

Critical Thinking Dispositions and Assertive Skills among Postgraduate Nursing Candidates, Alexandria University, Egypt

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Abstract: Critical thinking dispositions (CTDs) are one of crucial elements in the process of problem solving and decision-making. Development of critical thinking abilities has become the core aim of postgraduate nursing education. Thus, the students' personal characteristics are among the vital factors affecting the development of such skills. Yet, assertive skills are considered main influencing factors that affect all the aspects of students' lives including the way of their thinking and performance. Aims of this study were to determine the degree of CTDs and assertive skills among postgraduate nursing candidates and to investigate the relationship between CTDs and assertive skills among those candidates. Design a descriptive correlational design was utilized for this study. Setting the study was conducted at the Faculty of Nursing, Alexandria University, Egypt. Subjects these comprised 169 postgraduate candidates. Tools: socio-demographic and Academic data Structured Questionnaire, UF/EMI Critical Thinking Disposition Instrument and Rathus Assertiveness Schedule. Results of the present study revealed that about half of the studied candidates had a moderate degree of CTDs and another half of them had a high degree. Two thirds of the studied candidates had a moderate level of assertive skills. A positive statistical significant relationship between the CTDs and assertive skills was found. Male candidates had a higher degree of CTDs and assertive skills than females. Conclusion data of this study concluded that, postgraduate candidates at the Faculty of Nursing, Alexandria University had a moderate to high degree of CTDs and a moderate level of assertive skills. The degree of their CTDs is affected by their level of assertive skills and vice versa.

Key words: Critical Thinking Dispositions • Assertive Skills • Postgraduate Candidates

INTRODUCTION

Critical thinking has a significant role in nursing field, is regarded as a core outcome in higher education and is associated with employability and academic achievement. Critical thinking (CT) is a metacognitive process that, through purposeful, reflective judgment, increases the chances of producing a logical conclusion to an argument or solution to a problem. CT is an active, ongoing cognitive process of logical reasoning in which the individual methodically explores and analyzes issues, interprets complex ideas, considers all aspects of a situation and takes appropriate judgment. Critical thinking

skills include analysis, evaluation, inference, deductive and inductive reasoning. Thus, critical thinking ability is very essential in solving problems, formulating implications and making decisions [1, 2].

Critical thinking comprises two dimensions, critical thinking skills and dispositions. Critical thinking skills reflect the cognitive skills that used to interpret the problems precisely, analyze ideas and quarrels about the problem and evaluate arguments and draw conclusions. Meanwhile, the term critical thinking dispositions represents a predisposition of a person to use possessed critical thinking skills. It reflects the inner motivation to solve problems and make decisions. Critical thinking

dispositions (CTDs) are attributes or habits of the mind to think in a critical way [3, 4]. Facione *et al.* [5] defines CTDs as the consistent internal motivations to act toward or respond to persons, events, or circumstances in habitual, yet potentially malleable ways. McGrath [6] argues that critical thinking is not actually achieved if there is not enough dispositions towards it. The critical thinker person is habitually inquisitive, well informed, open-minded, willing to respect different points of view, flexible, honest in facing personal biases, judicious in making judgments, attentive in seeking relevant information and reasonable in the selection of criteria.

In nursing practice, CTDs is considering the base of professional judgment and practice. Nurses must have resources and perspectives in making decisions and solving problems, in order to deliver safe, competent and skillful nursing care. Nurses often face uncertainty and rapid changes in nursing education and clinical settings, such as in emergency department, intensive care or in psychiatric care unites. To deal effectively in these situations, nurses must possess the ability to focus on the circumstances surrounding practice related issues, selecting relevant and discarding irrelevant data, make clinical inferences, evaluate the findings and weigh them against other evidence, all of these abilities are the parameters of CTDs [6, 7].

It was claimed that, CTDs are essential in enhance evidence-based nursing practice and decrease the research-practice gap. Thus, the CTDs are fundamental for postgraduate nurses candidates as scientific researchers, to be able to critique the available evidence and practice based on that evidence, to remain open minded and evaluate the efficiency of the practice [8, 9]. Additionally, CTDs enable the candidates to progress to a new level of understanding by gaining new intellectual perspectives, new horizons and develop an interest in different areas of research [10]. Consequently, determining the CTDs of postgraduate candidates is important for identifying the areas and abilities that needed to be emphasized during their education. Hence, it is important to identify and utilize effective means for assessing these thinking dispositions and pinpoint the other skills that can increase critical thinking ability [11].

