

Acceptance of Complementary and Alternative Therapy among Nurses: A Q-methodological Study

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Purpose: Perceptions of nurses regarding complementary and alternative therapies (CATs) acceptance illustrate how CATs can be applied in nursing practice and become the empirical basis for the expansion of nursing role. Purpose is to identify nurses' perception of CATs acceptance. **Methods:** A Q-methodological study, which allows for analysis of subjectivity of data, was used. A convenience P-sample was consisted of 36 nurses. Twenty-seven Q-statements were derived from a literature review and interviews with six nurses, and were then categorized on a normal distribution using a 9-point scale. The collected data were analyzed using the QUANAL PC Program. **Results:** Three types of perception regarding acceptance of CATs were identified among nurses. Type I was called the "cautious type"; Type II, the "positive acceptance type"; and Type III, the "considering reality type." **Conclusion:** Along with further exploration of the scientific evidence of CATs, adequate nursing education, and finding ways to overcome the obstacles needed for acceptance of effective and empirically tested CATs into a nursing practice, the results of this study may help promoting application of CATs as a nursing practice.

Key Words: Nurses, Perception, Complementary therapies, Alternative medicine

INTRODUCTION

Complementary and alternative therapies (CATs) refer to various treatments and methods based on the belief that the human body has its own healing powers, and is not a part of conventional Western medical practice [1]. Complementary and alternative therapies can contribute to the prevention and treatment of chronic diseases when used alone or with modern medicine, nutrition, herbal remedies, various methods for relaxation, exercise and energy therapy [2]. Research of the CATs are increasing worldwide in various healthcare-related fields [3].

Complementary and alternative therapies are natural and holistic treatments for health maintenance, promotion, and disease management; these treatments are rarely used as primary disease treatments [4]. Societal interest in CATs has grown substantially for a number of reasons including the increasing prevalence of chronic diseases and

the aging of the population. Approximately one out of three patients is interested in CATs [5]. Complementary and alternative therapies are used more frequently than in the past, and attitudes towards their efficacy are becoming more positive [6].

Although there is a significant increase in the use of CATs [7] and many nurses have a positive attitude toward CATs [8,9], others take issue with these methods because of the perceived risk of side effects and the lack of scientific evidence [5]. Faced with increasing societal interest and growing patient demands, nurses are becoming more interested in CATs, yet nurses have concerns about the lack of scientific basis for many of these treatments. Nurses desire reliable information and education programs to better understand CATs [10].

Complementary and alternative therapies which focus on ensuring overall harmony and balance, are consistent with holistic nursing concepts [3]. To consider the adoption of these therapies in nursing, the risks and benefits

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must be identified and standards would need to be developed [10]. Further, the effectiveness of CATs must be identified along with decision making models as to the use of CAT. Thus far, research on CATs has focused on effectiveness [11], nurses' attitudes [5,8,9], prevalence of use [12], and the acceptance process [10].

It would be useful if there were an understanding of nurses' perception and acceptance of CATs. It would be helpful in integrating CATs into the nursing role that these CATs would be included in undergraduate nursing curriculum. Understanding nurses' perception towards CATs is important as social phenomena are composed of meanings [13]. The subjective perceptions of nurses regarding CATs acceptance could illustrate how CATs can be integrated in nursing practice. These perceptions could become the empirical basis for the development of nursing science and expanding the role of nursing. Q-methodology is a research method used to study human subjectivity in psychological and social sciences [14]. Since nurses' perception of CAT is not only subjective but also individual, Q-methodology was deemed to be a suitable method of classifying nurses' perception regarding CAT acceptance through identifying the features and structures of each type.

The types of perception of acceptance of CATs in nursing were explored by applying Q-methodology. The specific objectives in this study is to classify the subjective perception of nurses regarding CAT acceptance, and to analyze the characteristics of each perception type.

METHODS

1. Study design

Q-methodology was used to assess nurses' perception of CAT to ensure a more systematic and scientific approach.

