

## THE RELATIONSHIP BETWEEN CRITICAL THINKING SKILL AND RESISTANCE TO CHANGE OF NURSES OF SELECTED HOSPITALS OF SHIRAZ IN 2017

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### ABSTRACT

*Critical thinking in nursing education is considered as a central skill in the development of nursing profession. Critical thinking has such a considerable significance that the US National Nursing Board has included it as a mandatory measure for the certification of nursing faculties. Program evaluation: In this survey research the statistical population consist of nurses in Shiraz selected hospitals. And the sampling was done in convenience method using 107 individuals. The data collection tool is Wayne's questionnaire and the critical thinking standard questionnaire of California form B. Afterwards, it was analysed, using SPSS 22 software, descriptive statistics and Pearson correlation coefficient. Findings: Critical thinking skills of the studied units were assessed an average of 92.8 at weak level and resistance to change was discovered 16.63 at moderate level. Pearson correlation coefficient explored that there is no significant difference between the two variables of critical thinking skills and resistance to the changes in the studied units ( $P > 0.05$ ,  $r = 0.151$ ). However, there is a significant and direct relation between the two variables of critical thinking skills and resistance to change in nurses with a Masters degree ( $P < 0.05$  and  $r = 0.686$ ). Conclusion: one shall not expect that nurses with a higher critical thinking skill will necessarily have less resistance to change. Therefore; nursing managers do not need to consider the critical thinking skills of nursing workers in making changes.*

**Keywords:** Skill, Critical Thinking, Critical Thinking Skills, Resistance to Change, Nurses

### INTRODUCTION

Critical thinking is a purposive process which solves problems and helps better decision making in different situations. It is also one of the most important issues in nursing education. Critical thinking skills such as deduction, defaults detection, inference, interpreting and evaluating reasons plays an important role in carrying out nursing measures (Rezai et al., 2013).

Critical thinking is one of the skills that is the framework of the right clinical decision making. It is a cognitive activity for understanding and evaluating findings and phenomena based on some skills such as reasoning and analysis (Amini and Fazlinezhad 2010). Many authors and thinkers think of critical thinking as a cognitive skill and ability to solve a problem, while others believe that critical thinking is the right way of thinking. And it has also been said that critical thinking involves in affairs, logical decision making and being responsible for what they have done (Amin Khandaghi and Pakmehr 2011). Organizations are inherently dynamic;

they are born, grow, develop, eventually die or become new. All of these processes are due to changes that occur in organizations (sorre 2016).

It can be concluded that the alternation of organization is when the organization moves from available state to an optimal state in order to enhance effectiveness. On the other hand, accepting evolution and substantiating the alternation is one of the most significant requirements of the survival and development of each individual and every organization, because each organization is a subordinate unit of the social system and the larger world system, and when the progress of an evolving system is being made, subordinate systems must inevitably adapt themselves to the changes that have taken place in the larger system (Khachian et al., 2012). In this case, one can claim that resistance has been fixed against the alternation of a emotional-behavioral response to a real or imaginary threat towards a current affair. Additionally; there is no difference how much a proposal for change is technically or administratively complete, it is the individuals of an organization that implements it or prevents it (Seidi and Deliri Sosfi 2012)

When a change is discovered in a field, it is not welcomed comprehensively and resisting against them regardless of its severity and weakness, is natural. Since people are already familiar with ways to do things that they consider to be very suitable, they simply don't accept changes. For change requires people to relearn and possibly job shift which are unpleasant for them and cause them to resist. Therefore resistance occurs against the changes to maintain the status quo. (Taefi et al., 2016)

In nursing, the aim of critical thinking process is to provide patient care, either directly or indirectly, independently or collaboratively, based on clinical judgment (Alhani et al., 2010). It is expected that the nurse gives a solution for a new problem based on critical thinking (Kerman Saravi et al., 2011).

