

Critical thinking dispositions of baccalaureate nursing students and their educators: A cross-sectional analytical study

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Author's Contribution

¹ Conceptualization, data collection, analysis, Interpretation and Manuscript drafting

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A B S T R A C T

Background: Critical thinking is an imperative outcome of nursing education. However, several factors contribute to the development of critical being including critical thinking dispositions (CTDs).

Objective: This study aimed to assess the critical thinking dispositions and factors affecting critical thinking dispositions of BScN students and their educators in twin city Rawalpindi and Islamabad, Pakistan.

Methodology: A cross-sectional analytical design was used in this study. A consecutive sample of 215 BScN students and 63 educators participated in the study. Data were collected via Pakistan-Critical Thinking Dispositions Scale (P-CTDS) comprising 54 items under the seven constructs; responses were measured on 5-points Likert scale. Data were analyzed with SPSS version 22.

Results: The findings showed that 52% of the educators were at the developed level of CTDs and nearly 48% at the developing level; whereas 76% students were inclined towards CTD and only 23% were found at the developed level of CTDs. Although with considerable difference in the scores of the 7 constructs, both, students and educators obtained highest scores on inquisitiveness and contextual perspective. Similarly, students and educators obtained low score on open-mindedness. The difference between students and their teachers was statistically significant for the total scores of CTDs as well as for the scores of six of seven constructs.

Conclusion: Although educators exhibited stronger CTDs than their students, both have room for improvement, specifically their open mindedness. If educators are willing to challenge their personal assumptions, students will also emulate them.

Keywords: Critical thinking, critical thinking disposition, nurse educators, BScN students.

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Introduction

With the increasing burden of diseases, rapid advancement in technology and confronting diverse situations requiring optimal decisions in health care delivery, nurses' must possess critical thinking.^{1,2} Therefore, critical thinking (CT) is one of the expected out-come of the nursing programs, particularly the nursing degree programs.²⁻⁵ CT is composite of critical thinking dispositions (CTDs) and CT skills. CTDs contain personal characteristics such as truth seeking/intellectual-integrity, perseverance, self-confidence, open-mindedness and inquisitiveness that stimulate CT.⁶ CTDs are also known

as habits of mind or critical thinking attitude. Whereas, CT skills refer to cognitive skills including information seeking, interpretation, analysis, inference, evaluation and reasoning.⁷

The development of critical thinking skill is interlinked with critical thinking dispositions. However, literature illustrate that it is not necessary that a person having CT skills, use those skills unless he/she is disposed towards CT or internally motivated to think critically.⁸ Current literature emphasized that educators' own attitude to think critically is crucial as they are primarily responsible to

develop CT attitude among their students.^{9,10} The evidence further supports that individuals who have developed the habit to think critically are more likely to apply CT in their practice.⁸ Considering the importance of CT for nurses, nurse educators must possess and nurture critical thinking attitude in their students through role modeling and active teaching strategies that are known to enhance CT.^{10,11}

Given the role of CTDs in critical thinking, extensive research has been done worldwide on the phenomenon under the study. Although very limited studies have been conducted regarding critical thinking in Pakistan, none of the study has been found on critical thinking dispositions of nursing students and their educators. Therefore, the current study was designed to investigate and describe the critical thinking dispositions of baccalaureate nursing students and their educators.

The study specifically answered the following questions:

1. What are the critical thinking disposition level of BScN students and their educators?
2. Is there any difference between BScN students and their educators' critical thinking disposition level?
3. Is there any association between educator's demographic characteristics and their critical thinking disposition level?

Methodology

A cross-sectional analytical study design was used to answer the study questions. The population of this study was final year BScN students and their educators from the twin city Rawalpindi and Islamabad. The sample for this study was recruited from six nursing colleges in 3 sectors (public, private, and army), offering BScN program all were recognized by Pakistan Nursing Council. Keeping in mind the available study population that consisted of 236 baccalaureate students in their final semester and 81 nurse educators, a consecutive sampling technique was used to recruit the study participants.¹²

Inclusion criteria for educators required to be full time employee with at-least one year teaching experience. Educators in administrative role and not involved in teaching, were excluded from the study. Alternatively, all nursing students in their final semester of the BScN

program in Rawalpindi and Islamabad were recruited. Ethical approval was sought from Institutional Review Board prior to data collection.