2. Research procedure

1) Selection of Q Population (Concourse) and Q Samples

The Q-population is a collection of opinion statements used in a Q-methodology study, and are usually obtained through a thorough literature review and interviews [14]. In this study, the Q-population was created following a review of the literature on nurses' attitudes toward CATs. One hundred and fifty three relevant, non-overlapping statements were selected from a review of national and international journals. To gather diverse opinions about nurses' perception of CAT, six interviews were conducted from April to June 2014. Although interviewees ideally

would have a special interest in the topics or be experts, it is valid to recruit individuals who are not interested in the topic to ensure a diversity of opinions. Interview subjects were carefully selected to include nurses with various points of view. The sample included three nurses with a practice or knowledge of CATs (aroma therapist, foot-massage therapist, and an art therapist), and three nurses without knowledge or experience of CATs. Each nurse was interviewed twice.

The four questions that guided the interviews were: "What are your thoughts about CATs?" "In nursing science, what would be a preferable attitude toward CATs?" "What would be a problem when CATs are integrated into the current nursing practice, and lastly "What would be the proper solution for such problems, if these exist? Interviews were recorded and the interviews continued until sufficient data had been obtained. One hundred eighty-four statements were obtained through the interviews, for a total of 342 statements (including the literature review). A re-extraction process to identify appropriate statements was done through discussions with one expert in nursing science and qualitative research methodology. The final sample for the Q population was three hundred and thirty seven statements. These statements were categorized into thirteen major categories and twenty seven subcategories. Each category included zero to three subcategories. When participants were asked to make distinction among items, the Q sample was reduced to less than thirty. This is because the reliability of the Q sorting is reduced [14].

For a systematic sampling of Q-statements, it is important to select a statement from a given category, and there is an advantage of utilizing the information available when building a Q population during the process of selecting what a researcher might consider the most representative statements [14]. Drawing on Q-methodological methods, twenty-seven Q-statements which were representative of self-referent statements drawn from the interviews. The statements were organized, ensuring that a balance in the number of positive and negative statements was maintained and that there were a limited number of neutral statements [14]. The final sample included eleven positive statements, eleven negative statements, and five neutral statements.

To verify the validity of the Q-statements, four nurses were asked to contact an initial Q-sorting, wherein they reported on the clarity of the statements. The Q-sorting took approximately 15~25 minutes. Following the sorting, the statements were modified and the language was simplified. To evaluate reliability, four nurses were asked to take

the Q-sort and to repeat the sorting a week later. Reliability is considered high when the correlation coefficient is greater than or equal to 0.7[14]; as the coefficient for the two sorting sessions was 0.75, the 27 Q-statements were approved.

2) Selection of participants (P-sampling)

Q-methodology approach is primarily concerned with intra-individual differences in significance rather than inter-individual differences. As such, the method is not restricted by sample size—in fact, it follows the small-sample theory. A P-sample of 40 ± 20 is appropriate as it is possible to obtain fairly accurate assessments, even when participants' knowledge and interest in the topic is heterogeneous [14]. To obtain a broad range of responses from nurses regarding acceptance of CAT, nurses were selected from a variety of workplaces and a range of clinical experiences. The sample consisted of 36 nurses recruited from November 2014 to February 2015. Twenty-eight nurses reported working in hospitals, five reported working in long term care facilities, and three worked in nursing educators.

3) Q-sorting

The 36 nurses in the P-sample sorted the 27 Q-statements on a nine-point scale ranging from the most agreeable option to the most disagreeable (Table 1). To ensure effective Q sorting, the subjects were first asked to separate the Q-statement cards into three categories—agreement, no response or neutral, and disagree. To ensure an accurate interpretation of the Q-factors, participants were asked to give reasons for choosing either of the two extreme statements and their responses were recorded.

4. Data Analysis

The data analysis was performed using the PC-QUAIL Program [14], and Q-factor analysis was performed using the principal component method. A three-factor solution was deemed to have the best results among those determined by entering a range of factor solutions through the consideration of criteria, such as total variance, with an eigenvalue of 1.0 or more as the standard.

5. Ethical Considerations

Approval for the study (IRB No. 2013-06-001) was granted by the ethics committee of the institution where the research was conducted. Moreover, the study was executed only after explaining its purpose and procedures and the terms of anonymity to the research participants indicating that the information collected from surveys and interviews will only be used for research purposes, and informed written consent were obtained from participant.

