Factors Related to Innovation Behavior among Nurses in Tertiary General Hospitals,the Central Region, The Socialist Republic of Vietnam

ปัจจัยที่เกี่ยวข้องกับพฤติกรรมสร้างนวตกรรมของพยาบาลในโรงพยาบาลทั่วไป ระดับตติยภูมิ เขตภาคกลาง ประเทศสาธารณรัฐสังคมนิยมเวียดนาม

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บทคัดย่อ

พฤติกรรมสร้างนวตกรรมของพยาบาลมีความจำเป็นต่อการพัฒนาคุณภาพของการบริการในระบบการดูแลสุขภาพ การศึกษาครั้งนี้มีวัตถุประสงค์คือ ศึกษาพฤติกรรมสร้างนวตกรรม ความคิดริเริ่ม และความสามารถในการคิดสร้างสรรค์ ศึกษาความสัมพันธ์ระหว่างการความคิดริเริ่ม พฤติกรรมสร้างนวตกรรมของพยาบาล และศึกษาความสัมพันธ์ระหว่างความสามารถในการคิดสร้างสรรค์และพฤติกรรมสร้างนวตกรรมของพยาบาล ในโรงพยาบาลทั่วไประดับตติยภูมิ เขตภาคกลาง ประเทศสาธารณรัฐสังคมนิยมเวียดนาม กลุ่มตัวอย่างเลือกโดยการสุ่มแบบชั้นภูมิจากพยาบาลแผนกอายุรกรรม ศัลยกรรม กุมารเวชกรรม แผนกผู้ป่วยนอก หน่วยรักษาพยาบาลผู้ป่วยหนัก และหน่วยเฉพาะทางของโรงพยาบาลทั่วไประดับตติยภูมิสามแห่ง จำนวน 384 คน เครื่องมือที่ใช้ในการวิจัยคือแบบบันทึกข้อมูลทั่วไป แบบประเมินความคิดริเริ่ม แบบประเมินความสามารถในการคิดสร้างสรรค์ และแบบประเมินพฤติกรรมสร้างนวตกรรมที่ได้รับการตรวจสอบความตรงจากผู้เชี่ยวชาญ ความเที่ยงของแบบประเมินความคิดริเริ่ม แบบประเมินความสามารถในการคิดสร้างสรรค์ และแบบประเมินพฤติกรรมสร้างนวตกรรมเท่ากับ 0.89, 0.83 และ 0.80 ตามลำดับ วิเคราะห์ข้อมูลโดยสถิติเชิงพรรณนา และสัมประสิทธิ์สหสัมพันธ์ของสเปียร์แมน

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1. ระดับความคิดริเริ่มโดยรวมของพยาบาลในโรงพยาบาลทั่วไประดับตติยภูมิสามแห่งอยู่ในระดับปานกลาง

2. ระดับความสามารถในการคิดสร้างสรรค์โดยรวมของพยาบาลในโรงพยาบาลทั่วไประดับตติยภูมิสามแห่งอยู่ในระดับต่ำ

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3. ระดับพฤติกรรมสร้างนวตกรรมโดยรวมของพยาบาลในโรงพยาบาลทั่วไประดับตติยภูมิสามแห่งอยู่ในระดับต่ำ

4. ความคิดริเริ่มมีความสัมพันธ์ในเชิงบวกกับพฤติกรรมสร้างนวตกรรมของพยาบาลอย่างมีนัยสำคัญทางสถิติ

5. ความสามารถในการคิดสร้างสรรค์ มีความสัมพันธ์ในเชิงบวกกับพฤติกรรมสร้างนวตกรรมของพยาบาลอย่างมีนัยสำคัญทางสถิติ

ผู้บริหารทางการพยาบาลสามารถนำผลการศึกษาในครั้งนี้ไปพัฒนากลยุทธ์ในการปรับปรุงความสามารถในการคิดสร้างสรรค์ และความคิดริเริ่มของพยาบาลเพื่อที่จะนำไปสู่การสนับสนุนให้เกิดพฤติกรรมสร้างนวตกรรมของพยาบาลโรงพยาบาลทั่วไประดับตติยภูมิ

