so were expressed as median and range. The median age of all the participants was 28.0 (25–36.8) years, and the median years of nursing experience was 5.0 (2–11) years. The data revealed that 88.6% were female and 57.5% had a bachelor's degree or higher. The majority worked full time (87.3%), or had night shift duties in their shift work (89.9%). Fewer than half of the participants (45.5%) expressed motivation for nursing research.

Those with experience of implementing nursing research accounted for 62%, and only 23.5% had experience as a principal investigator in charge of organizing a research group. Regarding employment status, although there was a tendency to have "part-time/others" in the research motivation group ($p=0.07$), no significant association was detected among any of the items.

In the first analysis, three out of 20 items (namely: "It is difficult to continue to have the research motivation," "Research must be completed in a short period of time," and "Computer operation is poor") were excluded because they failed to meet a factor loading of 0.4. A repeat analysis using the remaining 17 items extracted five factors (Table 2). The first factor was named "exploring research topics and logical thinking" and included items such as "Difficulty thinking of investigative or analytical methods suited to the research topic" and "Difficulty of logically writing down research questions and ideas." The second factor was named "lack of research environment" and consisted of items relating to "Lack

Table 1 Relationship between characteristics, research experience, and nursing research motivation by staff nurses

Characteristic	Total (n = 308)	Research motivation		p - value
		No (n = 168)	Yes (n = 140)	
Age (years) ^a	28.0 (25–36.8)	28.0 (25–36)	29.0 (24–39)	0.79
Years of professional experience ^a	5.0 (2–11.0)	5.0 (2–11.0)	4.0 (2–11.8)	0.45
Gender ^b				
Female	273 (88.6)	146 (86.9)	127 (90.7)	0.29
Male	35 (11.4)	22 (13.1)	13 (9.3)	
Employment status ^b				
Full-time	269 (87.3)	152 (90.5)	117 (83.6)	0.07
Part-time or other	39 (12.7)	16 (9.5)	23 (16.4)	
Work type ^b				
Two or three shifts	277 (89.9)	151 (89.9)	126 (90.0)	0.97
Day shift or other	31 (10.1)	17 (10.1)	14 (10.0)	
Education ^b				
Diploma or associate degree	131 (42.5)	71 (42.3)	60 (42.9)	0.92
Bachelor's degree or higher	177 (57.5)	97 (57.7)	80 (57.1)	
Experience in implementing nursing research ^b				
Yes	191 (62.0)	108 (64.3)	83 (59.3)	0.37
No	117 (38.0)	60 (35.7)	57 (40.7)	
Experience in research group organization as principal investigator ^b				
Yes	72 (23.5)	37 (22.3)	35 (25.0)	0.58
No	234 (76.5)	129 (77.7)	105 (75.0)	

a: Mann-Whitney U test; b: Pearson's χ^2 test. Missing responses are excluded. The values are median (range) or n (%).

Table 2 Factor analysis results for research difficulties by staff nurses (n = 308)

	Factor I	Factor II	Factor III	Factor IV	Factor V
Factor I: Exploring research topics and logical thinking ($\alpha=0.88$)					
Difficulty thinking of investigative or analytical methods suited to the research topic	.89	.03	-.02	.03	.01
Difficulty logically writing down research questions and ideas	.88	.02	-.06	-.07	.06
Difficulty deciding how to interpret research results	.87	.02	.03	-.01	-.03
Difficulty finding a research topic	.53	-.08	.12	.01	.05
Factor II: Lack of research environment ($\alpha=0.80$)					
Lack of access to equipment and supplies necessary for nursing research	-.02	.87	-.09	.09	-.06
Lack of rooms where research can be conducted in the hospital	-.03	.70	.08	-.09	.12
Lack of suitable equipment to conduct a literature search	.15	.60	.01	.08	-.13
Being unable to secure research funding	-.12	.57	.11	-.03	.15
Factor III: Perception of uncertainty regarding the value of research and lack of support from the colleagues ($\alpha = 0.72$)					
Lack of support or interest of families to be involved in research	-.02	-.05	.78	-.10	-.04
Lack of support or interest of colleagues for involvement in research	.06	.03	.61	.09	-.06
Failure of research outcomes to improve nursing care for patients and families, or ward work	.04	-.06	.52	.26	.04
Taking turns at being in charge of nursing research	-.01	.04	.43	-.10	.27
Differing research directions among research group members	.02	.19	.40	-.04	-.12
Factor IV: Lack of human resources in nursing research ($\alpha=0.78$)					
Lack of an organization to support in-hospital research activities	-.01	.03	-.02	.83	-.02
Shortage of personnel supporting or instructing research in the hospital	-.05	.04	-.01	.72	.08
Factor V: Time constraints ($\alpha=0.77$)					
Being forced to use personal time	.06	-.08	-.07	.04	.90
Difficulty adjusting working hours to meet with research group members	.03	.14	-.02	.03	.62
Variance explained by each factor	5.22	2.03	0.83	0.68	0.59
Contribution (%)	30.68	11.97	4.87	3.98	3.49
Cumulative contribution (%)	30.68	42.65	47.52	51.5	54.99