RESULTS

1. Q-factor Analysis

The Q-factor analysis of nurses' perception of CAT acceptance yielded three distinct types, which explained 47% of the total variance including Type 1 (31%), Type 2 (10%), and Type 3 (6%). The eigen value was 11.39, 3.78, and 2.28, respectively (Table 2). The correlations between the three types indicated a degree of similarity between them, but they were still relatively independent ($r = \pm .20 \sim .47$; Table 3)

Table 2. Eigenvalues, Variance, and Cumulative Variance for Type of Awareness (N=36)

Variables	Type I	Type II	Type III
Eigenvalue	11.89	3.78	2.28
Variance (%)	0.31	0.10	0.06
Cumulative variance	0.31	0.41	0.47

Type I=cautious type; Type II=positive acceptance type; Type III=considering reality type.

Table 3. Correlation Matrix (N=36)

Variables	Type I	Type II	Type III
	r	r	r
Type I	1.00		
Type II	.20	1.00	
Type III	.36	.47	1.00

Type I=cautious type; Type II=positive acceptance type; Type III=considering reality type.

Table 1. Depiction of Q-sorting Scale

	Disagree				Natural				Agree
Score	-4	-3	-2	-1	0	1	2	3	4
No. of cards	2	2	3	4	5	4	3	2	2

2. Discussion of Types

The subject composition by type is as follows: Nine people belonged to Type I, twenty to Type II, and seven to Type III. The demographics and factor weights of subjects belonging to each type are shown in Table 4. For factor weights, the higher the value for a type, the more a person exhibits the typical characteristics of that type. The factor weights of ≥ 0.8 was considered an indicative of an individual being representative of a given type [14].

To analyze the features of each type of CAT acceptance, we determined which of the 27 statements participants of

each type exhibited strong agreement (Z score +1 or greater) and disagreement (Z score -1 or less) with. Statements showing discrepancies in Z-scores between two types are presented in Table 5.

1) Type one

Nine participants were assigned as Type I. The participants included seven practicing nurses, one nursing graduate student, and one professor. The statements on which the participants had showed agreement were as follows: "CATs, which lack scientific basis, should not be used without caution" (Z=2.28), "Nurses should apply CATs

Table 4. Demographic Characteristics and Factor Weight for P-sample

(N=36)

Type	No.	Factor weight	Age (year)	Education	Religion	Living place	Job	Working place	Hospital size	Place of work	Career as nurse (year)
Type I (n=9)	6	0.78	29	Master	None	Town	Nurse	IM	100~299	General hospital	5
	10	0.88	37	Bachelor	None	City	Nurse	GS	100~299	General hospital	14
	13	0.66	34	Bachelor	Catholic	Town	Nurse	GS	100~299	General hospital	10
	19	0.59	38	Bachelor	None	Town	Nurse	IM	100~299	Hospital	15
	21	0.44	34	Bachelor	Buddhist	City	Nurse	Geriatric	< 99	Geriatric hospital	7
	23	0.82	30	Bachelor	Protestant	City	Nurse	IM	100~299	General hospital	4
	25	0.95	38	Master	None	Town	Nurse	GS	100~299	Hospital	15
	34	0.67	32	Bachelor	Protestant	Metropolis	Student	None	None	University	6
	36	0.90	38	PhD	Catholic	Metropolis	Professor	None	None	University	13
Type II (n=20)	1	1.58	29	Bachelor	None	City	Nurse	ER	100~299	General hospital	6
	2	1.04	37	Bachelor	None	Town	Nurse	GS	100~299	General hospital	14
	5	1.63	23	Bachelor	None	City	Nurse	IM	100~299	General hospital	1
	8	1.06	22	Bachelor	None	City	Nurse	GS	100~299	General hospital	1
	9	0.85	22	Bachelor	Buddhist	City	Nurse	GS	100~299	General hospital	1
	11	1.38	40	Bachelor	None	City	Nurse	GS	100~299	General hospital	18
	12	0.67	30	Bachelor	Protestant	City	Nurse	GS	100~299	General hospital	5
	14	1.58	32	Bachelor	Catholic	City	Nurse	GS	100~299	General hospital	1
	15	0.77	35	Bachelor	None	City	Nurse	GS	100~299	General hospital	6
	17	1.72	47	Bachelor	None	Metropolis	Nurse	Day care	300~499	General hospital	22
	18	0.63	39	Bachelor	Buddhist	Metropolis	Nurse	ER	100~299	General hospital	16
	20	0.95	37	Bachelor	None	Town	Nurse	Geriatric	100~299	Hospital	12
	22	0.96	39	Bachelor	Buddhist	City	Nurse	ICU	> 500	General hospital	17
	24	0.80	40	Bachelor	Catholic	City	Student	None	None	None	3
	26	0.83	42	Master	None	Metropolis	Professor	None	None	None	14
	28	1.74	40	Master	Protestant	City	Professor	None	None	None	6.6
	30	0.81	36	Master	Catholic	City	Nurse	ICU	> 500	General hospital	6
	32	0.88	40	Master	Protestant	City	Student	None	None	None	7
	33	1.78	42	Master	Protestant	City	Nurse	GS	> 500	General hospital	19
	35	1.34	52	PhD	Protestant	Metropolis	Professor	None	None	None	3
Type III (n=7)	3	0.23	34	Bachelor	Buddhist	Town	Nurse	GS	100~299	General hospital	10
	4	0.63	23	Bachelor	Protestant	City	Nurse	GS	100~299	General hospital	1
	7	0.46	24	Bachelor	None	City	Nurse	IM	100~299	General hospital	1
	16	0.55	38	Bachelor	None	City	Nurse	ER	> 500	General hospital	14
	27	1.13	38	Master	Protestant	City	Nurse	ER	> 500	General hospital	14
	29	1.07	36	Master	Protestant	City	Student	None	> 500	General hospital	7
	31	1.55	36	Master	Protestant	City	student	None	None	None	10