คำสำคัญ : พฤติกรรมสร้างนวตกรรม ความคิดริเริ่ม ความสามารถในการคิดสร้างสรรค์

Abstract

Innovation behavior among nurses is essential for improving quality of services in healthcare system. The purpose of this study were to explore innovation behavior, proactivity, and creative efficacy, and to explore the relationship between proactivity and innovation behavior among nurses, and the relationship between creative efficacy and innovation behavior among nurses, in tertiary general hospitals in the central region of the Socialist Republic of Vietnam. Subjects included 384 nurses selected from medical, surgical, pediatric, outpatient department, intensive care unit, and specialized units in three tertiary general hospitals by stratified random sampling. Research instruments were a Demographic Data Form, a Proactivity Scale, a Creative Efficacy Scale, and an Innovation Behavior Scale. The validity of these instruments was confirmed by experts. The reliability of the proactivity scale, the creative efficacy scale and the innovation behavior scale were 0.89, 0.83, and 0.80 respectively. Data were analyzed using descriptive statistics and the Spearman's rank-order coefficient.

The results of study:

1. The level of overall proactivity among nurses in the three tertiary general hospitals was at a moderate level.

2. The level of overall creative efficacy among nurses in the three tertiary general hospitals was at a low level.

3. The level of overall innovation behavior among nurses in the tertiary general hospitals was at a low level.

4. There was a significant positive relationship between proactivity and innovation behavior among nurses.

5. There was a significant positive relationship between creative efficacy and innovation behavior among nurses.

Nursing administrators can use the results of this study to develop strategies to improve creative efficacy and proactivity among nurses in order to encourage innovation behavior among nurses in tertiary general hospitals.

Key Words: Innovation Behavior, Proactivity, Creative Efficacy, Tertiary General Hospitals

Background and Significance

Nurses play an important role in the healthcare system and in achieving high quality patient outcomes that have been recognized worldwide (Hall, 2003; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002). Nowadays nurses spend a lot of time in contact and communicating with patients. Nurses carry out procedures, collaborate with doctors and other team members, assess patients and solve their problems (WHO, 1997). In doing such effectively, nurses need to have competency regarding innovation.

Innovation behavior can help to increase quality, improve working conditions, and aid in attracting new groups to health care (Adams, 1994; Faugier, 2005). Due to the fast paced changes in health care, and the challenges and opportunities that face professional nurses, innovate behavior is necessary for the evolution of nursing practice and organizational success (Gilmartin, 1999; Hughes, 2006; Lachman, Glasgow, & Donnelly, 2009). Nurses need to further develop their commitment to innovation to meet the pressing challenges of the nation's healthcare needs. Innovation is complex work, but it is also essential work for health care. Local innovation in pursuit of national goals improves health care quality.

The term innovation has become a buzz word over the last decade. Everyone exalts the importance of innovation, yet few know what it means to be innovative and how it influences health care (Weberg, 2009). Janssen (2005) defines innovative behavior as recognition of a problem, generation of ideas, mobilization of support, and realization of the ideas related to the initial problem. Employees see a problem in their daily job, and they begin thinking about it. They will consider this problem, so they need to have enough time and discretion to be able to consider the problem (Janssen, 2005). Whenever employees have ideas and care about their ideas, they want to apply them to make something new that is appropriate to their job. Nurses have the knowledge to identify and solve work environment issues through innovative solutions. Understanding employee innovation can be of value to the nursing profession to help solve some of the problems present within health care. Nursing innovation behavior can help improve quality of health care, improve the working environment of nurses, and attract new groups of prospective workers to health care (Adams, 1994). The challenge of balancing the cost and quality of health care and a

worsening nurse shortage necessitate a deeper consideration of the nature of innovation (Lachman et al., 2009). Innovations by nurses within healthcare are important in addressing some of the problems present within the current system. As competition increases in the marketplace, innovative ideas of workers have become a highly valued resource. It appears evident that the challenges nursing faces, including work environment, and nurse education, will escalate in the future requiring new and innovative solutions (Stein, 2004). An innovative culture could lead to greater interest in the nursing profession by non-traditional candidates who are attracted by innovation opportunities. Innovative nurses can be of value to the nursing profession and health care by helping to solve some of the critical issues.