Critical Thinking Disposition Scale was used to collect the data.¹³ The scale comprised of 54 items that are stated bilingually in English and Urdu, under the seven constructs. Responses of the items were measured on a Likert-scale of 1-5, with one being "strongly disagree" and 5 "strongly agree". Thus, the minimum obtained score could be 54, while maximum obtained score could be 270 on this scale. Of the 270, a score less than 50% is categorized as underdeveloped disposition, a score of 50-79% is considered developing disposition, and a score of >80% is viewed as developed disposition. Negative statements were reverse coded. The average time to complete the data collection tool was 15 minutes. The reported content validity of this tool is 0.93.

The tool was pilot tested on 64 BScN interns and no changes were made. Participant of the pilot study are not included in the current study. In this study, the Cronbach's alpha for the Pakistan-Critical Thinking Disposition Scale (P-CTDS) was 0.85. Demographic variables were also added to the scale. Educators were also asked whether they had attended any course or training to enhance their CT. Data was analyzed using Statistical Package of Social Sciences (SPSS) version 22.

Results

Of all the potential participants, 215 students and 63 educators participated in the study, thus the response rate was 91% for students and 78% for educators. As shown in Table 1 and 2, the majority of the study participant whether students or educators were female. Of the 63 educators nearly half of them (50.8%) had only an undergraduate degree in nursing. With regards to the CT preparation of educators' (n=35) attended <12 hours on-job training/workshop, whereas only one participant had 3 credit hours structured course to develop critical thinking.

As shown in table 3, the majority (76%) of the students were found to have developing level of CTD; whereas 23% were at the developed level of CTD. Unlike the students 52% of the educators were found to have developed level of CTD and rest of them in the developing state of CTD.

Table 1: Demographic Characteristics of the Students (n=215)

Variables	Mean ± SD
Age (in years):	
Pre-Licensure BScN	24.06 ± 2.15
Post RN BScN	32.45 ± 5.74
Gender:	N (%)
Male	27 (12.6)
Female	188 (87.4)

Table 2: Demographic Characteristics of Educators (n=63)

Variables	Mean ±SD
Age (in years)	36.64 ± 7.02
Work experience (Years):	12.55 ± 4.92
Teaching	5.74 ± 3.97
Clinical	6.81 ± 5.87
Gender:	N (%)
Female	42 (66.7)
Male	21 (33.3)
Professional Qualification:	
Graduate	30 (47.6)
Undergraduate	32 (50.8)
General Nursing Diploma	1 (1.6)

With regards to the sub-scales of CTD, the majority of the students (78%) scored at the developed level of inquisitiveness. Likewise, about 63% of the students attained developed level score on sub-scale of contextual perspective. A considerable percentage of the students (42-45%) also scored at the developed level on the sub-scales of creativity and truth-seeking. On the subscale of reflection and perseverance, the majority of the students were found to be at the developing level. Likewise, a very low number of students (6.5%) scored at the developed level on the sub-scale of open-mindedness. In general, less than 2% of the students were found at the underdeveloped level of any sub-scales of P-CTDS.

Similar to the students, educators also showed better scoring on the sub-scales of inquisitiveness and contextual perspective compared with the other sub-scales of P-CTDS. As nearly 86-89% of them were found at the developed level of contextual perspective and inquisitiveness respectively. Unlike the students, a significant percentage of the educators (52- 65%) were also found at the developed level, on three sub-scales that are: creativity, perseverance, and truth seeking.

However, on the sub-scales of reflection and open-mindedness, a higher percentage of educators (58.7 and 77.8) were found at the developing level, whereas only one educator was found at the underdeveloped level in the sub-scale of open-mindedness.

With regard to the differences in CT disposition between students and educators, the Mann-Whitney test showed a significant difference in their overall CT disposition scores ($p < 0.001$). Likewise, on all the sub-scales except creativity, the differences between students' and educators' scores were statistically significant. Although, overall scores showed difference for nurse educators and students, there was consistency among them on the sub-scales of P-CTDS. As on contextual perspective 88.9% of the educators and 62.8% of the students attained developed level of CTDs. While on the sub-scale of inquisitiveness 85.7% of the educators and 77.7% of the students scored at the developed level of CTDs. whereas, educators and students both exhibited low score on sub-scale of open-mindedness (Table 3).