Principal factor method and promax rotation. α : Cronbach's alpha

of access to equipment and supplies necessary for nursing research," and "Lack of rooms where research can be conducted in the hospital." The third factor was named "perception of uncertainty regarding the value of research and lack of support from colleagues," and consisted of items such as "Lack of support or interest of families to be involved in research" and "Failure of research outcomes to lead to improvement in nursing for patients and families or ward work." The fourth factor was named "lack of human resources in nursing research" and consisted of two

items: "Lack of an organization to support in-hospital research activities" and "Shortage of personnel supporting or instructing research in the hospital." The fifth factor was named "time constraints" and consisted of two items: "Being forced to use personal time" and "Difficulty adjusting working hours to meet with research group members." The cumulative contribution ratio of the five extracted factors was 54.99% and the respective Cronbach's alphas of factors one to five were 0.88, 0.80, 0.72, 0.78, and 0.77, indicating valid internal consistency in all cases.

Table 3 The impact of research difficulty factors related to nursing research on the motivation of staff nurses towards

	AOR	95% CI	p-value
Factor I : Exploring research topics and logical thinking	0.52	0.35–0.78	0.001
Factor II : Lack of research environment	0.84	0.57–1.25	0.393
Factor III : Perception of uncertainty regarding the value of research and lack of support from the colleagues	0.45	0.28–0.71	0.001
Factor IV : Lack of human resources in nursing research	1.02	0.71–1.46	0.906
Factor V : Time constraints	0.49	0.31–0.76	0.002

Research motivation (0: no, 1: yes). AOR: Adjusted Odds Ratio; CI: Confidence Interval. Adjusted by employment status.

Table 3 represents the results of the logistic regression analysis with the mean score per item of each factor of the factor analysis in the perception of research difficulty as the explanatory variable and research motivation as the objective variable. In terms of perception of research difficulties, with the exception of the second factor (lack of research environment) and the fourth factor (lack of human resources in nursing research), first factors (exploring research topics and logical thinking, OR: 0.52, 95%CI: 0.35–0.78), third factors (perception of uncertainty regarding the value of research and lack of support from the colleagues, OR: 0.45, 95%CI: 0.28–0.71), and fifth factors (time constraints, OR: 0.49, 95%CI: 0.31–0.76) were significantly associated with research motivation.

DISCUSSION

In two previous surveys of nurses in Canada and the United States of America, more than 90% of participants reported having research motivation²⁹ or interest in research³⁰. Younger nurses, who are below age 30²⁹ and hold a bachelor's degree or higher^{29,30}, were more likely to participate in research activities. Meanwhile, a survey of nurses in Japan found that 60.4% of respondents had an interest in or concern for research²; however, fewer than half of participants in our study answered that they were motivated towards nursing research. Moreover, we observed no significant differences between research motivation and characteristics such as age, years of professional experience, and education; this suggests a weak research motivation regardless of age, years of professional experience, or educational background. In the previously mentioned studies,

54.5%²⁹ or 58%³⁰ of nurses with educational backgrounds above bachelor's degree showed a similar ratio to our study. Nonetheless, a high interest in research was shown by the subjects of the previous studies. One of the reasons why those nurses in the aforementioned study expressed higher levels of research interest might lie in the difference in involvement in nursing research during the period when they received basic nursing education. Nurses who showed a greater interest in nursing research may have had more experience in learning from nursing studies during this specific period. In addition, earlier studies point out that experience of research positively affects research attitudes and participation in research^{15, 30-32}. However, in the current study, research experience was not associated with research motivation. The reason for our result is unclear as we did not investigate the number of years of participants' research experience. However, 75% of the participants had up to 11 years of professional experience, so it can be regarded as a group with a limited experience of research, and it is presumed that there was no association with research motivation.