Factors found to be facilitators of innovation behavior include individual factors, group work factors, and organizational factors. Four categories of organizational factors associated with innovation, including management support, work discretion, rewards, and time availability, are defined by Hornsby, Montagno, and Kuratko (1992). Two individual factors that were found to have an effect on innovative behavior were proactivity and creative efficacy. Several researchers found that proactivity was related to innovation behavior (Amo, 2006b; Baum, Locke, & Smith, 2001; Campbell, 2000; Crant, 1996; Kickul & Gundry, 2002), and creative efficacy was also found to be related to innovation behavior (Farmer, Tierney, & Kung-McIntyre, 2003; Tierney, 1997; Tierney & Farmer, 2002).

In Vietnam, innovation behavior among nurses in most of the hospitals remains at a low level for many reasons (MOH, 2007). In fact, Vietnamese nurses were traditionally considered to be little more than assistants to physicians, and thus they lack abilities in nursing innovation (Tam, 2007). Nurses' perceptions of innovation are negative since they think that being innovative is only physicians' work. Few nurses participate in innovation, because they lack confidence and have insufficient innovation knowledge and skill (Tam, 2007). Moreover, in daily working, nurses often only do routine work such as taking vital signs, administering medication, assisting the doctor in performing medical procedures, and completing nursing documents; they consider themselves physicians' assistants in providing care for the patients since they do not have enough nursing professional knowledge. As a result, nurses do not have enough authority to do things including complex nursing processes, and innovation behavior (Muc, 2009).

In the Central Region of Vietnam, there are currently five nursing education programs: elementary, secondary, college, bachelor, and master degree (VNA, 2002). Nurses who study the two year program in the nursing schools (secondary level) do not have any innovation courses in the curriculum. Although the curriculum for bachelor degree nurses includes one nursing innovation course, the bachelor degree nurses have been found to lack competence in conducting innovation (Tam, 2007). In addition, nursing shortages and work overload exist in many healthcare settings, especially in tertiary general hospitals. Most hospitals work on a 2 twelve-hour shift working

system, so nurses work 12 hour shifts to take care of inpatients and outpatients. One nurse has to take care of 8-10 patients, and only carries out doctors' orders and completes documents. Consequently, they do not have time to attend to other activities including nursing innovation activities (Thanh, 2007). Many hospital managers view nursing care as only performing injections, delivering medicine and providing basic nursing care (Phan, 2004). Nurses in general have less opportunity than doctors to receive job training and attend nursing conferences outside the hospital, so they are less likely to express their ideas or create innovation (Phan, 2004). Furthermore there are no innovation textbooks or guidelines that nurses can use to facilitate developing innovation. There is only one nursing journal printed every quarter and distributed to nursing divisions and departments in tertiary general hospitals. Similarly there are few websites related to nurses, except the *Vietnamese Nurse Journal* and only one professional association, which is the Vietnam Nurse Association.

The researcher, who is a nurse administrator, investigated the level of nurse innovation behavior, and the factors related to innovation behavior among nurses. The results of this study can be used as baseline information to monitor the regulation regarding innovation and develop strategies for nurses to improve innovation behavior, proactivity, and creative efficacy.

Objectives

The objectives of this study were to explore innovation behavior, proactivity, creative efficacy; the relationships between proactivity and innovation behavior; and between creative efficacy and innovation behavior among nurses in tertiary general hospitals, the Central Region, the Socialist Republic of Vietnam.

