Journal of Korean Academy of Nursing (2006) Vol. 36, No. 4, 596–603

Attitude, Beliefs, and Intentions to Care for SARS Patients among Korean Clinical Nurses: An Application of Theory of Planned Behavior

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Purpose. This study examined Korean clinical nurses' intentions to care for SARS patients and identify determinants of the intentions. Theory of planned behavior was the framework to explain the intentions of Korean nurses for SARS patients care.

Methods. A convenient sample of six hundreds and seventy nine clinical nurses from four university-affiliated hospitals located in Seoul and in Kyung-gi province was used. Self-administered (83-items) questionnaire was used to collect data. Intentions, attitude, subjective norm, perceive behavioral control, behavioral beliefs, normative beliefs, and control beliefs were the study variables. All items were measured using 7-point Likert scale (–3 to +3). Data were analyzed using descriptive statistics, Pearson correlation method, and stepwise multiple regression methods.

Results. Intentions and attitudes toward SARS patient care among Korean clinical nurses were moderate, but their subjective norm and perceive behavioral control of SARS patients care were negative. Stepwise multiple regression analysis indicated that attitude toward SARS patient care, perceived behavioral control, subjective norm were the determinants of the intentions for SARS patients care as theory proposed. Among the behavioral beliefs, "SARS-patient caring would be a new experience", "during SARS-patient caring, I should be apart from my family", "after completing SARS-patient caring, I would be proud of myself being able to cope with a stressful event" and "with my SARS-patient caring, patients could recover from SARS" were the significant determinants. Among the normative beliefs, colleague approval, spouse approval, and physician approval were significant determinants of the intentions. Among the control beliefs, "SARS-patient caring would be a challenge" "SARS-patient caring is a professional responsibility", "tension during the care of SARS patients" and "support from team members" were the significant determinants of the intentions.

Conclusions. Korean clinical nurses in this study were not willing to care for SARS patients and showed negative attitude toward the care. They believed their friends and family were not approved their care for SARS patients. Nurses were in conflicts between professional responsibilities to care for SARS patients and personal safety. This study was the first to understand stress and burden of Korean clinical nurses who are in front line to care for newly developed communicable disease such as SARS. Under the circumstance where

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Received February 13, 2006 ; Accepted April 28, 2006

several fatal communicable diseases are predictable, conflicts between professional responsibility and their personal risks should be taken into considerations by nurses themselves and by nursing administrators in order to improve quality of care.

Key Words : SARS, Nursing intention, Theory of planned behavior

INTRODUCTION

In March 2003, the prevalence of SARS (severe acute respiratory syndrome) - a new and fatal communicable disease - was reported for East Asian countries such as China and Hong Kong, and for Canada (World Health Organization, 2003). The WHO consequently proclaimed that SARS was pandemic in East Asia and Canada (Ministry of Health and Welfare, 2003; Chosun, 2003a). Fortunately no cases of SARS were diagnosed during that time (KCDC, 2003), but the report did cause considerable anxiety among Koreans about being infected by SARS. The number of travelers to those countries decreased substantially (Chosun, 2003b), and the "not-in-my-backyard" syndrome against a medical center for caring for communicable-disease patients such as SARS was apparent (Chosun, 2003c). The geographical location of China, the Hong Kong islands, and the Korean peninsular along with the many and frequent travelers among those countries may have contributed to Koreans perceiving themselves as being at a high risk of a SARS pandemic, but also the "unknown-disease" syndrome could have lead them to stigmatize SARS.

The impact of the SARS pandemic on the Korean health care system was more serious. Insufficient information about the new disease and lack of preventive regimen appeared to increase the emotional and physical stress of clinical nurses caring for SARS patients, especially after reports that several health personnel had died whilst taking care of SARS patients in Hong Kong and China. Some clinical nurses resigned when they were forced to care for SARS patients. However no information such as preventive measures or policies regarding SARS patients care for nurses or health professionals working in the front line were announced in Korean health delivery system. Furthermore, no empirical studies of caring for SARS patients in Korea were found at this time. Anticipating the outbreaks of unknown communicable diseases, knowledge about the stress and conflict of nurses in the case of SARS would help the development of interventions focused at helping Korean clinical nurses to cope with stressful and conflicting situations.