Five factors were extracted during exploratory factor analysis of research difficulties. The first factor, exploring research topics and logical thinking consisted of items related to research skills, such as examination of investigative and analytical methods suited to the research topic and logically writing down research questions and ideas. In a previous qualitative study of nurses experienced in clinical nursing research¹⁹, three categories, "Implementation of research based on expert knowledge," "Understanding of expert knowledge necessary for research," and "Judging the suitability of moving forward with research," accounted for 60% of

categories showing research difficulties. Furthermore, the difficulties of "Setting the research theme" and "Summarizing research results" are cited as difficulties in a clinical nurse's research process³³. These findings suggested that our participants faced the same difficulties as those in earlier studies. The second factor extracted was "lack of research environment." Earlier studies have cited the lack or shortage of support for research expenses^{22, 34}, and the lack of access to materials and the Internet³⁵ as factors inhibiting nursing research. Consistent with the previous studies, items concerning physical or economic environment were predominant in this specific factor thereby highlighting the importance of preparing the physical environment such as research facility, equipment, inventory, and funding suitable for research. The third factor extracted was "perception of uncertainty regarding the value of research and lack of support from colleagues." Previous reports have noted that a shortage of personal support in the form of cooperation or understanding of physicians and colleagues is a factor inhibiting research³⁴⁻³⁶. Our results corroborate the latter finding. Furthermore, the factor items "Lack of support or interest of families to be involved in research" and "Taking turns at being in charge of nursing research" were newly adopted as elements of difficulty. These items are not seen in reports from other countries. The item "Taking turns at being in charge of nursing research" in particular reflects the rotation system that embodies clinical nursing research in Japan^{6, 9} and could be a local difficulty. The fourth factor extracted was "lack of human resources in nursing research." Earlier studies have cited the shortage of organizations and personnel to support research^{17, 22, 34, 37}, as factors inhibiting nursing research. Our results similarly suggested the importance of providing a research environment in addition to the physical environment of the second factor, based on the human and system environments necessary to conduct research, such as support organizations and personnel required for nursing research. Time constraints to the implementation or use of nursing research are an inhibiting factor of research environments worldwide^{5, 17, 20, 22, 32, 38-40}. In our study, we obtained similar results to previous studies for the item "Being forced to use personal time" in the fifth factor of "time constraints." Furthermore, the item

"Difficulty adjusting working hours to meet with research group members" was adopted as a factor related to time constraints in our study. Items related to coordinating meetings between research team members have not been reported in previous studies in other countries. This is because clinical nursing research is often implemented in groups in Japan¹⁹ and suggests that "Coordinating time between members" is a potential hindrance to conducting research^{19, 28}.

The logistics regression analysis was conducted with the perception of research difficulty as the explanatory variable and research motivation as the objective variable; the result of the analysis revealed that perception of research difficulty negatively affected research motivation. Therefore, it was suggested that reducing the research difficulties involved in implementing the research could lead to an improvement in research motivation.

One of the factors that most negatively impacted research motivation among the three factors that demonstrated significant association with perception of research difficulty was "perception of uncertainty regarding the value of research and lack of support from colleagues." This factor consisted of research difficulties concerning research significance, such as lack of support or interest from the families or colleagues of researchers, failure of research outcomes to lead to improvement in ward work, and taking turns at being in charge of nursing research. For the promotion of clinical nursing research, psychological support such as encouragement from nursing administrators, colleagues, and physicians in the workplace, as well as positive evaluation of researchers and taking an interest are considered effective^{20, 22, 36, 39, 41-44}. The lack of physical and human environments related to research guidance (second and fourth factors of research difficulties) were not associated with research motivation in our study. Studies that ranked factors related to the promotion of nursing research identified the presence of a mentor who provided encouragement and coaching to be the highest ranked promoting factor for nursing research, placed above the availability of research facilities/infrastructures (e.g., research database, library services)²². In addition, nurses who were actively taking initiatives in research, received support from a research mentor during the research process⁴⁵. Therefore, it