Conceptual Framework

Based on a literature review, there are several factors that have been found related to innovation behavior including proactivity and creative efficacy. Innovation behavior is defined as the recognition of a problem, generation of ideas, and mobilization of support toward the goal of realization of the ideas related to the initial problem (Janssen, 2005). Proactive individuals identify opportunities, show initiative, take action, and persevere until they bring about meaningful change which denote innovation behavior. Whereas levels of creative efficacy have an important impact on the process of innovation. The relationships between innovation behavior and the two factors of proactivity and creative efficacy were examined in this study.

Methodology

A descriptive correlation research design was used.

Population and sample

The target population in this study was 1,590 nurses, including nurse managers and head nurses, who were working for at least one year in all clinical units, such as the medical units, pediatric units, OPD units, and specialized units. All these units were clinical units in the three tertiary general hospitals, the Central Region, the Socialist Republic of Vietnam, namely Khanh Hoa Tertiary General Hospital, Binh Dinh Tertiary

General Hospital, and Da Nang Tertiary General Hospital.

Sample and Procedure

The sample included 384 nurses including nurse mangers and heads nurses, who had worked for at least one year, selected from 1,590 nurses in tertiary general hospitals, the Central Region, the Socialist Republic of Vietnam using a stratified random sampling technique. The study was approved by the Research Ethics Review Committee in the Faculty of Nursing, Chiang Mai University, Thailand. After getting permission from directors and nursing managers of those hospitals, the researcher asked for one coordinator of the nursing departments in each hospital to explain the objectives and benefits of the study, and to distribute the questionnaires to the subjects. After two weeks, the researcher received all 384 completed questionnaires.

Research Instrument

The instruments used in this study include demographic data, a proactivity scale, a creative efficacy scale, and an innovation behavior scale. The Demographic Data Form was designed to collect information of the subjects, including age, gender, years of work experience, and level of education. The Proactivity Scale was a ten-item scale developed by Seibert et al (1999). The proactivity scale utilized a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). After obtaining permission from the developers, the instruments were translated into Vietnamese by the researcher. The total score of proactivity ranged from 10-70 and was interpreted in three levels low, moderate, and high (Best & Kahn, 2003). The Creative Efficacy Scale was a 3-item scale developed by Tierney (1997). Respondents used a 7-point scale with 1, strongly disagree, up to 7, strongly agree. After obtaining permission from the developers, the instruments were translated into Vietnamese by the researcher. The total score of creative efficacy ranged from 3-21 and was interpreted in three levels low, moderate, and high (Best & Kahn, 2003). The Janssen Innovation Behaviour Scale was used to measure innovation behavior in this study. It had 9-items and used a 7-point scale with 1= never to 7= always. After obtaining permission from the developers, the instruments were translated into Vietnamese by the researcher. The translated version was checked by two Vietnamese bilingual experts who hold a master's degree in nursing, and who have been long serving as administrators in the nursing discipline. The original English and back-translated versions were checked for their equivalent or closest meaning by the developer of this instrument. The total score of innovation behavior ranged from 9-63 and was interpreted in three levels low, moderate, and high (Best & Kahn, 2003). The Cronbach's alpha of the total scale of proactivity was .89, creative efficacy was 0.83, and innovation behavior was .80.

Ethical Considerations

The study was approved by the Research Ethics Review Committee in Faculty of Nursing, Chiang Mai University, Thailand. Permission to collect data was obtained from the director of each tertiary general hospital. Furthermore, before the data collection, an informed consent was obtained from the nurses who were willing

to participate in the study. Moreover, this study followed the principles of voluntariness and confidentiality.

Data Analysis

Data analysis was completed using a statistical software package for the demographic data obtained from the sample. Significance level alpha was set at 0.05. Descriptive statistics was used to analyze frequency, percentage, mean and standard deviations of the demographics data, proactivity, creative efficacy, and innovation behavior. Spearman's rho Rank-order coefficient analysis was used to examine the relationship between innovation behavior and related factors, including proactivity and creative efficacy.

Results

Demographic Data of the Subjects

The sample of this study consisted of 384 subjects. The majority of the subjects were female (93.49%), the age of the subjects ranged from 22 to 54 years old and 50% of subjects were between 22 and 30 years old. The majority of the subjects had a secondary level of nursing education (74.48%); and the largest group had been working as nurses for 2 – 5 years (39.06%) as seen in Table 1.

