

The relationship between managers' ideal intelligence as a hybrid model and employees' organizational commitment: a case study in Tehran University of Medical Sciences

Hossein Dargahi^{1*}, Fereshteh Veysi²

1. Professor, Department of Management Sciences and Health Economics, School of Public Health, Health Information Management Research Center, Tehran University of Medical Sciences, Tehran, Iran.

2. Researcher, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran.

Abstract

High ideal hybrid intelligence of managers is among the factors that can improve employees' organizational commitment. Therefore, this study aimed to determine the relationship between managers' ideal hybrid intelligence and employees' organizational commitment in the Vice Chancellors' Headquarters of Tehran University of Medical Sciences. This was a descriptive-analytical and cross-sectional study conducted in 2017 - 2018. The research sample size consisted of 86 senior and middle-level managers selected through census method, as well as 181 employees, selected using the Kerjencie and Morgan table. The research tool was an ideal hybrid intelligence questionnaire consisting of 102 questions on cultural, moral and spiritual intelligence, and also Meyer and Allens' organizational commitment questionnaire including 24 questions. Face validity and reliability of each questionnaire were confirmed by an expert panel and Chronbach's alpha method. The data were analyzed by SPSS software, and descriptive results were shown through mean and standard deviation, and analytical results by inferential tests. The results showed that the ideal hybrid intelligence of the Vice Chancellors' Headquarters managers and employees' organizational commitment were at a desirable level. Also, there was a significant correlation between cultural, moral and spiritual intelligence as constituents of the ideal hybrid intelligence of managers and employees' organizational commitment. We found that ideal hybrid intelligence may affect employees' organizational commitment, but it should be mentioned that other forms of intelligence may also affect organizational commitment.

***Corresponding Author**

Hossein Dargahi

Address: School of Public Health, Tehran University of Medical Sciences, Ghods Ave., Poursina St., Tehran, Iran.

Tel: (+98) 21 88 98 91 29

Email: hdargahi@sina.tums.ac.ir

Received: 10 Nov 2020

Accepted: 1 Jul 2021

Published: 13 Jul 2021

Citation to this article:

Dargahi H, Veysi F. The relationship between managers' ideal intelligence as a hybrid model and employees' organizational commitment: a case study in Tehran University of Medical Sciences. *J Med Ethics Hist Med.* 2021; 14: 8.

Keywords: *Ideal; Hybrid; Intelligence; Managers; Employees; Organization; Commitment.*

Introduction

There are certain factors that either directly or indirectly impact successful projects. Reduced productivity is one of the most important factors that cause projects to fail due to increased frustration in employees (1). Findings reveal that several factors play a significant role in productivity (2). Today, more organization managers are asking, "How can we get more out of our employees?" The answer is to devise strategies to develop and increase employees' organizational commitment (3). In this regard, organizational commitment is one of the most important motivational factors through which the employees will have more organizational participation and better performance (4 - 7). Allen and Mayer investigated the application of organizational commitment to occupational commitment. For this purpose, they developed measures of emotional constancy, as well as normative commitment to the occupation. These measures were then used to examine hypotheses about their differential relationships with antecedent and consequence variables (8). Emotional commitment demonstrates the emotional link of employees with organizational values and goals, and continuous commitment means continuing activities and feeling the need to stay and work in the organization. Also, in normative commitment, employees consider working in the organization with moral commitment (9 - 14).

On the other hand, in the new management approach, the writers recommend promoting the ideal hybrid intelligence, which is

comprised of cultural, spiritual and moral intelligence. High ideal hybrid intelligence of managers improves commitment (15). This type of intelligence emphasizes thinking in the present, although it is no stranger to the past (16). Lomov and Venda reported hybrid intelligence to be the adaption of a social system to achieve intellectual resonance in the process of communicating information (17). Therefore, the hybrid model may be the ideal type of intelligence for information analysis and problem solving for managers, allowing them to analyze and react to every situation (18 - 22).