Type I=cautious type; Type II=positive acceptance type; Type III=considering reality type; PhD=doctor of philosophy.

only after acquiring a license through professional training" ($Z=1.73$), "CATs must be used cautiously because of side effects" ($Z=1.59$) and "If one wants to learn CATs, it is better to be certified" ($Z=1.30$). The statements showing a

strong disagreement included "It is advisable to perform CATs only on patients with chronic disease" ($Z=-1.50$), "CATs have not advanced because of a lack of interest among nurses" ($Z=-1.30$), "CATs should be developed ac-

Table 5. Z-Scores of Q-statements by the Types of Awareness

($N=36$)

Q-statement	Type I ($n=9$)	Type II ($n=20$)	Type III ($n=7$)
	Z-score	Z-score	Z-score
Q1. Utilization of CATs exhausts nurses because it consumes so much energy.	-0.30	-0.60	-0.50
Q2. Utilization of CATs is difficult because nurses lack knowledge.	-0.60	-0.20	0.20
Q3. Advantage of CATs is that they increase intimacy between nurses and patients.	1.17	1.00	0.60
Q4. Professional status of nurses could decline when they use CATs, which the general public can also learn.	-0.90	-1.71	-2.16
Q5. Nurses are the best who can approach CATs among health professionals.	-1.18	1.43	1.52
Q6. It is difficult to utilize CATs in a general hospital.	-0.20	-0.00	0.20
Q7. CATs must be used cautiously because of the side effects.	1.59	-0.30	0.80
Q8. Nurses should utilize CATs only after acquiring a license through professional training.	1.73	1.02	-0.40
Q9. It is advisable to perform CATs only on patients with chronic disease.	-1.50	-1.32	-0.60
Q10. CATs should be developed actively as a new independent area of nursing.	-1.28	1.00	0.00
Q11. CATs have no benefits except providing satisfaction to patients.	-1.20	-1.31	-2.06
Q12. Utilization of CATs should follow a standardized protocol.	0.60	-0.40	0.30
Q13. CATs should be actively developed as a new field in nursing.	-1.00	1.31	0.70
Q14. CATs should not be used on patients without the approval of doctors.	0.30	-1.75	0.90
Q15. A lack of time is the biggest obstacle to using CATs.	0.10	0.60	1.72
Q16. CATs, which lack scientific basis, should not be used without caution.	2.28	0.40	1.08
Q17. It would be desirable for hospitals to support CAT education.	0.70	1.23	0.90
Q18. If one wish to learn CATs, it is better to be certified.	1.30	0.50	-0.10
Q19. It is preferred to delay the utilization of CATs until they are acknowledged as a part of nursing.	0.30	-1.10	-0.50
Q20. It is unwise to spend one's money and time on CATs.	-0.50	-1.30	-1.20
Q21. Utilization of CATs would be possible if taught during nursing undergraduate programs.	-0.20	0.60	-0.70
Q22. CATs should be developed in a direction that benefits both hospitals and nurses.	0.80	1.66	1.26
Q23. It is difficult to utilize CATs because of their uncertain effects.	-0.60	-0.90	0.80
Q24. CATs have not advanced because of a lack of interest among nurses.	-1.30	-0.10	-0.80
Q25. Utilization of CATs in nursing practice does not necessarily increase the satisfaction and self-esteem of nurses.	0.00	-0.00	-1.46
Q26. . Utilization of CATs by nurses can be hindered due to the traditional doctors.	0.00	0.10	0.30
Q27. CAT should be actively utilized in clinical practice by nurses at their discretion.	-0.20	1.00	-0.70