Consequently, this study had two main aims: (1) to examine the intention of Korean clinical nurses to care for SARS patients, and (2) to identify the determinants of their intention, using the theory of planned behavior as a framework. Attitude, subjective norm, perceived behavioral control, and salient beliefs were the variables examined based on the theory. The study results may provide the insight needed to develop effective interventions for clinical nurses to cope with physical and emotional stress.

METHODS

Participants

This study employed a convenience sample of 679 clinical nurses who were currently employed at four metropolitan hospitals located in Seoul (one hospital) and suburban cities in Kyung-gi province (three hospitals) from Dec. 2004 to Mar. 2005. These are general hospitals with over 1,000 beds. The researchers contacted the nurse manager(s) of each hospital and explained the study purposes. After written permission had been obtained from each hospital, researchers visited the head nurses in selected units. Pediatric units, operation rooms, recovery rooms, and outpatient clinics were excluded from this study because the researchers considered that nurses in these units were unlikely to encounter SARS patients.

The researchers explained the study purposes to head nurses, whilst stressing the voluntary participation and anonymity. Head nurses in each unit distributed and collected 1,000 questionnaires, of which 699 were returned. A notepad was given to each participant as a gift. Among the 699 returned questionnaires, 20 were deleted due to incomplete responses, and hence the data analysis was performed on a total of 679 questionnaires.

Development of instruments

Stage 1: Elicitation of salient beliefs

Ajzen and Fishbein (1980) explained that salient beliefs regarding a specific behavior of a specific sample should be examined in each study. Therefore, salient beliefs regarding caring for SARS patients among Korean clinical nurses were elicited at the first stage in the present study. A focus group comprising 43 Korean clinical nurses was the sample. 12 behavioral beliefs (9 positive behavioral beliefs and 3 negative behavioral beliefs) were identified when the subjects were asked the question "what could be positive or negative outcomes of caring for SARS patients?", 7 normative beliefs (4 positive normative beliefs and 3 negative normative beliefs) were identified when they were asked "who did you think the most important persons for yourself?", and 12 control beliefs (4 positive beliefs and 8 negative control beliefs) were identified when they were asked "what could make it easy or difficult for you to care for SARS patients?"

Stage 2: Measurement

The instrument comprised three parts. The first part examined the nine demographic data items of age, gender, education years, career years, experience of caring for SARS patients, working unit, roles, family members, and religion.

The second part examined direct measures using four subscales: direct attitude (4 items), direct subjective norm (1 item), direct perceived behavioral control (1 item), and intention (4 items). All the items were measured using a 7-point Likert scale (−3 to +3). Direct attitude was measured using semantic differences of "foolish/wise", "bad/good", "harmful/beneficial", and "dangerous/safe" in response to "my caring for SARS patients would be…". Item scores were summed, with a high score indicating a positive attitude toward SARS-patient care. The Cronbach alpha was 0.90 in the attitude subscale. Subjective norm were measured using a scale from "strongly disapprove" to "strongly approve" in response to "regarding to my caring for SARS patients, my significant others would…", with a high score indicating strong approval of caring for SARS patients. Perceived behavioral control was measured using a scale from "strongly disagree" to "strongly agree" in response to "caring for SARS patients is up to me", with a high score indicating strong self-efficacy to care for SARS patients. Intentions to care for SARS patients were measured using a scale from "strongly disagree" to "strongly agree" in response to such questions as "I would care for SARS patients when they are assigned to me". Four scores of each question were summed, with a high score indicating a strong intention to care for SARS patients. The Cronbach alpha was 0.89 in the intention subscale.