Descriptive Analysis of Innovation Behavior, Proactivity, Creative Efficacy

The mean overall score of innovation behavior (21.20) was at a low level, proactivity (40.38) was at a moderate level, and creative efficacy (6.19) was at a low level (Table 2).

Level of Overall Score of Innovation Behavior, Proactivity, Creative Efficacy

The vast majority of subjects were a low level of innovation behavior (96.88%), and most of the subjects were a moderate level of proactivity (78.13%). The vast majority of the subjects had a low level of creative efficacy (95.57%) (Table 3).

The Relationship Between Proactivity and Innovation Behavior, and the Relationship Between Creative Efficacy And Innovation Behavior

A weak positive significant correlation was found between total proactivity scores and total innovation behavior scores (r = .133). A moderate positive significant correlation was found between total score of creative efficacy and total score of innovation behavior (r = .303) (Table 4).

Discussion

Innovation Behavior Among the Study Subjects

The result of this study showed that the overall score of innovation behavior was 21.20 with SD = 3.19 (Table 2) indicating a low level of innovation behavior among nurses in tertiary general hospitals, the Central Region, the Socialist Republic of Vietnam. This means that nurses in the three tertiary general hospitals perceived that they had little ability to recognize a problem, lacked capacity for generating ideas, and did not have enough skills for the implementation of ideas. According to Scott and Bruce (1994) innovation behavior means complex behavior, therefore nurses may not

have understood the meaning of innovative behavior or may not have known how to generate new ideas or implement their new ideas in daily work. Tertiary general hospitals also face the problem of nursing shortages and workload. Most hospitals employ a twelve-hour shift working system. One nurse is assigned to take care of 8-10 patients for inpatient units. Nurses spend most of their time carrying out doctors' orders and completing nursing documents. Consequently, they do not have time to pay attention to problems that occur in their units (Thanh, 2007).

Table 1 Frequency and Percentage of the Subject's Characteristics Classified by Gender, Age, Education, Years of Experience (n=384)

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	25	6.51
Female	359	93.49
Age		
($\overline{X}$ = 32.86, SD = 7.67, Range = 22-54 years old)		
22-30	192	50.00
31-40	128	33.33
41-50	48	12.50
> 50	16	4.17
Education		
Elementary level	8	2.08
Secondary level	286	74.48
Diploma level	46	11.98
Baccalaureate degree	44	11.46
Years of experience		
($\overline{X}$ = 9.49, SD = 7.58, Range = 2-33 years)		
2-5	150	39.06
6-10	123	32.03
11-15	41	10.68
16-20	35	9.12
21-25	11	2.86
26-30	16	4.17
30-33	8	2.08

Table 2 Range, Mean, Standard Deviation, and Level of Overall Score of Innovation Behavior, Proactivity, Creative Efficacy by Subjects (n = 384)

Variables	Range	$\overline{X}$	SD	Level of overall score
Innovation behavior	11-31	21.20	3.19	Low
Proactivity	10-58	40.38	8.39	Moderate
Creative efficacy	3-17	6.19	1.83	Low

Table 3
Frequency and Percentage of Level of Overall Score of Innovation Behavior, Proactivity, Creative Efficacy by Subjects (n = 384)

Variables	Frequency (n)	Percentage (%)
Level of innovation behavior		
Low	373	96.88
Moderate	9	2.34
High	3	0.78
Level of proactivity		
Low	54	14.06
Moderate	300	78.13
High	30	7.81
Level of creative efficacy		
Low	367	95.57
Moderate	14	3.65
High	3	0.78

In Vietnam, most of the management of tertiary general hospitals views nursing work as routine work and do not financially support innovative nursing behavior or allow nurses time off to attend conferences or training. Furthermore there are very few meetings between managers and nurses, so nurses have little opportunity to show their ideas (Phan, 2004). While in the ward, nurses' heavy workload means that there is little time to do more than carrying out doctor's orders, often there is only five to ten minutes during the shift change, which is not enough time to discuss patients' conditions or share ideas (Tam, 2007).