CATs=complementary and alternative therapies; Type I=cautious type; Type II=positive acceptance type; Type III=considering reality type.

tively as a new independent area of nursing” ($Z=-1.28$), and “Nurses can best approach CATs rather than other medical personnel” ($Z=-1.18$). Thus, the features reflected the need to establish scientific evidence and sufficient technical knowledge/skills for CATs before their application. Nurses of this type believed that it was undesirable for nurses to utilize CATs; preferred to cooperate with other medical individuals.

Illustrative comments include:

Even though it has theoretical evidence, CATs are not proven scientifically, making them unreliable, and only when nurses have complete assurance of their effectiveness will these be explained to the patients. Otherwise, it may only be used as a folk remedy.

CATs are not used as much as there is a lack a standardized protocol, so the effects vary among individuals, so to accurately measure the effects of CAT, a standardized protocol is needed. For ginseng, people who are constitutionally predisposed to having more body heat should take it with caution and care because it can have a harmful effect.

Considering the results it was decided to identify this group as Type I characterized by a cautious approach to CAT. There is a desire to have on ample scientific evidence, verification of effects, a standardized protocol, adequate training and certification for nurses, and lastly there needs to be sufficient consideration before introducing CAT to nursing.

2) Type Two

Twenty nurses were classified as Type II which included 15 practicing nurses, two graduate students, and three nursing professors. The statements selected by this group were as follows: “CAT should be developed in a direction that will benefit both the hospitals and the nurses alike” ($Z=1.66$), “Nurses can best approach CAT among medical personnel” ($Z=1.43$), and “CAT should be developed actively as a new independent area of nursing” ($Z=1.31$). The strongest disagreement was that “CATs should not be used on patients without the approval of physicians” ($Z=-1.75$), “The professional status of nurses could decline when they use CATs, which the general public can also learn” ($Z=-1.71$), “It is advisable to perform CAT only on patients with chronic disease” ($Z=-1.32$), and “CATs have no benefit except providing satisfaction to patients” ($Z=-1.31$).

The participants’ responses that loaded on this factor, their statements were as follows:

Recently, CATs are being introduced and used to treat cancer along with existing cancer care treatments. Since nurses, who are in the front line, can best determine patients’ conditions, CATs should be introduced in the field of professional nursing and thereby be developed into a distinct field of nursing.

Because hospitals are interested in improving customer satisfaction, the use of CATs may be one means to improve patient satisfaction. A barrier to this would be the absence of knowledge and expertise in the various practice approaches of CATs and the need for education in these approaches and the integration of CATs into practice.

Given the previous assertion, Type II was used to describe these participants as “positive acceptance,” given its focus on actively encouraging CAT development: namely, they believed that CATs should be developed into an independent, unique field of nursing. Additionally, CATs are considered essential for improving customer satisfaction.

3) Type Three

Seven subjects included five nurses active in practice and two nursing graduate students were in this group. These subjects were classified as Type III awareness of CAT acceptance. Statements showing strongest agreement included “Shortage of time is the biggest obstacle to using CAT” ($Z=1.72$), “Nurses can best approach CATs among medical personnel” ($Z=1.52$), “CATs should be developed in a direction that benefits both hospitals and nurses alike” ($Z=1.26$), and “CATs, which lack scientific basis, should not be used without caution” ($Z=1.08$). The statements showing strongest disagreement included “The professional status of nursing could decline when they use CATs, which the general public can also learn” ($Z=-2.16$), “CATs have no benefit except providing satisfaction to patients” ($Z=-2.06$), “Applying CATs in practical service does not necessarily increase the satisfaction and self-esteem of nurses” ($Z=-1.46$), “It is unwise to spend one’s money and time on CATs” ($Z=-1.20$).