The third part assessed indirect measures using three subscales: indirect attitude (12 items of behavioral beliefs), indirect subjective norm (7 items of normative beliefs), and indirect perceived control belief (12 control beliefs). All items were measured using a 7-point Likert scale (−3 to +3). In the indirect assessment, each subscale was examined with two subsets as follows: the behavioral belief and the outcome evaluation subset, the normative belief and the motivation-to-comply subset, and the control belief and the perceived power subset. Indirect attitude was measured by multiplying the behavioral belief score by the matching outcome evaluation score, and then summing the 14 product scores. A high score indicated a positive indirect attitude toward caring for SARS patients. The Cronbach alpha was 0.85 in this subscale.

Positive behavioral beliefs were (a) self-satisfaction (increasing self-esteem, coping with a stressful situation successfully, and increasing self-efficacy), (b) acknowledgement by others (being a role model, having a good career, and accomplishments), (c) new experience and new knowledge, and (d) recovery of patients from disease; and negative behavioral beliefs were (e) being at risk of SARS infection, (f) being at risk of transmitting SARS to family, and (g) being stigmatized by others.

Indirect subjective norm was measured by multiplying the normative belief items by the matching motivation-to-comply subset items, and then summing the eight product scores. A high score indicated strong approval from the significant others. The Cronbach alpha was 0.852 in this subscale. The normative beliefs of positive approval were head nurses, senior nurses, colleagues, and experts; and those of negative approval were parents, spouses, friends, and sisters and brothers.

Indirect perceived behavioral control was measured by multiplying the control-beliefs items by the matching perceived power-scale items, and then summing the 12 product scores. A high score indicated high self-efficacy. The Cronbach alpha was 0.85 in this subscale. The positive control beliefs were (a) professionalism (professional duty and accountability), (b) a challenge, and (c) peer

support; and negative control beliefs were (d) job-related difficulties (tension, stress, fear of making mistakes, and complicated universal precautions), (e) emotional difficulties (fear of death, stigmatization of the disease, and high risk for disease transmission), and (f) being apart from family while caring for SARS patients.

Stage 3: Validity and reliability

Validity and reliability of the 83-item instrument were established by content validity, a pilot test, a reliability test, and factor analysis. The study result is described in elsewhere (Yoo, Kwon, & Jang, 2005).

RESULTS

General characteristics

All of the study subjects were female, and their mean age was 28.89 years (range 22−49 years). Among them, 42.4% (N=288) were practicing as acting nurses, 33.5% (N=228) were senior nurses, and 15.0% (N=101) were head nurses or managerial staff. Analysis of the medical units indicated that 53.1% (N=361) were working in general wards, 23.3% (N=158) were in ICUs where SARS patients were mainly cared for, and the remainder (N=160, 23.6%) were in ERs or other units. Among the participants, only 30 (4.4%) stated that they had experience of caring for SARS patients. Regarding the educational preparation, 64.9% (N=441) of participants had a diploma, while 35.1% (N=238) completed a BSN or higher education in nursing. Among those with a diploma, 45.5% (N=201) were currently participating in a BSN by either RN-BSN programs or long-distance nursing education. Regarding religious preferences, 58.2% (N=395) stated that they practiced religions such Protestant Christianity, Catholicism, or Buddhism, while 41.8% (N=284) did not (Table 1).

Table 1. General Characteristics of Participants (N = 679)