This low level of innovation behavior could be explained by the fact that the concept of innovation behavior is relatively new in Vietnam. Although encouraging innovation began 10 years ago, innovation behavior is still a new and unfamiliar concept. Vietnamese nurses are considered to be assistants to physicians, and thus they lack the ability to create nursing innovation (Tam, 2007).

Half of the subjects in this study were young nurses (50% of subjects < 30 years old), their routine work requires their full attention and they may not recognize a workplace problem. They usually provide only routine or

direct care to patients and are not concerned with generation of ideas in order to manage problems. 225 study subjects (58.59%) rated "very rarely" on the item of "I search out new working methods, techniques, or instruments to problems," ($\overline{X}$ = 2.03, SD = 0.67). This answer confirmed that nurses disregard innovation behavior. Few nurses participated in innovation behavior because they lacked confidence and had insufficient innovation knowledge and skill (Tam, 2007).

Another possible reason for the low level of innovation behavior may be that the subjects do not have enough knowledge regarding innovation. Most of the respondents (74.48%) graduated from secondary nursing schools in which they had not been taught about innovation and innovative behavior. They may not understand what nursing innovation behavior is and why it is important. Additionally, management knowledge, such as autonomy, self-confidence, critical thinking, and leadership abilities, were not taught in secondary nursing school. For this reason, nurses could not display innovative behavior. This assertion can be supported by the fact that 188 subjects (48.96%) expressed "very rarely" on the item of "I am able to generate original solutions to problems I encounter at work," ($\overline{X}$ = 2.34, SD = 0.70). Although subjects graduating with a bachelor degree from nursing universities have learnt some basic leadership and management in school, they still need more experience in developing innovation behavior in order to recognize a problem, generate ideas, and realize the ideas (Tam, 2007). The result of this study also shows that almost 60 percent of the subjects very rarely "create new ideas for difficult issues I encounter at work". They usually consult with physicians or senior staff to solve the problem. This situation confirms the low level of innovative behavior among nurses in tertiary general hospitals.

The low level of innovation behavior found in this study was in contradiction with Janssen's study in 2003 that found a high level of innovation behavior among teachers in the Netherlands. Other research by Amo (2006a) found a high level of innovation behavior among healthcare workers in Norway which contradicted the low level of innovation behavior among nurses in this study. This could be because in Vietnam there is low conflict among nurses, as well as between nurses and other professionals, so nurses may not need to recognize a problem and nor generate ideas to solve the conflict or problems (Loan, 2009). Another reason that can explain the different results is the culture of workplace of Vietnam is different from Western countries. Nurses in Western countries have higher education, high knowledge and skill regarding innovation. These may lead nurses to be more creative, and have ability to create suitable solution to problems.

Proactivity Among Study Subjects

The findings of this study indicated that the overall score of proactivity was at a moderate level ($\overline{X}$ = 40.38, SD = 8.39) (Table 2). This means nurses in the three tertiary general hospitals perceived that they could take some action to affect changes in their organization. According to Bateman and Crant (1993) proactivity means taking action to influence

one's environment. Therefore, nurses in this study could not fully identify opportunities and act on them, nor show strong initiative, nor take a high level of action. Tertiary general hospitals have problems where in daily working nurses are limited to routine work such as taking vital signs, administering medication, and completing nursing documents (Muc, 2009; Tam, 2007; Thanh, 2007). Furthermore, most wards do not have enough guidelines on nursing practice, and nurses must wait for the doctors' orders, even for simple things such as fever management. Therefore, nurses did not have enough authority and were not proactive in doing most things regarding nursing practice.