Research has shown that around 4- 16.6% of patients admitted to hospitals in the United States, Australia and the United Kingdom suffer from permanent disabilities or fall into death due to nursing errors and health care personnel originated from lack of proper decision making. It should be mentioned that a significant percentage of these harms can be prevented. Hence, clinical decision making, which is an essential part of professional nursing practices, can affect the quality of care more than any other factor (Javadi et al., 2014)

According to the study a more considerable thing is that individuals, along with their intellectual activities, can acquire skills that enable them to digest new knowledge and help assess the abundance of information that they are facing (Durban et al., 2016). Changes were exclusively the process of altering things from what it was (Sullivan and Garland, 2011).

Considering the clinical environment as a dynamic and changing environment and that the changes made in technology and work environment have increased the importance of critical thinking than in the past, it is questioned whether critical thinking skills in nurses can be related with their resistance to change? Can one expect that resistance to change be reduced by increasing the critical thinking skills? The researcher did not find any answer to this question. Therefore, it was decided to explore the relationship between critical thinking skills and resistance to change in nurses working in selected hospitals in Shiraz through 2017. If one could find an answer to the previous question, then the results would be used in nursing education and management. If so, nursing directors can decide whether they can develop critical thinking skills in order to prepare nursing staff to accept change.



Program evaluation: In this survey research the statistical population consist of nurses in shiraz selected hospitals Which includes some private hospitals in Shiraz, such as mother and child hospitals, Kosar, MRI, Pars, Alavi, Dr. Mir Hosseini and Dr. Mir. This correlation study was carried out with 107 nurses working in selected private hospitals of Shiraz through available sampling method.

California Critical Thinking Test Questionnaire Form B was used to assess critical thinking ability in this study. This test contains 34 questions from 5 to 4 options with a correct option in five areas of critical thinking skills, including analysis, evaluation, inference, inductive reasoning and deductive reasoning. In this test, a score is awarded for each correct answer, and the total correct test score is considered as the total score, which is a maximum of 34 scores. The range of questions involves cases that measure semantic analysis from one sentence to the more complex integration of critical thinking skills. Answering some of the questions require extracting the correct inference from a series of defaults and some others involves challenging the inferences, justifying and evaluating these objections. The implementation of this test should be based on the guide to critical thinking skills testing. In this questionnaire, the questions related to the evaluation are 1-4 and 25-34 in which the highest earned score is 14. Inference questions contains 14-24, with the highest score of 11, and questions that examine the level of analytics competency includes 5-13 with the highest score of 9. Inductive reasoning was estimated by answering questions 3, 13, 20, 21, 24-26, 28-34, and deductive reasoning was estimated by questions 1, 2, 6, 4, 8, 9, 14-19, 22, 23, 27. 19 questions has 4 options and 15 questions has 5 options in this questionnaire. The set average is 89.15 for this test which means any scores less than this shows weakness in critical thinking ability and a higher score reflects the strength and high levels of critical thinking skills (Hariri and Bagheri nezhad 2011)



To measure resistance to change Wayne and associates' questionnaire was used, which includes two dimensions and twenty questions. The purpose of this questionnaire is to examine the role of emotional and cognitive processes in resistance to organizational change and scoring 5 degrees based on Likert scale. The components are in form, anxiety and distress (1, 2, 3, 20); validity, happiness and self-satisfaction (4, 5, 6 and 7); retrospective (8 and 9); Negativity (10, 11, 18, 19); optimism (12, 13, 14 and 17) and avoidance of ambiguity (15 and 16). Scoring is based on the 5-degree Likert scale.

The categorization of each dimension is performed as follows according to the range of possible points in each section and the total score of the questions.

Anxiety and distress: the Range of possible scores 4-20; 4-8 weak; 9-15 medium; 20-26 extreme.

Validity: the range of possible scores 4-20; 4-8 weak; 9-15 medium; 20-26 extreme

retrospection: the range of possible scores 2-10; 2-4 weak; 5-7 medium ; 8-10 proper

Negativity: the range of possible scores 4-20; 4-8 weak; 9-15 medium; 20-26 extreme

Optimism: the range of possible scores 4-20; 4-8 weak; 9-15 medium; 20-26 extreme

Avoidance of ambiguity: the range of possible scores 2-10; 2-4 weak; 5-7 medium ; 8-10 proper.

Resistance to overall organizational change: the range of possible scores 20-100; 20-46 weak ; 47-73 medium ; 74-100 proper.