There are several factors can affect the development of postgraduate nursing students' critical thinking skills. Assertive skills considered one of the essential and important factors for developing critical thinking abilities. The students have to be sufficiently independent, self-confident and responsible in order to have a proper decision-making and judgment in different circumstances.

Assertive skills enable the students to present suggestions in a direct, comfortable way, provide and receive criticism and accept other points of view, assess the rights and responsibilities in any situation and act in a thoughtful problem-solving way [12]. Further, assertive skills improves attitudes, talents, academic performances and approaches that are necessary for postgraduate students to create their own perceptive and point of view to a wide range of issues [13].

Today's globalization, rapid changes and advanced technology ascertain the students to be equipped with certain skills and abilities, as critical thinking and assertive skills that can help them to adapt to these changes and empowers them to gain lifelong learning skills. Literatures indicated that critical thinking and assertive skills enable the students to believe in themselves and their abilities and to take active role in solve problems, manage the surrounding stressors and make reasonable decisions [14-16]. The relationship of critical thinking and assertive skills is reciprocal one that has the power of improving the student's academic and professional performance. It was claimed that, academic students with low assertion result in interrupted educational performance, poor learning process and weakened ability to think in a critical manner. The extent of assertive skills affects all the aspects of students' lives including the way of their thinking [17, 18]. In this context, the aim of this study was to determine the degree of CTDs and assertive skills among Faculty of Nursing postgraduate candidates and to investigate the relationship between CTDs and assertive skills among those candidates.

MATERIALS AND METHOD

Materials

Study Design: This study used a descriptive correlational design.

Setting: The study was conducted at the Faculty of Nursing, Alexandria University, Egypt. The Faculty has nine scientific departments namely Medical-Surgical Nursing, Critical Care Nursing, Pediatrics Nursing, Obstetrics & gynecological Nursing, Nursing Administration, Nursing Education, Community Health Nursing, Gerontological Nursing and Psychiatric Nursing & Mental Health. It belongs to the Ministry of Higher Education. The faculty offers a bachelor degree for undergraduate students and diploma, master & doctorate degrees for graduate students. The -faculty programs follows the credit hours system that offers students a

flexible studying schedule. The baccalaureate is composed of eight semesters of basic nursing science education. Diploma level is composed of two semesters; while, master level comprises four semesters including preparation of master thesis. Furthermore, the doctorate level is composed of six semesters including preparation of doctorate dissertation. All postgraduate degrees provide nursing science education of different specialties.

Subjects: A convenient sample of 169 postgraduate nursing students was included in the study to represent a population size of 414 postgraduate students. Sample size was calculated using Epi-info program, which revealed that at least 152 students are adequate for this study. The sample size was estimated based on using 5% acceptable error, 95% confidence coefficient, 50% expected frequency

Tools: Data of the present study were collected using the following tools:

Tool I: Socio-demographic and academic data structured interview schedule: This covers socio-demographic and academic characteristics of the studied subjects such as age, sex, marital status, residence (Urban or rural), cohabitation, level of education and work experience.

Tool II: UF/EMICritical Thinking Disposition Instrument: The instrument was developed by Irani *et al.* [19]. It is used to determine the CTDs of postgraduate students in this study. The scale consists of 26 questions represented by three dimensions. Eleven questions assessed Engagement e.g. "I enjoy finding answers to challenging questions", eight questions assessed Cognitive Maturity e.g. "I consider how my own biases affect my opinions". In addition to, seven questions assessed Innovativeness e.g. "I enjoy learning about many topics". Each question was measured on a 5-point Likert scale ranged from 1 = strongly disagree to 5 = strongly agree. The total score ranged from a low of 26 to a high of 130 points. It is assumed that the higher the score, the stronger the respondent's critical thinking dispositions. The scale reported a reliability coefficient for the total critical thinking disposition score ($\alpha = 0.94$). The reliability for the separate scales were tested and reported by the developer team as Engagement ($\alpha = 0.91$); Cognitive Maturity ($\alpha = 0.79$); and Innovativeness ($\alpha = 0.80$).

