

Comparison Study Between Freshman and Senior Nursing Students' Critical Thinking Skills at Faculty of Nursing, Sana'a University

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Abstract

Background: Nursing has embarked on a “curriculum revolution,” and the appraisal of critical thinking has gained substantial attention in nursing academia. **Aim of the Study:** compare critical thinking skills between freshmen nursing students and senior nursing students at Faculty of Nursing, Sana'a University. **Methods:** comparison cross-sectional study was done and two tools for data collection were used for demographic data and **critical thinking disposition survey**. Study was done among 100 nursing students in the Faculty of Medicine and Health Sciences - Sana'a University in 2018. Ethical issues was considered in all steps of the research. **Results:** the total mean score of California Critical Thinking Disposition Inventory (CCTDI) was high and there was a statistical significant difference between level of education toward CCTDI in relation to analyticity and no significant difference toward the dimensions of CCTDI. Also there was a statistical significant difference between gender toward CCTDI in relation to open minded in which female were open minded than male. **Conclusion and Recommendations:** The study showed that the majority of the undergraduate nursing students at the mentioned setting showed ambivalent disposition towards most of the dispositional characteristics and the overall CCTDI. Nursing programs should include the teaching strategies that promote critical thinking dispositions and ensure the application of all of its competencies.

Key words: *Freshman and Senior nursing students, critical thinking disposition, Faculty of Medicine & Health Sciences.*

Introduction

Critical thinking (CT) has been a long-standing interest of scholars, educators, psychologists, and health care professionals (Bolan & Grainger, 2009, 2009 & Dumitru, 2012). It is a desired outcome across the educational spectrum, particularly in higher and professional education, and a common goal that most educators aspire to achieve (Gul et al, 2010; Kermansaravi, 2013; Jeong, 2015 & Abd Allah & El-Shahat, 2018).

Moreover critical thinking has been one educational outcome paramount for learning in all nursing programs and has been found to be an important skill (Hunter et al., 2014). Nurses need to make critical judgments about many patient care issues. There also an agreement by credentialing bodies that universities need to initiate learning experiences to improve critical thinking skills in graduate students (American Association of Colleges of Nursing, 2008). Graduate nurses must be critical thinkers with the ability to deal with complex situations Yildirim & Tasci, 2013), and it is expected that nursing education will help students to develop their critical thinking dispositions (Bolan, 2009).

Definitions vary but most agree that critical thinking is a cognitive skill which requires logical thinking (Hunter et al., 2014). At the graduate level, nurses need to translate their thinking from skill-based to concept-based using much more “gray” material to move their practice setting.

Fini et al., (2015) reported in their study that the students in the first semester of their study in nursing (freshman nursing students) revealed low scores of critical thinking skills while these skills recorded high scores with the students in the last semester of their study in nursing (senior nursing students).

Concurrently, universities are increasingly asking graduate students to think in a transformative manner. Thinking in a transformative manner means that instead of acquisitions of skills, which is first order thinking in critical thinking much like that of early nursing education, focus is on second order thinking or “reflective thinking” and third order thinking which is “thinking about thinking” (Mahmoudi, 2014). In other words, students need to engage more in the “new” (transformative thinking) rather than in more of the “same” thinking (adaptive thinking). This mode of thinking requires three intellectual abilities skills – analysis, evaluation and inference that

important in critical thinking required in any nursing research course (Rofetto-McGrath et al., 2009).

Critical thinking is important for professional nursing. The requirement of critical thinking for nursing is because registered nurses must have unique knowledge to explain situations which are significant for nursing science and required reasonable thinking and deliberate consideration. Nursing practice is a professional practice which must have technical and conceptual knowledge about nursing and ability to apply nursing science to other sciences for proper practice (Vacek, 2009 & Akyüz & Samsa, 2009).

As reported by Meherali et al., (2015) & Facione (2015), the critical thinking was necessary skill for clinical decision competency. The critical thinking consisted of two components. The first component was critical thinking skill which was thinking skill on other experiences such as interpretation, analysis, evaluation, inference, explanation, and meta-cognitive self-regulation. Second, disposition component of critical thinking was personal characteristic which supported intellectual development process. It consisted of truth-seeking, open-mind, analyticity, systematicity, self-confidence, inquisitiveness and maturity (Mahmoudi, 2014). A disposition means a tendency to do something.

Since the ability to think critically is a primary goal of education, it's no surprise which people have tried to develop programs that could directly teach students to think critically without immersing them in any particular academic content. But the evidence shows that such programs primarily improve students' thinking with the sort of problems they practiced in the program—not with other types of problems. More generally, it's doubtful that a program that effectively teaches students to think critically in a variety of situations will ever be developed (Dikmen, 2015)

Significance of the study

Students differ in their ability to think, memorize, reason, read and process information. It is important for critical thinkers to execute their own learning to be able to generate and evaluate conclusions from related evidence. The students who are considered as high critical thinkers have a better implementation of their learning approach (Magno, 2010).

