

Original article:

Systemic Thinking and Working Partnership: A Cross Sectional Study in the South of Iran, 2015

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Abstract:

Background: Systemic thinking can provide practice in multidisciplinary team working and improve organizational efficacy. This study aimed to determine the association between systemic thinking and working partnership in the employees of a medical sciences university in the south of Iran. **Methods:** A cross-sectional study was performed in Zahedan University of Medical Sciences (ZAUMS) in 2015. The study population consisted of all employees in ZAUMS; 370 participants were selected through stratified random sampling. Two standard questionnaires were used for data gathering. The data were analyzed in SPSS (v21) using Pearson, One way ANOVA and logistic regression. The level of significance was considered as 0.05. **Results:** In this study, 225 participants (60.8%) were female and the mean age of the participants' was 34.7±8.7. The mean of working partnership for 362 participants was higher than the standard mean. Systemic thinking had a positive association with working partnership (p=0.001) and married status of the participants (p=0.04). Working partnership in male and older staff was more than others in ZAUMS (p<0.001 and 0.01, respectively). **Conclusion:** Systematic thinking had a positive association with the employees' working partnership. Moreover, the male staff had better systematic thinking. It is recommended that the managers should promote systematic thinking in staff especially in females for better partnership and efficacy in organizations.

Keywords: Systemic Thinking, Working Partnership, Productivity, Medical Science University

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Introduction:

Systemic thinking is an approach to problem solving and it involves much more than a reaction to present outcomes or even it demands a deeper understanding of the linkages, relationships, interactions and behaviors among the elements that characterize the entire system¹. In addition, it is a mindset that views systems and their sub-components as intimately interrelated and connected to each other, believing that mastering our understanding of how things work lies in interpreting interrelationships and interactions within and between systems^{2,3}. In recent years, there

has been a growing interest in applying systems thinking principles to improve organizational efficacy⁴. A study showed a lack of systematic thinking as a major deficiency in the performance of organizations⁵.

Systemic thinking can provide an integrative theoretical structure for formulation and practice in multidisciplinary team working in ways that do not challenge preferred identities and ways of thinking⁶. Moreover, good communication and respectful working alliances with service users are common factors in recovery and healing⁶. On the other hand,

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increased attention to how new knowledge is gained, managed, exchanged, interpreted and integrated, and emphasis on a network-centric approach that encourages relationship-building among and between individuals and organizations across traditional disciplines and fields in order to achieve relevant goals and objectives are two fundamental systems-thinking perspectives and approaches that are shared across fields^{7,8}. Systemic thinking offers the theory and methods for partnership working, across the boundaries of team and family relationships, and the professional boundaries within teams⁹. Systems thinkers achieve a holistic view of complex phenomena¹⁰ and it leads to the employees' partnership with each other especially in public health issues and the focus of practitioners on improving overall system performance¹¹. Moreover, working partnership can lead to learning and innovation in organization¹².

Working partnership is less focused on rigid structures and much more on relational factors like trust and goodwill¹³. In fact, working participation in organization leads to increased job satisfaction and the quality of their working life. Moreover, it can lead to easier changes and participation in interventions to enable them to deal with stressors factors, physical and organizational¹⁴. In addition, some studies highlighted the importance of working partnership on health system^{15,16}.

University of Medical Sciences as a service organization and education and treatment over other organizations need to contribute to systems thinking and working partnership to deliver high quality services to patients. On the other hand, a recent systematic review highlighted the limited evidence around working partnership in public health¹⁷. Therefore, this study examined the relationship between systemic thinking and working partnership in Zahedan University of Medical Sciences (ZAUMS) staff. The finding of this study can be helpful for health care managers and policy makers to improve the quality of human resource as the main resource in health system.