Variable	Characteristic	Frequency	Percentage
Gender	Male	0	0
	Female	679	100
Hospital	A	299	44.0
	B	156	23.0
	C	79	11.6
	D	145	21.4
Role	Novice (< 1 year)	62	9.1
	Acting nurse (1−4 years)	288	42.4
	Senior nurse (5−9 year)	228	33.5
	Head nurse (> 9 years)	101	15.0
Unit	General ward	361	53.1
	ICU	158	23.3
	ER	42	6.2
	Others	118	17.4
Experience of SARS-related patient care	Yes	30	4.4
	No	649	95.6
Education	Diploma	441	64.9
	(RN-BSN)	(201)	(45.5)
	Baccalaureate	184	27.1
	Others	54	8.0
Living arrangement	Parents (& sibling(s))	256	37.7
	Spouse (& child(ren))	258	38.1
	Friend	48	7.0
	Others	9	1.3
	Alone	108	15.9
Religion	Christianity	228	33.6
	Catholicism	113	16.7
	Buddhism	54	7.9
	None	284	41.8
Age (years)	Mean	SD	Range
	28.89	4.134	22−49

Attitude, subjective norm, perceived behavioral control, and intention

The descriptive statistics for the theory of planned behavior constructs indicated (Table 2) that the subjects were neutral in their intention to care for SARS patients (0.56 ±1.18, mean ±SD). They also reported that their attitude toward SARS-patient care was neutral (0.48 ± 1.04). However, the perceived subjective norm from their significant others was somewhat negative (2.69 ± 1.41, range 1−7), as was their perceived behavioral control (−0.66 ±1.37) for SARS-patient care.

Pearson products correlation coefficients among the theory of planned behavior constructs and beliefs

Pearson product correlation coefficients among the direct and indirect measures should be analyzed prior to further analysis to verify the presence of a positive relationship among the variables (Ajzen & Fishbein, 1980). This study found (Table 3) statistically significant relationships between intention to care for SARS patients and attitude toward SARS-patient care ($r = 0.538$, $p < 0.01$), subjective norm ($r = 0.121$, $p < 0.01$), and perceived behavioral control ($r = 0.226$, $p < 0.01$). Pearson product correlation coefficients also indicated that direct and indirect measures of planned behavior constructs were significantly related to each other in terms of direct attitude and indirect positive behavioral beliefs ($r = 0.385$, $p < 0.01$) and indirect negative beliefs ($r = -0.115$, $p < 0.01$), direct subjective norm and indirect positive normative beliefs ($r = 0.100$, $p < 0.001$) and indirect negative normative beliefs ($r = -0.121$, $p < 0.01$), and direct perceived behavioral control and indirect positive control beliefs ($r = 0.273$, $p < 0.01$) and indirect negative control beliefs ($r = -0.483$, $p < 0.01$). These findings indicate that the indirect measures can be used in a multiple regression analysis to explain the intention to care for SARS patients among Korean clinical nurses.

Table 2. Values of the Study Variables (N = 679)

Variable	Mean	SD
Intention	0.56	1.18
Attitude	0.48	1.04
Subjective norm	2.69	1.41
Perceived behavioral control	−0.66	1.37

Stepwise multiple regression results relating intention to care for SARS patients with theory of planned behavior constructs

Stepwise multiple regression analysis indicated (Table 4) that all the theory constructs were significant determinants of the intention of Korean clinical nurses to care for SARS patients. Attitude ($\beta = 0.510$, t=15.64, $p < 0.001$), perceived behavioral control ($\beta = 0.149$, t=4.56, $p < 0.001$), and subjective norm ($\beta = 0.090$, t=2.79, $p < 0.01$) were the significant determinants for the intention to care for SARS patients. This model accounted for 31.5% of the variance in intention to care for SARS patients ($F = 101.42$, $p < 0.001$).

A separate regression analysis on behavioral beliefs revealed that the following four behavioral beliefs were the significant determinants for the following intentions: "SARS-patient caring would be a new experience" ($\beta = 0.238$; $t = 5.00$, $p < 0.01$); "during SARS-patient caring, I should be apart from my family" ($\beta = -0.257$; $t = 7.46$, $p < 0.01$); "after completing SARS-patient caring, I would be proud of myself being able to cope with a stressful event" ($\beta = 0.128$; $t = 2.49$, $p < 0.05$); and "with my SARS-patient caring, patients could recover from SARS" ($\beta = 0.101$; $t = 2.18$, $p < 0.05$). This model accounted for 23.8% of the variance in the intention to care for SARS patients ($F = 50.5$, $p < 0.01$).