“Hospital treatments should be given to patients by both doctors and nurses in a cooperative manner, and it is unlikely for nurses to act independently, given the lack of any legal protection. Regarding the importance of evidence-based nursing, the effects and side effects of CATs should first be obtained through research before using them on patients. CATs not only provide patients with satisfaction, but also help patients recover because they offer a synergetic effect with differing physiological effects.”

Overall, nurses classified as Type III awareness recognized that nurses have the opportunity to access CATs, but health professionals must approach their application in a collaborative fashion with sufficient scientific evidence. Furthermore, CATs can promote a sense of pride and authority among nurses; however, the biggest obstacle is the lack of time for nurses to apply CATs. Given these features, we termed Type 3 the “considering reality” type.

3. Consensus Statements among the Three Awareness Types

Notably, we found several statements with Z-scores around ± 1.00 for all three types. Statements showing the highest agreement included “CATs should be developed in a direction that benefits both hospitals and nurses alike” ($Z=1.26$) and “It would be desirable for hospitals to support CAT education” ($Z=0.94$). In contrast, the statements with the highest disagreement included “CATs have no benefit except providing satisfaction to patients” ($Z=-1.53$), “It is advisable to perform CATs only on patients with chronic diseases” ($Z=-1.15$), and “It is unwise to spend one’s money and time on CATs” ($Z=-0.97$). Thus, all participants recognized the effects of CATs, and believe that these can be used to help patients with chronic diseases. Additionally, there was a belief that hospitals should support CATs education and that it should be developed to benefit both hospitals and nurses.

DISCUSSION

This study employed Q-methodology to categorize nurses’ awareness of CATs acceptance, and identified the structure and characteristics of each type in detail to provide a direction for CATs in terms of application to nursing. Awareness of CATs acceptance was categorized into three distinct types: the cautious type, positive acceptance type, and considering reality type.

The explanatory powers of the cautious, positive acceptance, and considering reality types were 31%, 10%, and 6%, respectively. These results suggest that the prevailing position among Korean nurses with regard to CATs acceptance may be caution. In other words, rather than unconditionally accepting CATs, some have support that nurses must identify the scientific basis and training in the particular model before applying CATs to patients. Furthermore, nurses favor prioritizing and developing a standardized protocol for CATs. Since the effects of CATs can vary, the participants emphasize that accurate and scientific validation must come first. In this way, cautious-

type nurses acknowledge CATs and assert that further research is necessary before implementation. This finding concurs with previous studies. When nurses accept CATs, they report experiencing conflict and confusion at times and tend to adopt a cautious position. One reason may be the concern of what others and traditional doctors might think [15]. Notably, when nurses encounter the limitations of medical interventions, they may resort to the use of CATs, and at the same time attempt to find a scientific basis for CATs’ effects through exploring, learning, and integrating existing knowledge [10]. Previous findings have also indicated that many nurses feel positive about the therapeutic effects of CATs [16], and stated that practical application of CATs is possible [17]. Similarly, nurses reported having a negative attitude toward CATs because of the lack of scientific evidence, concern for side effects, and the lack of knowledge and skills, and perceived themselves as having too little clinical knowledge and skill to apply CATs in a clinical environment [18]. Accordingly, the reported literature together with the findings from the cautious type of perception, there would be the requirement that there be objective and scientific validation of each complementary/alternative therapy. This approach is more aligned with the tenets of evidence-based nursing. Furthermore, it was recognized by this group that specialized training would be required.