Aim of the study

This study aimed to compare critical thinking skills between freshmen nursing students and senior

nursing students at Faculty of Nursing, Sana'a University.

Research questions.

1. Had undergraduate nursing students at Faculty of Medicine and Health Sciences, University of Sana'a ambivalent disposition towards most of the dispositional characteristics and the overall CCTDI?
2. Do senior nursing students have highest mean scores of six dispositional characteristics compared to freshman ones.

Methods

Research design

Comparative cross-sectional design was used in this study

Setting

Nursing Division in the Faculty of Medicine and Health Sciences - Sana'a University-Yemen.

Subjects:

A hundred nursing students of baccalaureate program who were enrolled at the academic year 2017-2018, (49 freshman and 51 senior nursing students).

Study tools

Tool I: for demographic characteristics:

It was developed by the researchers. It included personal data such as, age, sex and level of education.

Tool II: CCTDI which designed to measure the dispositional dimensions of critical thinking by American Philosophical Association (1990) & developed by Facione et al., (1994). It consists of 65 items and scored by Five-Likert scale tool with six subscales. These six subscales are truth-seeking (12 items), open mindedness (12 items), analyticity (11 items), systematicity (11 items), critical thinking self-confidence (9 items), inquisitiveness (10 items).

Scoring system

The items for the six items are interspersed throughout the CCTDI. Respondents are invited to express the extent to which they agree or disagree with each of the 65-item statements. A five-point Likert scale ranging from 'strongly agree' to 'strongly disagree' is used.

Data collection phase

Data was collected via self-report questionnaire and then checked by the researcher for completeness. Data was collected over a period of (one month) started on beginning of April 2018 till end of the same month.

Validity and Reliability

Face validity was ascertained by a group of (5) expertise from medical education at Yemeni Universities. Their opinions were elicited regarding the tools format layout, and scoring system. The content of the tool tested regarding the knowledge accuracy, relevant and competency as for reliability

the tools were confirmed for consistency by Cronbach's alpha test. Coefficient alpha for knowledge accuracy were .871; while relevant scored .890. In the same time, efficiency alpha for competency were .921. The reliability coefficients for the California Critical Thinking Disposition Inventory (CCTDI) range between Cranach's Alpha = 0.80 and 0.91, demonstrating very strong internal consistency.

Administrative approval

An official letter was obtained from the Dean of Faculty of Medicine and Health Sciences, Sana'a University, the head of Nursing Division at the faculty, explaining the purpose of the study to obtain the permission to conduct the study.

Ethical Considerations

Verbal informed consent was obtained and the purpose of the study was explained for each student. Students advised to their rights to withdraw from the study at any time. Furthermore, Students' verbal consents was obtained in addition to asserting students dignity and privacy. In addition, information

Results

confidentiality was protected using a numbered coded on the questionnaire.

Pilot study

A pilot study was carried out after development of the tools and before starting the actual data collection on 5 students (5% of the total sample). The aim of the pilot study was to test the feasibility of the study and the sequence of items. It also served to estimate the time required for filling the questionnaire sheets. They were excluded from the total number of the study subjects. The process of pilot study took one week (3-8 March 2018).

Statistical Design

Statistical analysis was done by using Statistical Package for the Social Sciences (SPSS 20.0). quality control was done at the stages of coding and entry. Data were presented by using descriptive statistics in the form of frequencies and percentages for qualitative variables. t-test was used to test the association between variables.

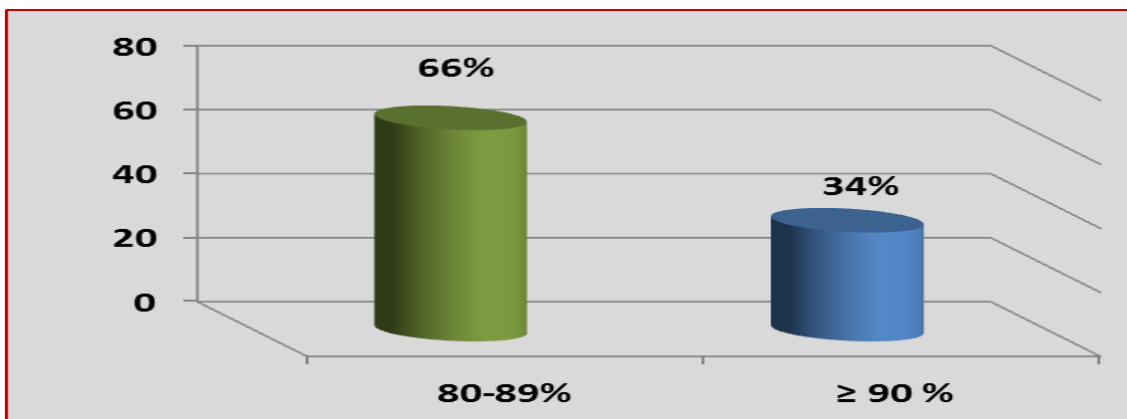


Figure (1): Distribution of study subject according to gender (n=100)