In a separate regression analysis using normative be-

Table 3. Pearson Product Correlation Coefficients of Study Variables (N = 679)

	Intention	Attitude	Subjective norm	Perceived behavioral control
Attitude	0.538**			
Subjective norm	0.121**			
Perceived behavioral control	0.226**			
Positive behavioral beliefs	0.385**	0.383**		
Negative behavioral beliefs	–0.218**	–0.115**		
Positive normative beliefs	0.422**		0.100**	
Negative normative beliefs	0.239**		–0.121**	
Positive control beliefs	0.700**			0.273**
Negative control beliefs	–0.478**			–0.483**

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

Table 4. Stepwise Multiple Regression Analysis of Study Variables and Beliefs (N = 679)

	β	r	r^2	F	p
Direct measures					
1) Attitude	0.536***	0.536	0.286	265.633	0.000
2) Attitude	0.515***				
Perceived behavioral control	0.147***	0.555	0.308	146.721	0.000
3) Attitude	0.510***				
Perceived behavioral control	0.149***				
Subjective norm	0.090**	0.562	0.316	101.426	0.000
Indirect measures					
Behavioral beliefs					
1) Having a new experience	0.383**	0.383	0.147	111.851	0.000
2) Having a new experience	0.380**				
Being apart from family	−0.262**	0.464	0.216	89.086	0.000
3) Having a new experience	0.262**				
Being apart from family	−0.253**				
Coping with a stressful event	0.176**	0.483	0.233	65.449	0.000
4) Having a new experience	0.238**				
Being apart from family	−0.257**				
Coping with a stressful event	0.128*				
Recovery of patients from SARS	0.101*	0.488	0.238	50.516	0.000
Normative beliefs					
1) Colleague approval	0.425***	0.425	0.181	114.901	0.000
2) Colleague approval	0.394***				
Spouse approval	0.090**	0.434	0.188	75.857	0.000
3) Colleague approval	0.288***				
Spouse approval	0.099**				
Physician approval	0.138*	0.443	0.197	53.325	0.000
Control beliefs					
1) A challenge	0.638***	0.638	0.407	448.756	0.000
2) A challenge	0.371***				
A professional responsibility	0.359***	0.681	0.464	283.121	0.000
3) A challenge	0.318***				
A professional responsibility	0.332***				
Tension during caring	−0.179***	0.700	0.490	209.533	0.000
4) A challenge	0.253***				
A professional responsibility	0.305***				
Tension during caring	−0.161***				
Support from team members	0.157***	0.711	0.506	166.760	0.000

*p < .05, ** p < .01, *** p < .001

liefs, colleague approval ($\beta = 0.288$, $t = 5.23$, $p < 0.01$), spouse approval ($\beta = 0.099$, $t = 2.65$, $p < 0.01$), and physician approval ($\beta = 0.138$, $t = 2.62$, $p < 0.05$) were found to be the significant determinants of the intentions. This model accounted for 19.7% of the variance in the intention to care for SARS patients ($F = 53.32$, $p < 0.01$).

In a separate regression analysis using control beliefs, "SARS-patient caring would be a challenge" ($\beta = 0.253$, $t = 5.66$, $p < 0.01$), "SARS-patient caring is a professional responsibility" ($\beta = 0.305$, $t = 7.28$, $p < 0.01$), "tension during the care of SARS patients" ($\beta = -0.161$, $t = -5.25$, $p < 0.01$), and "support from team members" ($\beta = 0.157$, $t = 4.48$, $p < 0.01$) were found to be the significant determinants of the intentions. This model accounted for 50.6% of the variance in the intention to care for SARS patients ($F = 166.76$, $p < 0.01$).