In terms of association between educators' demographic characteristics and their CT dispositions, the Pearson Chi-square analysis showed that gender had significant association with the CT disposition level, as the majority of the female educators attained developed CT disposition level. Likewise, the Kruskal Wallis test showed a significant association of age with CT disposition level. However, no association was found between work experience and CT disposition level.

Table 3: CT Disposition levels of the students (n=215) and educators (n=63)

Constructs	Level of CTDs						Difference b/w students & educators
	Underdeveloped N (%)		Developing N (%)		Developed N (%)		
	Students	Educators	Students	Educators	Students	Educators	
Inquisitiveness	1 (0.5)	-	47 (21.9)	9 (14.3)	167 (77.7)	54 (85.7)	0.003
Contextual Perspective	2 (0.9)	-	78 (36.3)	7 (11.1)	135 (62.8)	56 (88.9)	<0.001
Intellectual Integrity /Truth-seeking	1 (0.5)	-	118 (54.9)	22 (34.9)	96 (44.7)	41 (65.1)	<0.001
Creativity	1 (0.5)	-	124 (57.7)	30 (47.6)	90 (41.9)	33 (52.4)	0.10
Perseverance	3 (1.4)	-	133 (61.9)	29 (46)	79 (36.7)	34 (54)	0.04
Reflection	4 (1.9)	-	158 (73.5)	37 (58.7)	53 (24.7)	26 (41.3)	0.03
Open-mindedness	-	1 (1.6)	201 (93.5)	49 (77.8)	14 (6.5)	13 (20.6)	<0.001
Overall	1 (0.5)	-	164 (76.3)	30 (47.6)	50 (23.3)	33 (52.4)	<0.001

Discussion

This study described the level of CT disposition among BScN students and their educators in the twin city of Rawalpindi and Islamabad. The findings showed that compared to the students, the educators possess stronger CT disposition as nearly more than half of them were found at the developed level of CTDs. Whereas, the rest of them were inclined towards CT disposition as they were found at the developing level of CTDs. On the contrary, the majority of students were inclined towards CT disposition, but 23% of them were found at the developed level of CTDs. Using the same Scale, Yasin (2018) reported similar findings about BScN students in Lahore; however, in her sample, about 18% of the students scored at the developed level of CTDs while the majority of them were inclined towards CTDs. These finding implies that both, educators and students could enhance their CT dispositions, concurrent so as with previous studies^{1,9,14} In researchers' point of view this may be due to lack of educators' preparedness to apply effective teaching/learning strategies to inculcate CT among their students that warrants further research. Previous studies reported, if more educators possess strong level of CTDs, they will be able to better

demonstrate their CT behaviors and influence their students.^{10, 11-15} There were other studies that have also reported lower scores on CTDs of the students.^{2, 5} However, the findings of present study is comparable only with three constructs; inquisitiveness, open-mindedness and truth seeking of California Critical Thinking Disposition Inventory (CCTDI).⁸

The highest percentage of students showing developed level of CTDs in sub-scale of inquisitiveness indicated the students' high interest and desire for new learning. In the existing literature about CTDs most studies reported similar finding on the sub-scale of inquisitiveness.^{1, 5, 14, 16} In researchers' opinion the findings of present study as of student's high response for inquisitiveness may be due to students' frequent exposure to advancement in information and technology and frequent usage of social media. However, in contrast the findings of present study contradicted some previous studies that reported low scores on sub-scale of inquisitiveness.^{2, 3}

The second highest response in the present study was noted on sub-scale of contextual perspective that indicated developed level of CTDs and finding are consistent with one of the recent local study. Here its'

important to high- light, both local studies established that first and second highest response on sub-scale of inquisitiveness and contextual perspective respectively indicated students' strong tendency towards developed level of CTDs. On contrarily, very few of the students scored developed level of CTDs on sub-scale of open-mindedness that corresponded with other studies too.^{2, 10, 14-16}

Such finding signifies that the students may be intolerant to accept the divergent views if they are not taught in a manner that emphasizes the importance of diversity and divergent views, also ego-centering approach which is deterrence in CT.⁵ As literature supported that nursing educational programs are not producing nurses who are critical thinkers. Lack of open-mindedness among students must be addressed by the educational institutions on priority basis, otherwise it may affect the quality of nursing care delivered by graduating nurses.^{1, 2, 17}