Tool III: Rathus Assertiveness Schedule: The schedule was developed by Rathus [20]. The Rathus scale

measures assertive behaviors across a variety of contexts. This instrument includes 30 items, 17 of them reversed to avoid response bias. Each question employs a six-point Likert-type response format (3 very much like me, 2 rather like me, 1 slightly like me -1 slightly unlike me, -2 rather unlike me and -3 very much unlike me). A total score is obtained by sum responses for each item, after changing the signs of reversed items. Scores on the assertiveness schedule can vary from +90 to -90. The schedule is shown to have moderate to high test-retest reliability ($r=0.78$; $p=0.01$).

Method:

- Official permissions were obtained from the responsible authorities of the Faculty of Nursing, Alexandria University.
- A socio-demographic and academic data Questionnaire (Tool I) was developed by the researchers.
- Tools II and III were translated into Arabic language and blind back translation was done.
- A jury composed of five experts in the field of Psychiatric Nursing and Mental Health and Nursing Education evaluated the validity of the scales and reported that the scales have face and content validity.
- Pilot study: Before embarking on the actual study, a pilot study was carried out on 20 of postgraduate students who were excluded from the actual study to ascertain the clarity and applicability of the study tools and to identify obstacles that might be faced during data collection. The pilot study revealed that tools were clear, understood and applicable.
- Cronbach's Alpha was done on 35 postgraduate students who were excluded from the actual study to measure the internal consistency of the study tools. Tools proved to be reliable, for tool II $\alpha = 0.811$ and tool III $\alpha = 0.826$.

Actual Study:

- A list of registered postgraduate students' names was obtained from the Graduate Studies and Research Department.
- Out of 414 enrolled Faculty of Nursing postgraduate students, Alexandria University in the academic year 2016-2017, a representative sample was selected through systematic random sampling technique after excluding the names of those who participated in the pilot study and the reliability test.

- The researchers collected the data by meeting the randomly selected students in small groups. They explained the aims of the study and reassured the students about anonymity and confidentiality of their responses.
- The questionnaires were distributed to the students, collected and revised for any missing data.
- Data collection was completed over a period of about 3 months from March 2016 and ending at Jun 2016.

Ethical Considerations: Throughout the study, the followings ethical steps were followed:

- Informed written consent was obtained from the students who accepted to participate in the study after explaining the importance and aims of the study and students were free to withdraw from the study at any time.
- Confidentiality of the obtained information was ensured and the students' privacy and anonymity were respected.

Statistical Analysis:

- Statistical analysis was done using SPSS (v20).
- Data were analyzed descriptively to obtain number and percentage, means and standard deviations. Then bivariate analysis was done using t-test. Multivariate analysis was done using ANOVA. The correlations between two quantitative variables were assessed using Pearson coefficient.

RESULTS

Table 1 displays the socio-demographic and academic characteristics of the studied subjects. It appears from this table that subjects' age ranged between 24 and 40 years, with a mean age of 29.60 ± 3.51 years. The majority of them was females (85.2%), married (69.2%) and living in urban areas (75.1%) with their families (94.1%). Regarding their education, 78.7% of the studied students had secondary, while 21.3% of them had Technical Institute of Nursing education pre-joining the Faculty of Nursing. 66.9% of them joined the faculty by their own desire. It was also found that 54.4% of the studied subjects in Master Level and 45.6% of them in Doctorate level.

Table 1: Distribution of the studied students according to their socio-demographic and academic characteristics:

Variable	Categories	No	%
Age	≥ 25	20	11.8
	≤ 30	93	55.0
	≥ 35	56	33.1
	Min. - Max. (Mean \pm SD)	24-40 29.60 \pm 3.51	
Sex	Male	25	14.8
	Female	144	85.2
Marital	Single	49	29.0
	Married	117	69.2
	Widow	3	1.8
Education	Master	92	54.4
	Doctorate	77	45.6
Pre Faculty	Secondary school	133	78.7
	Nursing Institute	36	21.3
Desire for joining the Faculty of Nursing	Yes	113	66.9
	No	56	33.1
Residence	Urban	127	75.1
	Rural	42	24.9
Cohabitation	Family members	159	94.1
	University Houses	4	2.4
	Relatives/ Friends	6	3.6
	Alone	91	53.8

Table 2 shows that the mean score of the CTDs among the studied postgraduate nursing candidates is 95.04 ± 16.11 with minimum of 40 and maximum of 130. It can be also noted that there is an equal distribution among them in relation to their CTDs, ranged from moderate to high degree (46.7 % and 44.4%) respectively. Regarding the assertive skills, two thirds (66.9 %) of the studied candidates had moderate level, while only 17.2% had high level, with a total mean score of -0.86 ± 18.47 .