Cultural intelligence, as a dimension of ideal hybrid intelligence, is the ability to understand the appearance and reality, and demonstrates managers' understanding of cultural similarities and differences (23 - 25). Spiritual intelligence predicts people's adaptability and gives managers capabilities to solve problems and achieve organizational goals (26). Also, moral intelligence describes managers' tendency and capability to organize dynamic and stable rules for adhering to moral beliefs that can affect organizational performance (27 - 29).

This study aimed to determine the relationship between managers' ideal hybrid intelligence and employees' organizational commitment in the Vice Chancellors' Headquarters of Tehran University of Medical Sciences.

Methods

This was a descriptive-analytical and cross-

sectional study conducted in 2017 - 2018. The research statistical population included all employees and managers of the Vice Chancellors' Headquarters of Tehran University of Medical Sciences. 112 senior and middle-level managers were selected based on census method, as well as 181 employees, and sample size was determined based on the Kerjcie and Morgan Table. After referring to the Vice Chancellors' Headquarters and explaining the purpose of the study, the researcher distributed the questionnaires among the participants, and after several visits at different intervals, collected the completed questionnaires. As a result, 181 questionnaires related to the employees and 86 questionnaires related to the managers were completely filled out and returned. The response rate was 100% for the employees and 86% for the managers. It seems that due to the high workload of managers, they could not complete all the relevant questionnaires.

The research tool in this study was an ideal hybrid intelligence questionnaire including 102 questions on cultural, moral, and spiritual intelligence dimensions. Demographic details were also collected through a separate questionnaire. For managers, the inclusion criteria consisted of a minimal 5 years of work experiences and willingness to participate in the study, and the exclusion criteria was the delivery of incomplete questionnaires to the researcher.

The cultural intelligence constituent dimension of this research instrument consisted of four components in 20 items

developed by Dyne et al. (30). All items were measured based on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Face validity of this questionnaire was confirmed by the cultural managers and professionals of Tehran University of Medical Sciences. The experts were asked to assess the questions in terms of quality and see if they covered the entire content of the study, and to confirm the validity of the questionnaire. In order to evaluate the reliability of the questionnaire, Cronbach's Alpha was used to calculate internal consistency and stability. Therefore, first the variance of scores of each item and then the total variance were calculated using the relevant formula, and the Cronbach's Alpha coefficient was 0.85.

The moral intelligence constituent dimension of the questionnaire included ten components developed by Lennick and Kiel (31). The validity and reliability of this questionnaire was confirmed by Martin and Austin, Arasteh et al., Raisi et al. and Nasiri Valikbani et al. (32 - 35). The scoring style of this questionnaire was based on a five-point Likert scale of always = 5, often = 4, sometimes = 3, rarely = 2 and never = 1. Moreover, the reliability of this questionnaire was calculated by Cronbach's Alpha test with a coefficient of 0.77.

The spiritual intelligence constituent dimension of the questionnaire included 42 questions in four components, used and developed by King and DeCicco (36). Ahmadi et al. reported this part of the questionnaire to have a reliability of 0.94

using Cronbach's Alpha (37), and Dadras and Nouhi reported its reliability to be 0.88 (38). The face validity of this section was confirmed by 5 cultural and theology experts of the university, and Cronbach's Alpha was 0.87. The scoring range of this part of the questionnaire was based on a five-point Likert scale of very correct = 5, correct = 4, to some extent = 3, incorrect = 2 and completely incorrect = 1.

In this research, Meyer and Allen's three components model of organizational commitment questionnaire was used to evaluate employees' organizational commitment in 24 questions and three dimensions. Allen and Meyer confirmed the reliability of this questionnaire by Cronbach's Alpha method with a coefficient of 0.85, 0.79 and 0.83 for each dimension, respectively (8). Also, the reliability of this questionnaire was measured in the present research with a coefficient of 0.80, 0.78 and 0.85 for each dimension. The scoring style of this questionnaire was based on a five-point Likert scale from 1 to 5 including strongly agree = 5, agree = 4, no idea = 3, disagree = 2, and strongly disagree = 1. Moreover, the face validity of this questionnaire was confirmed by a panel consisting of 5 health-care management experts.