The validity of the resistance test in regard to organizational change is confirmed by two methods of content validity and construct validity using exploratory factor analysis, verification and KMO index.

Structural Validation Test of California's Critical Thinking Questionnaire Form B shows that, the test consisting of five factors (analysis, inference, evaluation, endurance argument, and inference argument), all five factors are positively correlated with the total score of the test. In return the reliability of both questionnaires, Cronbach's alpha, was well evaluated. Descriptive statistics, frequency tables, central indexes, dispersion and Pearson correlation coefficient were used to analyze the data in SPSS software version 22. The data was collected using an unmentioned questionnaire from respondents willing to cooperate, and the collected data remained confidential.

## FINDINGS

According to demographic data, 76% of respondents were men. 37% of them were aged between 30 and 26 years old. In the female group, the most frequent age was 20- 25 years old. 85% are nursing staff. 60% of nurses had less than 6 years of work experience. 58 percent of respondents were married. 68% of male nurses and 76.93% of female nurses had contractual employment status.

88 percent of male nurses and 96 percent of female nurses have undergone baccalaureate education. Table 1 describes descriptive indicators and Pearson correlation coefficient for critical thinking skills and resistance to change.

**Table 1: Descriptive Indices and Pearson Correlation Coefficient, Critical Thinking Skill Score and Resistance to Change**

Variable	Average	Standard deviation	Minimum	Maximum	Pearson correlation coefficient	P
Critical thinking skill	8.92	3.53	2.00	20.00	0.151	0.120
Resistance to change	63.16	10.59	26.00	85.00		

Based on the data in Table 1, the mean score of critical thinking of the studied units was 92.8 with a standard deviation of 53.3 and the mean of resistance to change was 63.16 with a standard deviation of 59.10. The Pearson correlation coefficient between the two variables is equal to 15.0 and the results show that there is no significant relationship between the two variables ( $P = 120.0$ ,  $r = 151$ )

In Table 2, descriptive indices and Pearson correlation coefficient score of critical thinking skills and resistance to change are presented in terms of age category, education degree, work experience.

**Table 2: Descriptive indexes, Pearson correlation coefficient, critical thinking skills score and resistance to change according to each factor**

Age category	Variable	Average	Standard deviation	Pearson correlation coefficient	P
20-25	Critical thinking skill	9.44	3.58	0.036	0.843
	Resistance to change	64.88	6.14		

26-30	Critical thinking skill Resistance to change	8.51 60.59	3.32 11.49	0.142	0.389
31-35	Critical thinking skill Resistance to change	8.95 65.82	3.46 13.50	0.134	0.551
Older than 35	Critical thinking skill Resistance to change	8.79 62.21	3.40 12.91	0.309	0.282
Bachelor	Critical thinking skills skill	9.06	3.56	0.135	0.190
Bachelor	Resistance to change	62.77	11.23	0.135	0.190
Master	Critical thinking skill	7.64	3.17	0.668	0.025
Master	Resistance to change	66.55	7.66	0.668	0.025
Head nurse	Critical thinking skill	8.82	3.35	0.132	0.212
nurse	Resistance to change	62.54	11.27	0.132	0.212
Head nurse				0.129	0.761
Nurse	Critical thinking skill	8.38	4.87	0.132	0.212
Head nurse	Resistance to change	67.63	8.91	0.129	0.761
Head nurse				0.129	0.761
Supervisor				0.426	0.400
Head nurse	Critical thinking skill	12.33	2.80	0.129	0.761
Supervisor	Resistance to change	67.17	9.15	0.426	0.400
Supervisor				0.426	0.400
Matron				0.100	>0.999
Supervisor	Critical thinking skill	5.00	1.41	0.426	0.400
Matron	Resistance to change	61.50	2.12	-1/000	>0.999
Matron				-1/000	>0.999
Matron					
Younger than 6 years	Critical thinking skill	9.09	3.36	0.138	0.277
Less than 6 years	Resistance to change	63.50	10.69	0.138	0.277
6 to 10 years	Critical thinking skill	8.12	3.75	0.176	0.391
6 to 10 years	Resistance to change	62.85	12.26	0.176	0.391
11 to 15 years	Critical thinking skill	9.33	3.98	0.247	0.438
11 to 15 years	Resistance to change	63.75	11.90	0.247	0.438
More than 15 years	Critical thinking skill	9.80	3.96	-0.221	0.721
More than 15 years	Resistance to change	59.00	4.85	-0.221	0.721