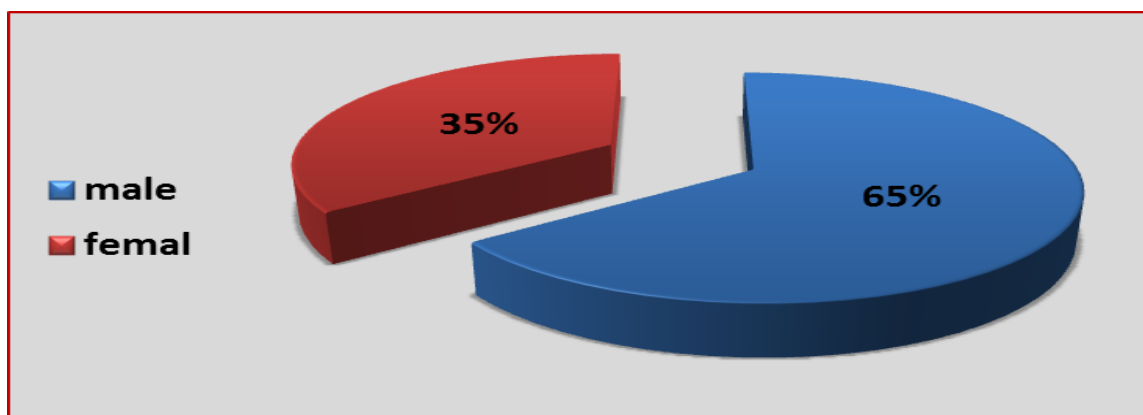


Figure (2): Distribution of study subject according to the secondary certificate grade (n=100).

Table (1): Mean score and rank of critical thinking disposition dimensions among study subjects (n=100).

Items	N	Rank	Mean \pm SD
Self-confidence	100	1st	3.64 \pm 0.52
Truth seeking	100	2nd	3.58 \pm 0.52
Inquisitiveness	100	3rd	3.56 \pm 0.49
Analyticity	100	4 th	3.54 \pm 0.42
Open minded	100	5th	3.43 \pm 0.44
Systematicity	100	6th	3.43 \pm 0.42
Total score		100	3.53 \pm 0.30

Table (2): Mean scores of level of education compared by dispositional characteristics (n=100).

Items	Educational Level	N	Mean \pm SD	T- Value	Sig p-value
Truth seeking	Freshman students	51	3.49 \pm 0.54	-1.83	.070 ^{NS}
	Senior students	49	3.68 \pm 0.48		
Open minded	Freshman students	51	3.44 \pm 0.49	.083	.934 ^{NS}
	Senior students	49	3.43 \pm 0.39		
Analyticity	Freshman students	51	3.45 \pm 0.43	-2.112	.037*
	Senior students	49	3.62 \pm 0.38		
Systematicity	Freshman students	51	3.38 \pm 0.43	-1.109	.270 ^{NS}
	Senior students	49	3.48 \pm 0.41		
Self-confidence	Freshman students	51	3.48 \pm 0.52	-3.271	.001**
	Senior students	49	3.81 \pm 0.48		
Inquisitiveness	Freshman students	51	3.51 \pm 0.49	-1.074	.285 ^{NS}
	Senior students	49	3.61 \pm 0.48		

- ^{NS}: No statistically significance differences
- **: Statistically significance differences at 0.001
- *: Statistically significance differences at 0.05

Table (3): Comparison of mean scores of gender in relation to "Dispositional characteristics (CCTDI) (n=100)

Items	Gender	N	Mean \pm SD	T- Value	Sig p-value
Truth seeking	Male	65	3.52 \pm 0.51	-1.586	.116 ^{NS}
	Female	35	3.69 \pm 0.52		
Open minded	Male	65	3.36 \pm 0.45	-2.464	.015*
	Female	35	3.58 \pm 0.38		
Analyticity	Male	65	3.49 \pm 0.40	-1.471	.144 ^{NS}
	Female	35	3.62 \pm 0.43		
Systematicity	Male	65	3.39 \pm 0.43	-1.305	.195 ^{NS}
	Female	35	3.50 \pm 0.41		
Self-confidence	Male	65	3.65 \pm 0.50	.288	.774 ^{NS}
	Female	35	3.62 \pm 0.58		
Inquisitiveness	Male	65	3.52 \pm 0.51	-.963	.338 ^{NS}
	Female	35	3.62 \pm 0.44		

- ^{NS}: No statistically significance differences
- *: Statistically significance differences at 0.05

Figure (1): Illustrated that nearly to two-thirds (65%) of the students were male while more than one third of them (35%) were female.