The data were analyzed by SPSS software version 21 and the descriptive results were shown through mean and standard deviation. Also, the Kolmogorov-Smirnov test was used to determine the normality of data

distribution. Due to the significance of this test in the SPSS software ($P < 0.05$), it was found that data distribution is not normal and nonparametric tests were used to analyze the data. Consequently, the inferential results, including Wilcoxon sample t-test, two-sample independent t-test, Mann-Whitney, Anova, Kruskal-Wallis and Pearson regression tests were used to show analytical results

Result

The majority of the managers were female (56, 65.1%), 27 (31.4%) had more than 20 years of experiences, 42 (48.8%) were aged 40 - 50, and 55 (64%) had a bachelor's degree. Also, most of the Vice Chancellors' Headquarters employees were female (109, 60.2%), 62 (34.4%) had 5 - 10 years of experiences, 97 (53.6%) were aged 30 - 40, and 79 (43.6%) had a bachelor's degree.

Table 1 shows the mean of the spiritual intelligence dimension of the managers' ideal hybrid intelligence was at a desirable level.

Table 2 showed the mean of the cultural intelligence constituent dimension of the managers' ideal hybrid intelligence was 40.81, which was a desirable score.

Table 3 showed that the mean of the moral intelligence constituent dimension of the managers' ideal hybrid intelligence was 86.69, which seems to be at a desirable level.

Table 1- Descriptive findings related to the spiritual intelligence constituent dimension of the managers' ideal hybrid intelligence

Spiritual Intelligence Dimensions	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Existence of critical thinking	24.3	24	26	3.97	14	35
Creation of personal meaning	17.44	17.5	20	3.18	8	25
Transcendental consciousness	23.78	23	25	4.18	15	35
Expanding of the consciousness state	14.46	14.5	15	3.24	7	25
Spiritual intelligence	79.99	80	72	12.51	47	120

Table 2. Descriptive findings related to the cultural intelligence constituent dimension of the managers' ideal hybrid intelligence

Cultural Intelligence Components	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Metacognitive	13.5	14.5	14.5	0.90	4	20
Cognitive	14.24	15	15	1.50	4	20
Motivational	12.88	13	12	1.20	4	20
Behavioral	13.69	14	12	1.20	4	20
Cultural intelligence	40.81	40.05	38	0.95	12	56

Table 3. Descriptive findings related to the moral intelligence constituent dimension of the managers' ideal hybrid intelligence

Moral Intelligence Components	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Performance based on values, beliefs and principles	11.6	12	12	1.89	4	15
Truthfulness	7.51	8	8	1.48	2	10
Perseverance and persistence with regard to truth	10.01	10	10	2.31	4	15
Keeping promises	19.8	20	20	2.85	12	25
Accepting responsibility for personal decisions	7.21	7	7	1.33	2	10
Admitting failures and mistakes	3.56	4	4	0.95	1	5
Taking responsibility to serve others	11.95	12	12	1.97	7	15
Showing active interest in others	3.71	4	4	0.81	2	5
Ability to forgive mistakes	3.89	4	4	0.78	2	5
Ability to forgive others' mistakes	7.43	8	8	1.67	3	10
Moral intelligence	86.69	87	79	11.89	50	111

Table 4 shows considering the favorable condition of cultural, moral and spiritual intelligence as the constituent dimensions of ideal hybrid intelligence in this study, it seems the senior and middle-level managers of Tehran University of Medical Sciences

have a desirable level of ideal hybrid intelligence.

Table 5 shows that the mean of organizational commitment among the Vice Chancellors' Headquarters employees was 76.12, which was at an upward average level.