is suggested that psychological support for researchers is more important than improving their research environment. In order to address the challenges concerning the negative perception towards research (e.g., perception of difficulty), the value of research needs to be clarified among members of the research team through involved discussion. It is monumentally important for each member of the team to spend time in pondering research topics at the beginning of the research process while simultaneously taking the value of research into account. However, it is evident that there is insufficient time to fully consider the value of research. This is because Japanese nurses often conduct research projects over a short term of about one year^{1, 6)} and in parallel with routine nursing practice. Therefore, to enable the clarification of research value and move towards conducting research with a long-term perspective, an organized research enforcement system such as changing the study period to a multi-year timeframe needs to be examined. Regarding difficulties related to the fifth factor of "time constraints," this has been documented to be related to research motivation³⁸⁾, therefore minimizing its impact on work will promote a motivation towards research²⁰⁾. In addition, clinical nursing research in Japan is implemented by groups of several researchers^{19, 26)}; as a result, the coordination of time between group members has become a barrier. Securing time for research is considered difficult in busy clinical settings; however, organizational initiatives, such as devising means to secure regular times for research or acknowledging remuneration for research activities conducted outside of working hours, are considered important. The first factor of research difficulties, "exploring research topics and logical thinking," was associated with a negative attitude towards research motivation. This factor represents a difficulty with understanding the value of research and research capacity. Literature emphasizes the need for having a common understanding regarding the value of research among researchers, participants, and other supporters (e.g., research assistant or organizations)⁴⁶⁾. Thus, studies could benefit by having supporters who could contribute an initial extensive, objective perspective regarding topics in the initial stages of a research project.

The promotion of clinical nursing research cannot be achieved through the efforts of clinical

settings alone; researchers and clinical settings must cooperate to build clinical research networks²⁹⁾ and collaboration⁴¹⁾. Nurses who have completed graduate studies, certified nurses, university faculty members, librarians, and other medical professionals who are familiar with the research process should collaborate to implement the program^{47, 48)}. Due to such joint program responses to the needs of the medical site, an enhanced quality of satisfaction among patients and nurses as well as a perception of more effective nursing practices have been reported^{25, 49, 50)}. However, in a survey targeting medium and large hospitals in Japan, less than 40% utilize external lecturers for research support. In addition, support by non-faculty staff alone accounts for over 60%¹⁾, including group workshops, guidance from head clinical nurses, chief nurses, or a senior nurse. However, it is reported that nurses who are in a position to lead research have difficulties due to shortcomings of their own research method, knowledge, and skills^{18, 33)}; furthermore, the self-evaluation of these abilities is low⁵⁾. Moreover, the needs of those nurses who support research differ depending on their educational background⁵⁾. Therefore, specialized research support programs need to be established.

LIMITATIONS AND FUTURE ISSUES

This study had some limitations. First, it employed a single-institution design. Participants in this study were in a hospital where nursing research was regarded as one of the staff training programs, and there were human resources available for nursing research support. In Japan, nursing research is conducted in various facilities regardless of institution size. Therefore, future challenges will include clarifying the association between research motivation and research difficulties for clinical nurses in terms of facility size and differences in regional characteristics. The perception of research difficulty factor, that evinced the association with research motivation, contained the items related to the value of research and practical research implementation skills.

Therefore, it is recommended that future studies investigate the current situation of these factors and their association with motivation towards research.

CONCLUSIONS

We conducted this study to clarify the association between motivation towards research and difficulties faced in relation to research by staff nurses. In exploratory factor analysis of research difficulties, four out of the extracted five factors included the same content as found in previous studies. However, the factor of “perception of uncertainty regarding the value of research and lack of support from the colleagues” was considered an important factor reflecting the actual circumstances of clinical nursing research in Japan. In our examination of the impact of factors of research difficulties on research motivation, the following three were significantly associated with research motivation: 1) exploring research topics and logical thinking, 2) perception of uncertainty regarding the value of research and lack of support from colleagues, and 3) time constraints; the former was particularly significant. For maintaining and increasing research motivation in staff nurses, we suggest the following support: 1) that a research mentor and colleagues provide emotional support and that organizational managers should build a supportive culture for nursing research, 2) that a research mentor who could provide intensive technical and emotional support within the hospital should be included during the stage of research value clarification and an organized research enforcement system needs to be examined, 3) that nursing leaders or organizational managers should secure time for their staff to implement research, 4) research programs that collaborate with other researchers and clinical settings should be established to improve research capacity among staff nurses and research mentors.