In fact, traditionally, nurses often spend more time carrying out physician's orders than performing other activities or participating in continuing education or innovation short training courses (Tam, 2007). There were 173 study subjects (45.05%) who chose "disagree' on the item of "I excel at identifying opportunities," ($\overline{X}$ = 2.48, SD = 0.79). Significantly, the majority of participants (93.49%) were female (Table 1). In the social context of Vietnam, the woman has the most responsibility in taking care of the family and children. Therefore, nurses might not have confidence or opportunity to attend conferences, or take on additional activities.

Another explanation could be that nurses with ideas were less accepted by managers because in Vietnam power is still centralized; the public hospital administrators make the decisions by themselves and do not communicate hospital information to staff, including information about conferences and activities outside the hospital (Phan, 2004). There were 152 study subjects (39.58%) who chose "disagree' on the item of "I can spot a good opportunity long before others can," ($\overline{X}$ =2.15, SD = 0.93). The nurses generally have less proactivity in their daily work due to lack of opportunity to receive job training, knowledge, and nursing guidelines, so they are less likely to give fresh ideas or be confident (Phan, 2004).

However, although nurses in three tertiary general hospitals, the Central Region, the Socialist of Vietnam lacked opportunity to take action in their work and did not have enough time to join activities useful for their work, many still found new solutions outside their job to improve their life. There were 152 study subjects (39.58%) who expressed "agree' on the item of "I am constantly on the lookout for new ways to improve my life," ($\overline{X}$ = 5.28, SD = 1.73).

The result of this study that found a moderate level of proactivity was in contrast to those of Gupta and Bhawe (2007) and Dikkers et al. (2010) who found high levels of proactivity, perhaps because in developed countries, nurses have higher opportunities to take action to make changes in their organization, they often attend conferences, and they have autonomy in their work.

Creative Efficacy Among Study Subjects

According to the data analysis, the overall score of creative efficacy was 6.19, SD= 1.83 (Table 2), indicating a low level of creative efficacy among nurses in tertiary general hospitals, the Central Region, the Socialist Republic of Vietnam. This indicates that the nurses perceived that they had little ability to create ideas ($\overline{X}$ = 6.19, SD = 1.83). According to

Amabile (1983) and Bandura (1986) creative efficacy is associated with confidence and expectations of outcomes. This means nurses did not have confidence, lacked ideas, and did not have enough creative capacity.

This could be explained by the fact that although the three tertiary general hospitals have training settings and a Division of Research and Development to support all staff, these are mainly useful for physicians rather than nurses. In fact, there have not been any nursing experts working as consultants in this division at any of these hospitals because the number of nurses holding bachelor degree is very small and they are not assigned to work in this section. The small amount of creativity efficacy that nurses show occurs under physicians' advice, so sometimes this creativity is influenced by medical rather than nursing knowledge. Nurses felt that they did not have autonomy, and were not proud to be nurses (Tam, 2007). There were 249 study subjects (64.84%) who chose "disagree' on the item of "I have confidence in my ability to solve problems creatively," ($\overline{X}$ = 2.00, SD = 0.72).

Another explanation could be that nurses with ideas are less accepted by managers of hospitals (Phan, 2004). Many hospitals manager view nursing care as only performing injections, delivering medicine, and providing basic nursing care (Phan, 2004). Nurses did not receive rewards from managers of hospitals (MHO, 2010). The result of this study shown that almost 60 percent of the subjects did not feel that they were good at generating novel ideas. Nurses in general lacked confidence, and expectations of outcomes were affected by their creative efficacy. They did not have enough time to have creative cognitive processes in problem recognition as well as the generation of ideas or solutions, and they lacked time to make greater efforts to find supporters for new ideas (Muc, 2009; Tam, 2007; Phan, 2004). This situation indicates a low level on creative efficacy among nurses in tertiary general hospitals.

The result of this study was different from a study by Tierney (1997) on the associations among creative efficacy, cognitive climate, and job satisfaction of employees from all organizations in Portland State University which found a high level of creative efficacy. The difference is perhaps because in Western countries the nurses have high autonomy, managers' support and encourage the nurses to create ideas, and the nurses get extra money from their manager when they create new ideas.