Table 4. Descriptive findings related to the constituents dimensions of ideal hybrid intelligence of the Vice Chancellors' Headquarters managers

Type of Intelligence	Mean	Median	Mode	SD	Minimum	Maximum
Cultural Intelligence	40.81	40.05	38	0.95	12	56
Moral Intelligence	86.69	87	79	11.89	50	111
Spiritual Intelligence	79.99	80	72	12.51	47	120

Table 5. Descriptive findings related to organizational commitment and its dimensions among the Vice Chancellors' Headquarters employees

Organizational Commitment Dimensions	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Emotional	26.83	27	30	5.22	12	38
Continuous	25.43	26	26	4.23	15	35
Normative	23.86	24	24	3.58	14	34
Organizational commitment	76.12	76	75	10.12	49	104

Using the Kolmogorov-Smirnov test to determine data distribution normality, and considering the significance level of this test ($P < 0.05$), the data were not normal, and consequently, we used nonparametric tests for data analysis (Table 5).

The results of the Anova and Kruskal-Wallis test showed that there was no significant correlation between the managers' ideal hybrid intelligence and its different constituents dimensions, and gender, academic degree, age and work experience. However, there was a significant relationship between employees' organizational commitment and their work experiences and education level, so that employees with lower education and more work experience showed higher

organizational commitment. Moreover, there was no significant relationship between employees' organizational commitment and their age and gender.

The results of Pearson's correlation test showed a significant relationship between cultural, spiritual and moral intelligence, which constitute the dimensions of ideal hybrid intelligence ($P < 0.001$, $P = 0.001$) [Table 6]. Pearson's correlation analysis proved the relationship between cultural, moral and spiritual intelligence as constituents of the ideal hybrid intelligence, and the relationship between these variables was provided for other analyses such as regression analysis.

Table 6. The Pearson’s correlation analysis between cultural, moral, and moral intelligence as constituents dimensions of ideal hybrid intelligence

Variable		Spiritual Intelligence	Cultural Intelligence	Moral Intelligence	Ideal Intelligence
Spiritual intelligence	correlation	1	0.36	0.55	0.64
	P-value		< 0.001	0.001<	0.001<
Cultural intelligence	correlation	0.36	1	0.54	0.61
	P-value	0.001		0.001<	0.001<
Moral intelligence	correlation	0.55	0.54	1	0.76
	P-value	0.001<	0.001<		0.001<
Ideal hybrid intelligence	Correlation	0.64	0.61	0.76	1
	P-value	0.001<	0.001<	0.001<	

Table 7. The Pearson’s correlation analysis between cultural, moral and spiritual intelligence as constituents dimensions of ideal hybrid intelligence, and organizational commitment

Variable		Organizational Commitment	Emotional	Continuous	Normative
		86=n	86=n	86=n	86=n
Spiritual intelligence	Correlation	0.15	0.14	0.003	0.17
	P-value	0.018	0.018	0.008	0.012
Cultural intelligence	Correlation	0.04	0.06	0.13-	0.16
	P-value	0.007	0.005	0.024	0.013
Moral intelligence	Correlation	0.22	0.25	0.25	0.3
	P-value	0.04	0.02	0.04	0.004

According to table 7, the results of Pearson’s correlation test showed that there was a significant correlation between managers’ spiritual, cultural and moral intelligence (as

constituents dimensions of ideal hybrid intelligence) and employees’ organizational commitment ($P = 0.012$, $P = 0.013$, $P = 0.004$).

Table 8. The effect of managers’ cultural, moral and spiritual intelligence as constituents dimensions of ideal hybrid intelligence on the organizational commitment of employees

Variable	Regression Coefficient (B)	Standard Deviation Error	Standardized Regression Coefficient (β)	T statistic	P-Value
Spiritual intelligence	0.17	0.14	0.18	1.21	0.02
Cultural intelligence	0.1	0.24	0.4	0.42	0.035
Moral intelligence	0.27	0.16	0.3	1.69	0.04

$R^2 = 0.52$

Regarding table 8, results of the regression analysis showed that spiritual, cultural and moral intelligence (as constituents dimensions of ideal hybrid intelligence) affect employees’ organizational commitment significantly with an intensity

of 0.18, 0.4, and 0.3 respectively. Also, managers’ ideal hybrid intelligence affected employees’ organizational commitment with an intensity of 0.52 when the other variables were fixed.