ACKNOWLEDGMENTS

We are deeply grateful to all the clinical nurses who kindly took the time out of their busy schedules to fill out this survey. This study was supported by a University of the Ryukyus Research Project Promotion Grant for Women Researchers (14SP05104).

REFERENCES

- 1) Sakashita R., Kitajima Y., Nishihira T., Miyashiba T., Nishitani M. and Tao M.: A nation-wide survey of nursing research conducted in medium and large hospitals in Japan. *J. Jpn. Acad. Nurs. Sci.* 33(1): 91-97, 2013. (in Japanese)
- 2) Minamisawa H., Onishi C., Kazuma K., Kodama K., Saito Y., Sakai M. and Miyama T.: The difficulties and the problems to be resolved in clinical nursing research- the first report -. *J. Jpn. Acad. Nurs. Sci.* 18(1): 52-59, 1998. (in Japanese)
- 3) Kikuchi A.: The relationship between professional autonomy in nursing and research activity. *Quality Nursing* 6(4): 41-47, 2000. (in Japanese)
- 4) Kikuchi A. and Okamoto E.: The relations of professional autonomy in nursing with attitude toward research activity and distress to ethical issues. *J. Jpn. Soc. Nurs. Res.* 25(2): 101-109, 2002. (in Japanese)
- 5) Kono A., Kayama M. and Greg M.F.: Educational needs of advanced nurses for clinical nursing research: certified expert nurses, certified nurse specialists, and nurses in charge of staff development at hospitals. *J. Jpn. Acad. Nurs. Ed.* 17(2): 31-40, 2007. (in Japanese)
- 6) Imada T. and Katou C.: Investigation of clinical nursing research and support. *JAMI-NS* 7: 142-145, 2006. (in Japanese)
- 7) Kimura K., Ohgushi Y., Abe T., Suzuki M., Yonaiyama C., Kudo S., Hanada K. and Kasai A.: The factor in nurses' attitudes for carrying out the research of nursing- in Hokkaido and the area of northeast Japan-. *J. Jpn. Soc. Nurs. Res.* 23(2): 19-28, 2000. (in Japanese)
- 8) Nishihira T., Miyashiba T., Otsuka K. and Sakashita R.: Present conditions and issues of supporting research at the hospitals in Hyogo -an investigation of support system for “nursing research aimed at continuous education for nurses-. *UH CNAS, RINCPC Bulletin* 16: 85-95, 2009. (in Japanese)
- 9) Miyashiba T., Nishihira T., and Sakashita R.: Present conditions and issues of supporting nursing research at the hospitals in Hyogo -an investigation of support system for the research by nurses-. *UH CNAS, RINCPC Bulletin* 17: 117-