Based on the results of Table 2, Pearson correlation coefficient test results were not significant between critical thinking skills and resistance to change in any age group ( $P > 0.05$ ). The Pearson correlation coefficient between critical thinking skills and resistance to change in the master's group is significant, so that with increased critical thinking skills, resistance to change is also increased ( $P < 0.05$  and  $r = 0.686$ ). There was a reverse relationship between critical thinking skills and resistance to change in metron's grade, but it was not significant ( $r = -0.000$ ). The results of Pearson correlation coefficient between critical thinking skills and resistance to





change in any of the occupational groups were not significant ( $P > 0.05$ ). There was an inverse relationship between critical thinking skills and resistance to change in age group over 15 years ( $r = -0.221$ ). The results of Pearson correlation coefficient between critical thinking skills and resistance to change in

any of the work experience groups were not significant ( $P > 0.05$ )

In Table 3, descriptive indices and Pearson correlation coefficient score of critical thinking skills and resistance to change are presented in terms of gender, marital status and employment status.

**Table 3: Descriptive and Pearson correlation coefficients, critical thinking skills score and resistance to change according to each factor**

Gender	Variable	Average	Standard deviation	Pearson correlation coefficient	P
Female	Critical thinking Skills	8.90	3.25	0.106	0.346
	Resistance to Change	63.51	10.47		
Male	Critical thinking Skills	8.96	4.36	0.245	0.228
	Resistance to Change	62.08	12.49		
Married	Critical thinking skill	9.03	3.40	0.246	0.054
Married	Resistance to change	62.73	11.41	0.246	0.054
Single	Critical thinking skill	8.90	3.91	-0.051	0.758
Single	Resistance to change	64.21	9.27	-0.051	0.758
Divorced	Critical thinking skill	8.25	2.87	0.907	0.093
Divorced	Resistance to change	67.00	2.94	0.907	0.093
Widow	Critical thinking skill	7.00	1.41	1.000	>0.999
Widow	Resistance to change	48.50	30.41	1.000	>0.999
Corporative	Critical thinking skill	8.44	3.18	0.141	0.602
Corporative	Resistance to change	64.31	10.96	0.141	0.602
Conventional	Resistance to change	64.31	10.96	0.215	0.064
Corporative	Critical thinking skill	9.28	3.57	0.141	0.602
Conventional	Resistance to change	62.91	11.67	0.215	0.064
Contractual	Critical thinking skill	8.43	3.51	0.037	0.937
Contractual	Resistance to change	63.00	6.38	0.037	0.937
Official	Critical thinking skill	7.11	3.72	-0.420	0.260
Official	Resistance to change	63.33	8.26	-0.420	0.260
Official				-0.420	0.260

Pearson correlation coefficient between critical thinking skills and resistance to change was not significant in any of the two sexes ( $P > 0.05$ ). There was an inverse relationship between critical thinking skills and resistance to change in the unions ( $r = -0.051$ ). The results of Pearson correlation coefficient between critical thinking skills and resistance to change in any of the marital status groups were not significant ( $P > 0.05$ ). In general, there was an inverse

relationship between critical thinking skills and resistance to change in the formal recruitment group ( $r = -0.420$ ). The results of Pearson correlation coefficient between critical thinking skills and resistance to change in any of the employment status groups were not significant ( $P > 0.05$ ).

## DISCUSSION

The results of the conducted research have shown no significant correlation between critical thinking skills and resistance to change in working nurses in hospital. The results of the study were in line with the criteria for determining the critical thinking skills of nurses in the hospital with Islamic research and education (2010).

The results are not similar to Chang and his associates' research, because the ability of critical thinking of clinical nurses is moderate and there is positive relationship between the ability of critical thinking and nursing competence, which can be attributed to the tools used in their research, Watson's test for measuring the critical thinking skill Watson Glaser and Nursing Competency Scale, which is different from the tools used in this research.