Overall, more than half of the educators scored developed level of CTDs. These results were consistent with a previous study that may be due to conducive learning environment.¹⁰ With regard to sub-scales majority of the educators attained developed level of CTDs on contextual perspective as highest response. Likewise, their score on the sub-scale of inquisitiveness was also second top response as a large number of participants attained developed level of CTDs. Previous studies on educators also reported similar results on sub-scale of inquisitiveness. Educator's third highest response was in sub-scale of intellectual-integrity/truth-seeking in developed level of CTDs that was also consistent with other studies.^{11, 18}

Educators' low score in developed level of CTDs on the sub-scale of open-mindedness was consistent with the studies conducted in Nigeria and South Korea that indicated cultural impact on the study this may inhibit the student's centered approach in teaching.^{10,19} On all the sub-scales except creativity significant difference was noted between students' and their educators' level of CTDs. The present study showed similar results as of previous study conducted in Nigeria on BScN student and their faculty members that showed high scores of educators in sub-scales of truth-seeking, open-mindedness and inquisitiveness in comparison with

students.^{5, 10, 20, 21} The non- significant results of current study in creativity may be due to teacher's lack of ability or interest in creativeness. The lack of creativeness/innovativeness among educators may affect the class room environment as of teacher centered instead student centered being not able to apply advanced teaching learning strategies.^{10, 22}

Mann-Whitney test on nonparametric data showed that there was no statistically significant difference found except reflection in overall level of CTDs between the both groups pre-licensure BScN and post RN BScN students. The significant result in sub-scale of reflection may be due to maturity level and work exposure of the post RN BScN students. The Pearson Chi-square analysis of the current study showed that gender and age of the educators had significant association with their level of CTDs. A previous study on pre-service teachers also found association of gender with level of CTDs.²³ In contrast, some of the studies found no association of age with educators' level of CTDs.^{9, 17, 24, 25}

Conclusion

Despite the fact that the majority of the students scored developing level of CTDs indicating deficient in developed CTDs, it is encouraging that only one student scored underdeveloped level of CTDs. These findings are satisfying in matter of fact that with a few more efforts by the educators and the Nursing Colleges, students CT disposition may be enhanced further towards developed level of CTDs while building on developing level of CTDs rather starting from underdeveloped level of CTDs. Despite the fact educator possessed developed level of CTDs, even then there is need for improvement. Students who developed the dispositions: contextual perspective, perseverance, reflection, intellectual- integrity, creativity, open-mindedness, and inquisitiveness are more likely to exercise CT in their profession.

The study results emphasized the need that educators should by dynamic and role models in promoting CT among their students. Moreover, teaching institutions should provide enabling environment to the educators through integrated curriculum and infra- structure with educational innovations for application of CT.

Implications of the Study:

Nursing Education

1. Nursing degree programs must include component of CT in curriculum, designing courses, teaching plans and teaching strategies.
2. Students should be given ample time for co-curricular activities so they learn CT through socialization.

Educators

Educators must play their dynamic role to:

1. Become role models in CTDs for students and take charge of their own professional development.
2. Create an environment and demonstrate CT during content delivery: thinking loudly and allowing students to do so.
3. Motivating students to use CTDs for problem solving and decision making in personal as well as professional life.
4. Empower students to ask questions, express their opinions, and learn from mistakes in the safe learning environment.

Nursing Students

Nursing student must show commitment towards their own learning to:

1. Develop habits of questioning and open mindedness to make CT a routine.
2. Change "I do not know" with "I will find out" which exhibits the ability to find out solutions.
3. Practice peer interaction that involves CTDs, collective thinking process for the purpose of meaningful encounters and interpersonal skills.

Administration

Nursing administrators must play an active role in structuring faculty development program to enhance their capacity building and CT on regular basis to develop competent educators as a role models that enable students to mimic CT.

Nursing Research

The study should be replicated on larger samples from various geographical locations with diverse demographic variables in Pakistan for the purpose of

generalization. Further studies should focus on following questions that arose from data analysis:

- What are the perception of educators regarding students learning styles and approaches?
- What are the facilitator and barriers in nursing education to develop critical thinking among students?
- What are the educator's perception regarding being prepared to inculcate CT among their students?

Limitations of the Study

The findings of this study may be generalized only in Rawalpindi and Islamabad not on country level as Yasin, (2018) reported much lower number of students who scored developed level of CTDs than the present study. Moreover, participant's mood, attitude, and personal biases at the time of data collection may have affected self-reported responses. In addition, question related to recall e.g., educator's responses regarding their training for critical thinking may have affected the findings of the study.

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