- 127, 2010. (in Japanese)
- 10) Shiota K. and Yumiba N.: Attitude of nurse at Osaka city university hospital about nursing research in relation to their clinical experience. *The Journal of the Osaka City Medical Center.* 46(1):139-144, 1997. (in Japanese)
 - 11) Kiyomura N. and Nishisaka K.: Analysis of the relationships among relevant factors to research utilization in clinical settings. *J. Jpn. Soc. Nurs. Res.* 27(1): 59-72, 2004. (in Japanese)
 - 12) Omura Y., Fujino Y., Kawamoto R., Fujino N., Suetsugu Y., Kanaoka M., Matsumoto H., Yamashita H., Baba C., Shigematsu H., and Nakahata T.: Support for nursing research at university hospitals. *International nursing care research* 13(3): 49-59, 2014. (in Japanese)
 - 13) Asanuma Y., Higuchi H., and Ishii M.: The relation between nurses' research experiences, intention of carrying out subsequent research and the actual conditions of research in the workplace. *Journal of the Faculty of Nursing, Iwate Prefectural University* 7: 101-109, 2005. (in Japanese)
 - 14) Kutsumi M., Nakaoka A., Yagi N., and Fukuoka T.: Evaluation of support system for nurses' approach to nursing research: to promote unification between faculty of nursing and hospital. *The Journal of Senri Kinran University* 8: 115-122, 2011. (in Japanese)
 - 15) Tsai S.: Nurses' participation and utilization of research in the Republic of China. *Int. J. Nurs. Stud.* 37: 435-444, 2000.
 - 16) Glynn L.G., O'Riordan C., MacFarlane A., Newell J., Iglesias A.A., Whitford D., Cantillon P., and Murphy, A. W.: Research activity and capacity in primary healthcare: The REACH study: A survey. *BMC Fam. Pract.* 10(1): 33, 2009.
 - 17) Bohman D.M., Ericsson T. and Borglin G.: Swedish nurses' perception of nursing research and its implementation in clinical practice: a focus group study. *Scand. J. Caring Sci.* 27(3): 525-533, 2013.
 - 18) Nakano H., Inoue T., Azuma T., Ikehara H., Sakashita R., Kawasaki Y., Okada A., Yamamura F., Mori M., Tao M., Tanida K., Morimoto M. and Uchinuno A.: An analysis of how nurses experience research activities in the clinical setting. *UH CNAS, RINCPC Bulletin* 21: 11-21, 2014. (in Japanese)
 - 19) Nakayama T., Funashima N. and Okazaki S.: Nursing research conducted in a hospital: difficulties encountered by nurses when conducting research and methods used to overcome them. *J. Jpn. Acad. Nurs. Educ.* 23(1): 17-32, 2014. (in Japanese)
 - 20) Albers L.L. and Sedler K.D.: Clinician perspectives on participation in research. *J. Midwifery Womens Health* 49(1): 47-50, 2004.
 - 21) Breimaier H.E., Halfens R.J., and Lohrmann C.: Nurses' wishes, knowledge, attitudes and perceived barriers on implementing research findings into practice among graduate nurses in Austria. *J. Clin. Nurs.* 20(11-12): 1744-1756, 2011.
 - 22) Kelly K.P., Turner A., Speroni K.G., McLaughlin M.K. and Guzzetta C.E.: National survey of hospital nursing research, part 2: facilitators and hindrances. *JONA* 43(1): 18-23, 2013.
 - 23) Fukahori H., Miyashita M., Oyama Y., Atogami F., Okaya K., Kashiwagi M., Kono A., Takamizawa E., Narama M. and Yoshizawa T.: Factors Related to Perceived Barriers to Conducting Research and Expected Support from the Japan Academy of Nursing Science among Young Japanese Nursing Researchers. *J. Jpn. Acad. Nurs. Sci.* 35(1): 203-214, 2015. (in Japanese)
 - 24) Edwards, N., Webber J., Mill J., Kahwa E., and Roelofs S.: Building capacity for nurse-led research. *Int. Nurs. Rev.* 56(1): 88-94, 2009.
 - 25) Latimer R., and Kimbell J.: Nursing research fellowship: Building nursing research infrastructure in a hospital. *J. Nurs. Adm.* 40(2): 92-98, 2010.
 - 26) Minegishi H. and Endo E.: A review of literature and perspectives of future research concerning cancer nursing practice in Japan (1988~1997). *J. Jpn. Soc. Cancer Nurs.* 13(1): 1-13, 1999. (in Japanese)
 - 27) Funk S.G., Champagne M.T., Wiese R.A. and Tornquist E.M.: BARRIERS: the barriers to research utilization scale. *Appl. Nurs. Res.* 4(1): 39-45, 1991.
 - 28) Uda E.: The review of clinical nursing research in Japan. *Jpn. Nurs. Res.* 45(7): 630-637, 2012. (in Japanese)
 - 29) Robichaud-Ekstrand S.: New Brunswick nurses' views on nursing research, and factors influencing their research activities in clinical practice. *Nurs. Health Sci.* 18(2): 246-255, 2016.
 - 30) Riley J.K., Hill A.N., Krause L.B., Leach L. and Lowe T.J.: Examining nurses' attitudes