Table 3 represents that there is a statistical significant positive correlation between total of the CTDs and assertive skills among the studied postgraduate nursing candidates ($r = 0.275$, $p = 0.01$). It can be also noted that the CTDs dimensions (Engagement, Innovativeness and Cognitive Maturity) had a statistical significant positive correlation with assertive skills ($r = 0.288$, 0.233 and $.212$, $p = 0.01$) respectively.

Table 4 illustrates that the candidates who had thirty-five years and more had high degree of CTDs with a statistical significant difference ($F = 4.147$, $p = 0.05$). It can be also seen from this table that there is a statistically significant relation at level of 0.01 between sex and CTDs and assertive skills ($t = 2.812$ and 4.672) respectively.

Table 2: Distribution of the studied candidates according to their levels of CTDs and Assertive Skills.

	Min. - Max. (Mean \pm SD)	Level	Range	N=169	%	(Mean \pm SD)
Critical Thinking Dispositions	40-130	Mild	40 – 70	15	8.9	57.33 \pm 8.55
	95.04 \pm 16.11	Moderate	71 – 99	79	46.7	90.08 \pm 6.96
		High	100- 130	75	44.4	107.81 \pm 6.68
Assertive Skills	(-54)-(+51)	Mild	(-54)-(-19)	27	16	-27.44 \pm 8.88
	-0.86 \pm 18.47	Moderate	(-18)-(-16)	113	66.9	-2.24 \pm 8.13
		High	(17)-(-51)	29	17.2	29.24 \pm 9

Table 3: Correlation Matrix between CTDs and Assertive Skills among the studied candidates:

N=169		Assertive Skills
Critical Thinking Dispositions	Engagement	.288**
	Innovativeness	.233**
	Cognitive Maturity	.212**
	Total	.275**

r: the Pearson correlation coefficient**Statistically significant at $p \leq 0.01$

Table 4: The correlation between CTDs& Assertive skills with socio-demographic & academic characteristics of the studied candidates:

Variable	Categories	No	%	Critical Thinking Dispositions		Assertive Skills	
				Mean	SD	Mean	SD
Age	≥ 25	20	11.8	92.80	15.28	2.30	21.25
	≤ 30	93	55.0	92.53	17.68	-0.53	19.22
	≥ 35	56	33.1	100.02	12.33	-2.55	16.16
F (value)				F (4.147)*		F (.540)	
Sex	Male	25	14.8	103.24	14.05	14.16	19.05
	Female	144	85.2	93.62	16.06	-3.47	17.13
t (value)				t (2.812)**		t (4.672)**	
Marital	Single	49	29.0	94.57	16.59	2.33	18.54
	Married	117	69.2	94.99	16.11	-1.99	18.55
	Widow	3	1.8	104.67	0.58	-9.00	3.46
F (value)				F (.554)		F (1.244)	
Education	Master	92	54.4	93.14	16.96	-0.41	18.69
	Doctorate	77	45.6	97.31	14.82	-1.40	18.31
t (value)				t (1.685)		t (.346)	
Pre Faculty	Secondary school	133	78.7	95.80	16.02	-1.91	17.76
	Nursing Institute	36	21.3	92.22	16.37	3.00	20.68
t (value)				t (1.185)		t (1.419)	
Desire of joining the Faculty of Nursing	Yes	113	66.9	97.00	15.06	-0.09	18.66
	No	56	33.1	91.09	17.53	-2.43	18.14
t (value)				t (2.272)*		t (.774)	
Residence	Urban	127	75.1	95.42	15.72	-2.23	17.51
	Rural	42	24.9	93.90	17.41	3.26	20.78
t (value)				t (.526)		t (1.679)	
Cohabitation	Family members	159	94.1	95.04	16.42	-0.88	18.63
	Relatives /friends	4	2.4	103.50	2.12	3.50	0.71
	Alone	6	3.6	90.83	11.50	-1.33	20.97
F (value)				F (.367)		F (.043)	

t: t-test F: ANOVA *:Statistically significant at $p \leq 0.05$

** : Statistically significant at $p \leq 0.01$

Table 5: Correlation Matrix between Critical Thinking Dispositions, Assertive Skills and some of socio-demographic variables among the studied candidates.