Nurses with the positive acceptance type of awareness (Type II) recognized that among medical professionals, nurses have the greatest access to CATs, and that it should be developed as a specialty in nursing. Furthermore, despite not being recognized as a nursing responsibility, these approaches should be included for the purpose of promoting patient satisfaction. These findings are similar to previous studies on “active acceptance.” It is seen that CATs have therapeutic value, should be applied and developed as nursing interventions, and could be taught as part of the nursing educational curriculum to promote their immediate introduction to nursing. Nurses can provide information about CATs to patients and families, lending support to patients’ decisions. However, since there are few programs about CATs within colleges of nursing, the nurse must rely on their own experiences [19]. Notably, around 60.6% of cancer nurses recognize the need for CATs education, and 71.6% of patients appear to be already using CATs in conjunction with other treatments, which indicates the need for the inclusion of CATs in nursing education programs [20]. It would also be necessary to incorporate the major aspects of CATs into nursing curricula that have clinical value [21]. Understandably, nurses with CATs certifications, who have graduated

from nursing colleges, or who have experience in using CATs appeared to have a more positive attitude toward utilizing CATs [18], and it may be possible to enhance the nurses' professional pride by using CATs as nursing interventions [21]. Additionally, according to studies on the CATs acceptance process, the studying and applying CATs can enhance nurses' job satisfaction, suggesting that providing information and training can help resolve nurses' questions and better encourage them to accept and apply CATs as nursing interventions [10]. All of this research corresponds to the features of the positive acceptance type.

Finally, nurses with reality type of awareness appear to believe that, despite nurses being in the best position to utilize CATs and the fact that CATs can promote a sense of pride and authority among nurses, nurses' heavy workload, busy schedule, and lack of expertise hinders their practical application of CATs. The factors hampering practical application of CATs noted in past studies included concern for side effects, lack of knowledge and skill, expectation of rejection by other health professionals, the disapproval from institutions, and lack of time [18]. As such, other than lack of awareness and nurses' personal characteristics, the environmental factors of hospitals appear to be major obstacles to the acceptance of CATs. It is suggested that when nurses report being judged by other medical personnel for using CATs and reported being exhausted from a heavy workload, they report become dispirited; however, when a hospital offers support and training and provides necessary resources for CATs, nurses may actively accept CATs without reluctance [10]. Accordingly, to ensure the practical application of CATs, various support systems should be in place in nurses' work environment.

Several statements were found among all three types, as follows: "CATs should be developed in a direction that benefits both hospitals and nurses alike," "It would be desirable for hospitals to support CATs education," "CATs offer satisfaction to patients and are an effective treatment," and "It is advisable to perform CATs only on patients with chronic disease." Previous studies indicated that, even when CATs' effectiveness is recognized, it does not qualify as a nursing responsibility; thus, it is difficult to use in practice [10,15]. Therefore, it would be necessary to integrate CATs into nursing practice in a way that benefits both hospitals and nurses alike, and proactive education and support of CATs would be needed at the administrative level rather than just at the individual level.

It is notable that nurses with all three types of awareness recognized that CATs should be accepted and applied and that professional education should be available to nurses.

Type I nurses approached the matter cautiously, arguing for an established scientific basis for CATs and the development of a standardized protocol. Nurses characterized by Type II identify the need to develop CATs as a unique and new field in nursing, and that it is desirable to introduce CATs for promoting satisfaction among patients. Nurses in Type III would argue that, although CATs is effective and furthers the authority of nurses, it is important to consider the limitations of nurses and their working environment (making this type's position somewhat between Type I and Type II). From the perspective of developing evidence-based nursing, Type I suggest research to broaden the scientific evidence, verify CATs' effects, and develop a standardized protocol is needed. Additionally, according to Types II and III, research improving the applicability of nursing practices must precede actual application of CATs.

CONCLUSION

The perceptions of nurses for CATs acceptance was categorized through the utilization of Q-methodology and proposed a possible direction for the application of CATs via the role expansion of nurses through an understanding of the characteristics and structures of each type.

Three categories of perceptions were identified: the cautious type, positive acceptance type, and considering reality type. The cautious type is representative of an overall perception of CATs. The positive acceptance type focuses on using CATs in nursing practice. The considering reality type is compromising between Type 1 and Type.

In terms of CAT acceptance, the cautious type emphasizes the establishment of scientific evidence, the positive acceptance type promotion of nurses' pride and patient satisfaction, and the considering reality type the practicality of CATs. Nurses with all three types of awareness recognized the effects of CATs and the need to develop the practical application of CATs. Furthermore, they wished to develop CATs such that CATs are beneficial to both hospitals and nurses, and desired support from hospitals in terms of acquiring education and training. Above all, establishing a scientific basis for CATs is urgently needed, after which CATs could be taught to nurses as part of a new nursing role.

The limitation of this study

Q statements have a limitation to generalize.

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