- regarding the value, role, interest, and experience in research in an acute care hospital. *J. Nurses Staff Dev.* 27(6): 272-279, 2011.
- 31) Kuuppelomäki M. and Tuomi J.: Finnish nurses' attitudes towards nursing research and related factors. *Int. J. Nurs. Stud.* 42(2): 187-196, 2005.
 - 32) Björkström M.E. and Hamrin E.K.: Swedish nurses' attitudes towards research and development within nursing. *J. Adv. Nurs.* 34(5): 706-714, 2001.
 - 33) Inoue T., Nakano H., Azuma T., Ikehara H., Sakashita R., Kawasaki Y., Okada A., Yamamura F., Mori M., Tao M., Tanida K., Morimoto M., and Uchinuno A.: Difficulties nurses undergo when they perform research. *UH CNAS, RINCPC Bulletin* 21: 23-35, 2014. (in Japanese)
 - 34) Tanner J. and Hale C.: Developing research capacity: identifying and quantifying nursing research activity in the NHS. *Nursing Times Research* 7(3): 212-221, 2002.
 - 35) Mehrdad N., Salsali M. and Kazemnejad A.: The spectrum of barriers to and facilitators of research utilization in Iranian nursing. *J. Clin. Nurs.* 17(16): 2194-2202, 2008.
 - 36) Smirnoff M., Ramirez M., Kooplinae L., Gibney M. and McEvoy M.D.: Nurses' attitudes toward nursing research at a metropolitan medical center. *Appl. Nurs. Res.* 20(1): 24-31, 2007.
 - 37) Jacobson A.F., Warner A.M., Fleming E. and Schmidt B.: Factors influencing nurses' participation in clinical research. *Gastroenterol. Nurs.* 31(3): 198-208, 2008.
 - 38) Sellick K.M.: Victorian hospital nurses' research attitudes and activity. *Aust. J. Adv. Nurs.* 13(4): 5-14, 1996.
 - 39) Chau J.P., Lopez V. and Thompson D.R.: A survey of Hong Kong nurses' perceptions of barriers to and facilitators of research utilization. *Res. Nurs. Health* 31(6): 640-649, 2008.
 - 40) O'Halloran V.E., Pollock S.E., Gottlieb T. and Schwartz F.: Improving self-efficacy in nursing research. *Clin. Nurse Spec.* 10(2): 83-87, 1996.
 - 41) Camiah S.: Utilization of nursing research in practice and application strategies to raise research awareness amongst nurse practitioners: a model for success. *J. Adv. Nurs.* 26(6): 1193-1202, 1997.
 - 42) Kajermo K.N., Nordström G., Krusebrant Å. and Björvell H.: Barriers to and facilitators of research utilization, as perceived by a group of registered nurses in Sweden. *J. Adv. Nurs.* 27(4): 798-807, 1998.
 - 43) Parahoo K.: Barriers to, and facilitators of, research utilization among nurses in Northern Ireland. *J. Adv. Nurs.* 31(1): 89-98, 2000.
 - 44) Karkos B. and Peters K.: A Magnet community hospital: Fewer barriers to nursing research utilization. *JONA* 36(7-8): 377-382, 2006.
 - 45) Siedlecki S.L., and Albert N. M.: Research - active clinical nurses: against all odds. *JCN* 26(5-6): 766-773, 2017.
 - 46) Miyashiba T.: What is the significance of nursing research in clinical settings in Japan? *Jpn. Nurs. Res.* 45(7): 643-648, 2012. (in Japanese)
 - 47) Nakazawa T.: Establishment of the support system aiming at the activation of nursing research. *Kango Tenbo* 39(3): 30-37, 2014. (in Japanese)
 - 48) Inomata K.: In-hospital support aiming at the activation of nursing research in the Kitasato University hospital. *Kango Tenbo* 39(3): 38-43, 2014. (in Japanese)
 - 49) Gawlinski A., and Miller P.S.: Advancing nursing research through a mentorship program for staff nurses. *AACN* 22(3): 190-200, 2011.
 - 50) Gifford W.A., Davies B.L., Ploe J., Eldre S., and Bajnok I.: Moving knowledge to action: a qualitative study of the Registered Nurses' Association of Ontario Advanced Clinical Practice Fellowship program. *Nurs. Leadersh.* 26(1): 32-57, 2013.