Figure (2): Showed that two-thirds (66%) of students had 80-89% in their secondary certificates.

Table (1): Presented that self-confidence and truth seeking had the highest mean scores in both study subjects with (3.64, 3.58) respectively. Whereas open minded and systematicity for whole study subjects had the lowest mean score (3.43, 3.43) respectively.

Table (2): Shows that there were statistical significant differences between freshmen and seniors in analyticity and self-confidence between them. In relation to inquisitiveness, systematicity, open minded, and truth seeking, the findings of the current study found no significant relation between freshmen and seniors.

Table (3): Shows that the relation between gender and mean scores toward (CCTDI) and that there was a statistical significant difference between male and female toward open minded. Whereas there were no statistical significant differences toward others of critical thinking disposition dimensions.

Discussion

Educators have long been aware of the importance of critical thinking skills as an outcome of student learning. More recently, the partnership for 21st Century Skills has identified critical thinking as one of several learning and innovation skills necessary to prepare students for post-graduation education and the workforce. Critical thinking involves several skills, including the ability to listen and read carefully, evaluate arguments, look for and find hidden assumptions, and to trace the consequences of a claim (Magno, 2010).

This study aims to compare critical thinking skills between freshmen and senior nursing students at Faculty of Nursing, Sana'a University.

Study results revealed that forty nine of study subjects were freshmen and fifty one of them were senior students and two-thirds of the subjects were male. This might be related to the nature of Yemeni culture that consider most occupations including nursing for men. This is in contrast with study of Fini, (2015) who has found that 24.6% of his study' subjects were freshmen and 75.4 were seniors while 65.5% of the freshmen students and 65.3% of the seniors were females. The total mean of critical thinking disposition dimensions score of current study was high.

The results of this study revealed that mean score of the disposition critical thinking was nearly the same and the self-confidence was the highest score. This

result might revealed the satisfaction of nursing students who acquired appropriate knowledge and skills that needed for their careers. This result agree with the findings of Kabeel & Eisa (2016) who found that highest mean and standard deviation score of subscale was inquisitiveness and critical thinking self-confidence.

Nursing students were considerably low in open mindedness and systematicity. This may indicate that the majority of people are not disposed to be systematicity. Although there are exceptions and individual pattern differences, most of those many thousands of individuals surveyed appear to be inclined to discount evidence, which argues against their fixed idea, and not to engage in questions or problem where the solutions might be disturbing. These results are in accordance with El-Hessewi et al., (2007) who affirmed in their study that the majority of individuals are not disposed to mindedness and in seek the truth courageously.

Meherali, (2016) also in his findings revealed that the mean score of self- confidence was the highest whereas the mean score of truth seeking was the lowest 30.55.

In analyzing the critical thinking dispositional characteristics among the nursing students in first year and fourth year, the study findings found that the mean scores of the fourth year students were the highest in all of the dispositional characteristics except in open minded (table, 2). The explanation could be related to the maturity development that the student get along the years of his study in nursing till reach the top at last semester of nursing program.

Results showed that there were statistical significant differences between freshmen and seniors in analyticity and self-confidence between them. This may be due to the majority of nursing students who have the disposition of being alert to potential problematic situations, anticipate possible results and prize the application of reason and the use of evidence.

In relation to inquisitiveness, systematicity, open minded, and truth seeking, the findings of the current study found no significant relation between freshmen and seniors. This may be due to the inconsistent use of the suitable instructional strategies as case studies. This is similar to a study done in Iran by Zarabian et al., (2016) where they found no significant differences between students in all academic levels.

Conclusion

The study results showed that the majority of the undergraduate nursing students at the Nursing Division, Faculty of Medicine and Health science,

Sana'a University had ambivalent disposition towards most of the dispositional characteristics and the overall CCTDI regardless to academic year. They got the highest mean scores in the dispositional characteristics of self-confidence, truth seeking, analyticity, and inquisitiveness. Meanwhile, they got the lowest mean scores in the dispositional characteristics of systematicity, and open minded. Mean scores of the undergraduate nursing students for each of the two academic years in relation to each of the six dispositional characteristics were the highest among the students of the fourth year in most of the dispositional characteristics.

Recommendations

- Nursing programs should include different teaching strategies that promote critical thinking dispositions and ensure the application of all of its competencies.
- Nursing programs should offer enough free time for the students to share in the extracurricular activities provided.
- Nursing teachers should become role models of good thinking dispositions; provide historical or literary examples of good critical thinkers.
- Nursing educators should use teaching strategies (such as problem solving and small group discussion) that promote critical thinking among learners.
- Nursing educators should hold training programs about how promote critical thinking of students by using new methods of teaching.

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