Methods:

This was a cross-sectional study conducted in ZAUMS in 2015. The study population consisted of all the personnel of ZAUMS. Multi-stage sampling method was used in the present study. Initially, all the official sections of ZAUMS (Hospital, Health center, Supportive department and faculties) were considered as strata (stratified sampling). Then, four blocks (wards) were selected randomly from each cluster stratum. Subsequently, using random sampling, 370

samples were selected to participate in the survey in all the blocks. Inclusion criteria were all personnel of ZAUMS who worked in 2015 for the university and were in Zahedan, and exclusion criterion was working in another region of the province.

The study instrument was two standard questionnaires. Systematic thinking as a validated questionnaire¹⁸ included 11 questions designed in seven-point Likert scale (1 very disagree and 7 is very agree). Of the 11 questions, only question 9 was reverse. In addition, the validity and reliability of working partnership as a validated questionnaire were confirmed in a previous study¹⁹. The questionnaire has 20 questions with four-point Likert scale, so 1 presented very disagree and 4 presented very agree. Among the 20 questions, six questions (10, 13, 14, 16, 18 and 19) were revers. The cut-off point in the questionnaire is 40; in fact, higher scores mean appropriate working partnership. The questionnaires were distributed among the participants by researchers who tried to attend for clarification if needed one week after they gathered the questionnaires. According to the researcher's follow up, all the questionnaires were returned to them.

Ethical Considerations

Permission for this study was given by the Ethics Committee of ZAUMS, Iran. The other ethical issues in this study were the assurance of confidentiality and anonymity of the participants. All participants were informed about the purpose and design of this research, and that their participation was voluntary.

Data Analysis

Mean scores of the partnership working and systematic thinking were calculated through descriptive statistics. Besides, Pearson, one way analysis of variance (ANOVA) and T-tests were used to determine the association of two variables and differences among the two variables and demographic variables. We used SPSS, version 21, and the level of significance was considered as 0.05.

Results:

In the study, 370 members participated and most of them were female (225 or 60.8%). The participants' mean of age was 34.7 ± 8.7 and most of them were married (313 or 84.5%). The other demographical variables are shown in Table 1. Moreover, the score of working partnership was 51.6 ± 6.7 . In addition, according to Table 1, working partnership had a positive association with the participants' age. Besides, the association between systemic thinking and working partnership is shown in Table 1. According to Table 2, the mean of working partnership for the eight participants was lower than 40 and for

362 participants it was higher. As shown in Table 2, there was an association with systemic thinking and working partnership and also systemic thinking had an association with high working partnership.

As shown in Table 3, age, sex and systematic thinking entered the regression and used of enter method. The results show a statistically significant between the variables and working partnership. According to the findings, working partnership in the male employees was more than female ones. In addition, older employees had more partnership than younger ones in ZAUMS.

Discussion:

The study showed that there was a statistically significant difference between systemic thinking and working partnership in ZAUMS. In fact, higher systematic thinking among the staff can lead to higher partnership and improvement in the delivery of quality services in the health system. Washington found a positive relationship between systemic thinking and organizational performance both in the short and long run[20]. In addition, a study indicated that systematic thinking skill in hospital manager was more than the mean²¹. Since systemic thinking is an approach to problem solving (1) and it can improve organizational efficacy [4], it is essential for healthcare managers to improve the staff's viewpoint about systemic thinking. Moreover, several authors have claimed that systemic thinking had an effect on the innovation and staff performance^{22, 23}.

Systemic approach is needed to fully understand the processes of health, disease, and dysfunction, and the many challenges in medical research and education[24]. Moamaie found that systemic thinking had the higher applicability between managers more than other strategic thinking dimensions in the medical universities in Iran¹⁸. Therefore, systematic approach, considers the organization as a system of continuous and connected components that work together, resulting in increased staff performance in the health system.

A project in the United State showed that systems thinking can serve as a foundation for more effective public health efforts to combat tobacco use¹⁰. An organization with higher systemic thinking is called "open systems". This means that the system interacts with its environment and responds to changes within and outside the system. The system adapts to its environment, creates learning and evolves towards new patterns of behavior¹².