Variable N=169	Critical Thinking Dispositions				Assertive Skills
	Engagement	Innovativeness	Cognitive Maturity	Total	
Age	.100	.226**	.125	.163*	-.042
Sex	-.250**	-.216**	-.194*	-.258**	-.338**
Marital	.057	.061	-.014	.046	-.097
Education	.106	.138	.027	.095	.016
Pre Faculty	-.078	-.057	-.135	-.098	.102
Desire	-.210**	-.090	-.118	-.149	-.071
Residence	-.059	-.021	.022	-.028	.099
Cohabitation	-.044	-.043	.023	-.022	.013
Work	-.071	-.002	.064	-.040	-.067

rho: the Spearman correlation coefficient** Statistically significant at $p \leq 0.01$

Male candidates show significantly higher CTDs and assertive skills than females. A statistically significant positive difference at level of 0.05 was also found between desire of joining Faculty of Nursing and CTDs ($t=2.272$). The candidates who join the Faculty with his own desire had high degree of CTDs.

Table 5 shows that there is a statistically significant positive relationship at level of 0.01 between age variable and innovativeness as a dimension of CTDs and its total degree ($\rho=0.226$ and 0.163). That is to say, with increase the age of the candidates, increases their innovative thinking ability. A statistically significant negative relationship at level of 0.05 and 0.01 between sex variable and all dimensions of CTDs and its total degree, as well as, with assertive skills. The female candidates had lower degree of engagement, innovativeness and cognitive maturity, as well as, low level of assertive skills than males ($\rho=-0.250$, -0.216 , -0.194 , -0.258 and -0.338) respectively. Furthermore, a statistically significant negative relationship between desire for joining the Faculty of Nursing variable and Engagement as a dimension of CTDs was found. The candidates who joined the faculty without his own desire had low degree of engagement thinking ability ($\rho=-0.210$, $p=0.01$).

DISCUSSION

Critical thinking dispositions are a vital domain in postgraduate nursing education. To encourage truth seeking, evaluate new information and evidences and examine problem situations or issues [3]. Accordingly, assessment of critical thinking dispositions of students is fundamental part in the process of effective learning experience. Another important domain in the process of gaining lifelong learning skills is assertive skills. Such skills not only increases students' academic performance

but also provides students with certain abilities to adapt to changes in today's globalization and enables them to gain new perspectives and standpoints [11]. It was claimed that, assertive skills does not merely help the candidates to cultivate their critical thinking dispositions, but also enhance their teamwork skills and employability [12]. Therefore, this study aimed to determine the degree of CTDs and assertive skills among the Faculty of Nursing postgraduate candidates and to investigate the relationship between CTDs and assertive skills among those candidates.

Result of the present study revealed that the degree of CTDs among the studied postgraduate nursing candidates ranged from moderate to high. This finding are in line with other study of wangensteen *et al.* [21] including baccalaureate-nursing students and reported a positive disposition towards critical thinking. This could be due to the nature of nursing science education, which required certain qualifications. The postgraduate nursing candidates have to analyze and prioritize ideas to select appropriate research problem, organize the new knowledge, debate and exchange views and make reasonable decisions. Hence, nursing sciences education had the power to promote the students' cognitive capabilities and enlarge their perspectives. In addition to, the multiple roles that student nurses do as a student, teacher, demonstrator and supervisor, which enhance their abilities for facing the challenges, drawing conclusions, solving the problems and making reasonable decisions.

As expected, finding of the current study displayed that the critical thinking dispositions had a positive effects on the studied candidates' assertive skills and vice versa. This could be explained by the fact that the students who are more assertive assume themselves as being more confident and dominant; as a result, they might look for some opportunities to solve problems that

face them among clinical practice and theoretical courses, clarify a solution, reach a judicious conclusion and enjoy finding answers to challenging questions. Postgraduate education with its multiple requirements, such as preparation of assignments, presentation of different topic, using different educational strategies and searching for new ideas for research, etc. All of these requirements have the power that enable the students to be more independent, self-efficient and assertive, which contributes to enhancing their critical thinking.

On the other hand, when the postgraduate students were equipped with critical thinking depositions, they would be more confident in facing a new situations or even locating innovative solutions to the new problems. CTDs help the students to express their opinions after systematic analysis of the topics and be more self-reliant. It can further help the students to explore the depth of their thoughts, challenge themselves and be more independent and assertive. This finding goes with Afshar *et al.* [22] who stated that among the fifteen components of emotional intelligence assertiveness was assumed to be the only predictor of learners' critical thinking. Another study on nursing students concluded that a positive relationship was observed between the tendency to critical thinking and assertiveness [23]. Further, other studies showed that the students who were assertive they tended to show more dispositions toward critical thinking than ever [23-25]. From another perspective finding of Tung [26] reported that, students became more assertive with critical thinking dispositions. While, a study by Gupta *et al.* [27] showed that there was a significant negative relationship between critical thinking dispositions and assertion.