DISCUSSION

The Korean clinical nurses in this study were unwilling to care for SARS patients, and had a negative attitude toward caring for SARS patients. They also perceived that their family and friends were unlikely to approve for their caring for SARS patients. Most of all, the subjects perceived themselves as not being ready or prepared for

taking care of SARS patients. These negative results were not surprising and similar with previous studies focused on nurses who take care of patients with a fatal disease such as AIDS (Juan, Siebers, Chang, & Chao, 2004; Rondahl, Innala, & Carlsson, 2003; Yoo, 1997). These findings are not surprising, and could be expected at the beginning of any crisis in health care settings. However, the problems that should be focused may not be the actual negative reactions of nurses but rather their lack of knowledge or ignorance of their unwillingness, negative attitude, or low self-efficacy to care for SARS patients. When being ignored, these negative beliefs may affect the caring behaviors of nurses so as to lower the quality of patient care. Moreover, the negative beliefs may increase the job stress of clinical nurses and lead to burn out. Therefore, attempts should be made for clinical nurses to increase their intention to care for SARS patients, their attitude, and, most of all, their self-efficacy to care for SARS patients.

This study also showed that the theory of planned behavior was appropriate for explaining the intention to care for SARS patients among Korean clinical nurses. The theory revealed that attitude, subjective norm, and perceived behavioral control are the significant determinants of the intention to care for SARS patients among Korean clinical nurses. Clinical nurses who had a more positive attitude, stronger self-efficacy, and who perceived greater approval from their significant others were more likely to have had stronger intention to care for SARS patients.

This study found specific information using separate analysis for salient beliefs. The beliefs were important to explain the intentions. Among the behavioral beliefs, positive beliefs such as "caring for SARS patients would be a new experience"; "with my caring, I would be proud of myself"; and "with my caring, patients could be cured" were the significant determinants of their intentions. However, a negative belief that " I should be apart from my family while caring" was also a significant determinant of the intention. When we consider that one-third of the study subjects were working mothers who have family they should take care of, being apart from their family for a long time is an very important issue that should be focused on to increase the intention to care for SARS patients among clinical nurses.

Among the control beliefs, positive beliefs such as "caring for SARS patients is a challenge", "caring for SARS patients is a professional responsibility", and "having support from team members" were the significant activators of the intention to care for SARS patients. The findings indicate that strategies to increase professionalism are required. Furthermore, team approaches may be more effective than individual approaches to increase the intention to care for SARS patients among Korean clinical nurses. On the other hand, the study found that the negative belief "tensions during the whole working hours" was a significant barrier to intentions. Considering this finding, strategies to minimize tension are also recommended.

Among the normative beliefs, approval of colleagues, spouses (or boyfriends), and experts were the significant determinants of the intention of the nurses. Promotion programs targeted both at hospital staff and spouses may be effective in increasing their intentions. Education by SARS experts could be effective at increasing the intention of Korean nurses to care for SARS patients. This study also examined predictive effects of demographic variables of the participants, but found that none of the variables were effective at predicting the intentions.

Our explanations of the intention to care for SARS patients among Korean clinical nurses and theoretically consistent findings are subject to several limitations. Therefore, caution is required whilst interpreting and generalizing our findings, and the planning of future studies should take the limitations into consideration. First, this study examined intentions only, and not actual caring behaviors. Although a positive relation between intention and behavior was established in the theory of planned behavior, discrepancies do exist. Therefore, future studies should examine actual caring behavior. Second, most of the participants in this study had no experience of caring for SARS patients, and beliefs may differ between those experienced and inexperienced nurses. Future studies should focus on participants with experience. Third, this study used convenience sampling; random sampling is recommended for future study.

This study is the first to attempt to understand the stress and burden of clinical nurses who provide the frontline care for unknown, communicable disease such as SARS. Under the risk circumstances where several fatal communicable diseases are predictable, stress and conflicts between professional responsibility and their personal risks should be taken into consideration to increase the intention to care for not only patients but also for the safety and health of the nurses.

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