The results are not matched with Ghasemi and Beik Zad's research in regards to the second aim of the research which is the evaluation of resistance to change in working nurses in the hospital.

This study showed that the mean of organizational transformation in Tabriz Shohada Hospital is higher than average, and changes in employee commitment to organizational change are explained by changes in organizational transformation, which the results of this study differ with the present research. This discrepancy can be due to the different statistical population and information gathering tool.

The results are similar in regards to the fact that the level of individual and group resistance to the change in the librarians towards the average and the organizational level of resistance towards the change of librarians tend to be slightly higher than the average.

In the context of the third objective which is exploring the correlation between critical thinking skills and resistance to changes in working nurses in the hospital, no research has been found that explored the relationship between critical thinking skills and resistance to change.

In the context of the fourth objective of this study which is exploring the relationship between critical thinking skills and demographic and occupational characteristics of working nurses in hospitals, is not similar to Rezaei and his associates' research.

This difference may be due to the fact that the tools used in their research were to test the critical thinking skills of the Watson Glaser Form (A), which differs from the tool used in this research. In the context of descriptive indexes and Pearson correlation coefficient, the critical thinking skills score and resistance to change in terms of job category, the findings of research by Nick Ayin and associates (2014), which shows that the highest score in human skill is related to managers Intermediate is consistent with the present study. Khosravi and Karamati's study (2016) do not match the results. The reason for this mismatch may be due to the fact that in their research, a researcher-made questionnaire was used to collect data.

The results of Pearson correlation coefficient between critical thinking skills and resistance to change in any two sexes are not significant. It matches with the research of Rezaei and Pourbayramian (2016). In the field of Pearson correlation coefficient, there is no significant



difference between critical thinking skills and resistance to change in any of the marital status groups. The results are not similar to Khanshami and associates s' research. (2014), which found that in terms of overall score, the critical thinking of married people is more critical than singles.

The results of Pearson correlation coefficient between critical thinking skills and resistance to change are not significant in any of the employment status groups.

Results are not consistent with the research by the merchant and Rambod (2016). This lack of coordination can be due to the different sample size of research and information gathering tools. The results are not consistent with Mehdi Nejad's research (2013) in determining the relationship between resistance to change and the demographic and occupational characteristics of employed nurses. This lack of coordination can be due to the different research community and information gathering tool.

## CONCLUSION

There is a significant relationship between critical thinking skills and resistance to change in working nurses in selected hospitals in Shiraz. Table 2 showed that there is no significant correlation between critical thinking skills and resistance to changes in working nurses in the hospital ( $r = 0/151$ ,  $p < 0.05$ ).

One of the reasons is that is that critical thinking skills are a kind of cognitive skills by themselves, and without a positive attitude toward critical thinking (emotional dimension), this kind of thinking has not occurred or is below standard level. On the other hand, resistance to change has behavioural, emotional and cognitive dimensions. In other words, a person who has the skill of managing change may be emotionally inclined to change and cognitively well aware of its usefulness, but in terms of personality who does not want to be risk-averse, but in practice doesn't volunteer for a change (Ebrahimi and Faraj Pahlou, 2013). As a result, one can not expect a person with high critical thinking skills to have a positive attitude toward change and be the cause of it.

A person may also have sufficient skill in change management, but his experience in changing the problems that administrative bureaucracy imposes on managers has not led to a positive change in attitude.

## Recommendation

In nursing education, enhancing critical thinking should be planned before the nurses start their work so that their levels in critical thinking skills enhances simultaneously as they study further. Additionally; in hospitals, Critical Thinking Workshops should be held continuously throughout the year to strengthen the critical thinking skills of nurses.

The nursing education system due to the improvement of the quality of services provided by clinical nurses in harmony with the advances in science and technology should make appropriate changes to revise educational programs and to develop a program that is comprehensive enough.

They should also create an atmosphere where nurses support each other truthfully in order to achieve the goals of the alternation program. And the nurses should be informed and educated about the change.





## ACKNOWLEDGEMENT

The authors hereby appreciate all the workers and nurses of the private hospitals of Shiraz who collaborated in this research.

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