The current study found that the postgraduate candidates who were unwilling to study nursing sciences had less critical thinking dispositions. This finding is in line with different other authors who emphasized the effect of the students' satisfaction with learning activities on the students' critical thinking [11, 20 & 23]. Moreover, evidence suggests that students who find the educational environment to be desirable enjoy a higher critical thinking abilities and academic achievement than peers who perceive it as undesirable [5, 10]. This could be attributed to the fact that when the students had a positive perception about their learning experience directly increases the students' learning motivation and cognitive capacities. In contrast, when the students are uninterested can reduce their memory, concentration, motivation, problem-solving capacity as well as their learning, adaptability and academic performance. Further,

Evans and Stevenson [28] explored the learning experiences of international doctoral students who had particular reference to learning nursing sciences and reported those students had self-directed learning, critical thinking and had an identity in academic practice. It was also claimed that, the students' motivations and interests as main factors that positively affect critical thinking skills.

Finding of this study revealed that male students had more CTDs. This is in line with the results of research conducted by Sadhegi *et al.* [30] who examines the differences in critical thinking at the gender level and reported that the tendency to think in a critical manner in men is higher than women. Similarly, Khandaghi *et al.* [31] reported that there was no significant difference between girls' and boys' critical thinking dispositions. Meanwhile, Barkhordari *et al.* [32] found that there was not any significant difference between genders' disposition to critical thinking and they had similar disposition. This could be related to family and cultural factors. In some cultures, the enquiry and curiosity abilities are inhibited and discouraged, particular, with female students. This can be a barrier to enhance critical thinking abilities among them. Further, female students with their multiple roles and responsibilities as wives, mothers, instructors, nurses and as students place them under numerous stressors. These such stressors have a negative effect on their cognitive abilities, in form of distractibility, preoccupation, absent mindfulness that impair their critical thinking abilities. Another interpretation could be attributed to, the nature of males that make them more cognitively oriented and have the ability to isolate their feelings in any situation. Thus, they have the tendency to focus, search, analyze and investigate the challenging issues, then reach to reasonable conclusions.

Furthermore, results of the current study show that a statistically significant difference between age and CTDs. This result is in accordance with Yang and Jung [33] who found that, there is a statistical significant difference in critical thinking disposition and age in Korean Nursing students. Further, Martin [34] when testing both undergraduate and graduate nursing students to determine if a relationship exists between critical thinking and age using the elements of thought instrument, he found a statistically significant relationship between both groups. Similarly, Mahmoud H [35] found that there is a statistically significant difference as regards total critical thinking dispositions among nursing students in different academic levels. This could be related to with increase age of the students, they get more

motivation to success. They have more commitment to theoretical study especially if they view the program as the path to a meaningful career. In addition, more experienced students demonstrate a more willingness to think, participate in discussions and debates than younger students. Finally, perhaps previous success and life experience assisted students in the enhancement of critical thinking depositions.

CONCLUSION

Finding of the present study concluded that, postgraduate candidates at the Faculty of Nursing, Alexandria University had a moderate to high degree of critical thinking dispositions (CTDs) and a moderate level of assertive skills. The CTDs and assertive skills are better in male candidates than in females. With increase the age of candidates, increases their CDTs. The desire to join the Faculty of Nursing affects the candidates' CTDs. Finally, the degree of their CDTs is affected by their level of assertive skills and vice versa.

Recommendations:

- Incorporate the critical thinking disposition such as innovativeness, engagement and cognitive maturity in different frameworks of content knowledge of postgraduate nursing education in order to enhance the candidates' assertive skills.
- A series of workshops could be designed to stimulate the momentum of students' critical thinking dispositions to promote their assertion.
- Faculty members could use questions that probe the learners to think in depth and breadth to become increasingly aware of their cognitive dispositions. In addition, encourage questions that move them from mere enactment of the nursing role to the internalization of skills to become assertive professionals.
- A follow-up longitudinal study for postgraduate candidates after their graduations needed to assess the effect of CTDs on their teaching experience.

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