In the study, the score of working partnership for the majority of participants was good. Due to the importance of partnership in organization, especially in the health system, it is recommended that healthcare managers should sustain and promote the employees' partnership through facilitating positive communication among the staff and increasing the systemic thinking in the organization. However, a study in Iran showed that partnership in hospital employees was in a moderate range²⁵.

According to the results, the working partnership is higher in older staff rather than younger ones. It could be because most of the participants were middle-aged. Shams found that there was a reverse association between age and working partnership in the health systems' employees²⁵.

The study showed that partnership in the male staff was statistically higher than the females. Maybe, the males tend to have more communication with their colleagues. On the contrary, Shams found that there was no difference between males and females in working partnership²⁵.

According to the findings of the study, systemic thinking was statistically higher in the single staff than married ones. Ghorbankhani found that the gender of the staff had not any association with systemic thinking in the organization². A study in Iran showed that the male staff had higher strategic thinking than females because of the challenging behavior of the males in the organization²⁶.

Limitations: The lack of studies about systemic thinking and partnership was the main limitation in this study. In this regard, the researchers used close studies in this scope. Moreover, use of questionnaire as a single tool for measuring variables and impossibility of interviewing was another limitation of the study.

Conclusion:

The study showed that systematic thinking had a positive association with employees' working partnership. Moreover, the male staff had better systematic thinking. It is recommended that the managers should promote systematic thinking in the staff, especially in the females for better partnership and efficacy in the organization. In addition, it should be applied in other medical universities and other health organizations for future studies.

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Conflict of Interest: No Declared

Table 1. Mean of systemic thinking and working partnership based on the demographic variables of the University's staff in Zahedan in 2015

variables			Partnership working		Systemic thinking	
	Component	Frequency (%)	Mean+ SD	P value	Mean+ SD	P value
Age		370 (100)	51.6 (6.7)	0.007 *	56.3 (6.9)	-0.086
Gender	male	145 (39.1)	53.1 (5.4)	0.583	58.1 (6.4)	0.440
	female	225(60.8)	49.9 (7.2)		55.2 (7.0)	
Married	Single	57(15.4)	50.8 (5.7)	0.66	57.4 (5.6)	0.04**
	Married	313(84.5)	51.2 (6.9)		56.1 (7.1)	
Education	Upper diploma	101(27.2)	52.1 (9.4)	0.21	55.7 (6.3)	0.26
	BSc.	224(60.5)	50.8 (5.3)		56.8 (7.1)	
	M.Sc.	32(8.6)	50.2 (5.8)		54.7 (7.5)	
	PhD.	9(2.43)	56.5 (0.7)		55.4 (3.5)	
Job position	Employee training	15(4.5)	51.7 (5.5)	0.26	54.6 (1.0)	0.35
	Nurse	153(41.3)	50.3 (5.9)		56.0 (7.1)	
	Staff	83(22.4)	51.9 (7.4)		57.5 (6.6)	
	Health worker	119(32.1)	51.5 (7.3)		56.1 (6.1)	
Job experiences	> 5	99(26.7)	50.2 (6.2)	0.27	57.1 (5.8)	0.34
	5-10	110(29.7)	50.8		55.2 (8.4)	
	10-15	52(14.5)	51.6 (5.1)		56.4 (6.6)	
	15-20	29(7.8)	50.8 (8.5)		56.0 (4.8)	
	< 20	80(21.6)	52.4 (4.9)		56.9 (6.9)	

Coefficient = .142**

** F= 4.17

Table 2. Association between systemic thinking and partnership working in ZAUMS in 2015

Systemic thinking	Partnership working		Low and high Partnership	
	RR	P value	F	P value
	0.21	0.001	3.608	0.004

Table3. Regression between working partnership and demographic variables and systemic thinking in ZAUMS, 2015

	B	SE	Beta	T	P value
Age	0.099	0.041	0.126	2.43	0.01
Sex	-2.48	0.74	-0.17	-3.35	0.00
Systemic thinking	0.184	0.51	0.187	3.58	0.00

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