The Relationship Between Proactivity and Innovation Behavior Among Study Subjects

The results of this study showed that the mean overall score of proactivity was weakly significantly positively related to innovation behavior ($r = 0.133$, $p < 0.01$) among nurses in tertiary general hospitals, the Central Region, the Socialist Republic of Vietnam (Table 4). The findings indicated that a moderate level of proactivity was related to low levels of innovation behavior among study subjects. Nurses who have moderate proactivity may have lower innovation behavior. The relationship between the two variables was similar to the results from previous research studies related to proactive and innovation behaviors. Crant

(1996) found proactiveness to be the most significant predictor of entrepreneurial intention (defined as using innovation and creative problem-solving) as did Gupta and Bhawe (2007). A study by Amo (2006b) found a positive, significant relationship between proactivity and innovation behavior, supporting earlier research by Baum et al. (2001). Proactivity was also significantly related to higher levels of innovation strategies in a study by Kickul and Gundry (2002). The positive direction of the relationship means that whenever the mean score of proactivity increase, the mean score of innovative behavior increases. This result supports the conceptual framework of the study. The explanation is that those scoring higher in proactivity could be more willing to take risks to solve problems, believe they have autonomy in their work while being committed to their organization, and feel a responsibility to organizational success – all attributes that support innovation behavior (Amo, 2006b; Crant, 1996).

Overall, this study supports the use of proactivity as part of the proposed conceptual framework for innovation behavior. It also supports the use of proactivity scales as part of the instrument used to learn more about innovation behavior among nurses.

The Relationship Between Creative Efficacy and Innovation Behavior Among Study Subjects

The findings of this study show that the overall score of creative efficacy was moderately significantly positively correlated with overall score of innovation behavior among in tertiary general hospitals, the Central Region, the Socialist Republic of Vietnam ($r = 0.303$, $P < 0.01$) (Table 4). The results showed that a low level of creative efficacy was related to low levels of innovation behavior among study subjects. Nurses who have a low creative efficacy have lower innovation behavior. The relationship between the two variables was similar to the results from previous research studies related to creative efficacy and innovation behaviors. Tierney and Farmer (2002) showed a positive relationship between creative efficacy and innovation behavior. A study by Paolillo and Brown (1978) found positive correlations for innovation behavior with creative efficacy. Michael, Hsusheng, and Hsueh (2011) indicated employees' innovative behavior was significantly correlated with creative efficacy (.42, $p < 0.01$). The results also showed that when employees' creative efficacy was high, employees had greater innovative behavior at work, indicating that creative self-efficacy enhanced employees' innovative behavior. Ella, Miriam, and Naveh (2004) also found that there was a positive correlation between creative efficacy and innovative behavior.

This result supports the conceptual framework of the study. Nurses who have lower creative efficacy might not choose to work where their innovative pursuits will be supported. Another explanation is nurses scoring lower in creative efficacy may not have cognitive processes in problem recognition as well as the generation of ideas or solutions, and they may not make efforts to find supporters for new ideas (Tierney & Farmer, 2002). Another explanation is that nurses who have low scores of creative efficacy may not be willing to take risks, may not have broad interests, may not be attracted

to complexity, not have a tolerance for ambiguity, and not have self-confidence (Amabile, et al., 1996). When the nurses have a low level of creative efficacy they also have a low level of innovation behavior in that they could not recognize a problem, generate ideas, mobilize support, and realize the ideas related to the initial problem (Janssen, 2005).

Implications

Nurse leaders and hospital administrators can use the research findings of this study as basis to develop plans, conduct workshop on creative thinking, and design strategies to improve and facilitate innovation behavior among nurses in the tertiary general hospitals, the Central Region, The Socialist Republic of Vietnam. In addition, the results of this study can raise awareness of nurses, and their administrators, in tertiary general hospitals so they can encourage proactivity and creative efficacy which are the foundation of innovative behavior.

Recommendations for Future Research

The results of this study can be used as the baseline data for further research in the area of innovation behavior, proactivity, and creative efficacy among nurses in the Socialist Republic of Vietnam.

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