Discussion

The findings showed that the mean of the constituents dimensions of ideal intelligence (that is, spiritual, cultural and moral intelligence) of the Vice Chancellors' Headquarters managers in Tehran University of Medical Sciences (TUMS) was higher than expected. Some studies that have reported high scores of spiritual intelligence include: Karimi et al. among 250 nurse directors in Mashhad teaching hospitals in Iran, Malik and Tariq among 300 bank managers in Malaysia, and Haj Ali et al. among Muslim managers in Malaysia (39 - 41), and Soebyakto and Ming (42). All the above-mentioned studies confirm the current study results. On the other hand, the following studies reported cultural intelligence scores that were over medium or desirable level, which also confirms the current study results: Ahmadi et al. among Iranian healthcare organizations managers, and Rahmanzadeh et al. among Fars News Agency managers, and Ahmadi et al. (43, 44).

Some studies that have reported desirable levels of moral intelligence among managers and thus confirm the results of the current study are: Bahrami et al. among faculty members and staff of Schools of Public Health and Allied Health Medicine (45), Hosseini et al. among the managers of an industrial company in Iran (46), and Motlaghi et al. among Islamic Azad University, Tabriz Branch physical education experts (47). Moreover, it was observed that the mean of the ideal hybrid intelligence of TUMS Vice Chancellors'

Headquarters managers was at a desirable level. This was similar to the findings of Dargahi and Veysi et al. (2020) who had reported a desirable level of hybrid intelligence in TUMS managers (48).

The current study results showed that the mean of organizational commitment among the Vice Chancellors' Headquarters employees of Tehran University of Medical Sciences was at a desirable level. Moreover, the status of organizational commitment was average to desirable in a study by Dargahi and Sadat Tehrani (2012) on the Vice Chancellors' Headquarters employees of Tehran University of Medical Sciences (49), and a re-study by Rajabnezhad et al. (2017) (50). In addition, Raadabadi et al. reported an average level of organizational commitment among Tehran University of Medical Sciences employees in 2017 (51). However, Dargahi and Morshedi found the organizational commitment of the nurses employed in hospitals of Tehran University of Medical Sciences to be moderately desirable (52). This seems that the organizational commitment level of employees has been relatively stable in this university in recent years.

Other findings of this study showed that there was no significant relationship between the spiritual, cultural and moral intelligence as constituents dimensions of ideal hybrid intelligence, and managers' academic degree, age and work experiences ($P > 0.05$). Rajabnezhad et al. did not report any significant relationship between TUMS managers' spiritual intelligence and academic degree (50). However, Dargahi et al. (53) and Dargahi and Sadat Tehrani (49)

reported a significant and negative relationship between spiritual intelligence and academic degree. The difference in the relationship between spiritual intelligence and the academic degree of TUMS managers may be due to the time of research and type of population studied.

The results of this research showed a higher rate of cultural intelligence in men than women. A study by Ahmadi et al. on the managers of healthcare organizations, as well as a study by Hosseini Nassab and Ghaderi and Templer et al. showed no significant relationship between cultural intelligence and gender or age (43, 54, 55). No adaptable positive relationship can be observed between cultural intelligence and gender among employees in Iran or other countries because of the higher presence of men in managerial positions especially in cultural domains, and the differences in the cultural conditions of various countries.

Dargahi and Sadat Tehrani stated there was a significant relationship between the moral intelligence of managers and their gender. They found that moral intelligence was higher in male managers (49), which is in line with the results of this study.

In the current study, there was no significant relationship between organizational commitment and gender and age among the Vice Chancellors' Headquarters employees. However, a significant relationship was found between their organizational commitment and education level and work experience. Results of studies by Rajabnezhad et al. (2017), Yaghoubi et al.

(2010) and Delgoshaei et al. (2008) showed no significant relationship between employees' organizational commitment and their age, gender and education level (50, 56, 57). Incompatibilities between the results of various studies may be due to differences in populations and research times.

Findings about the correlation between ideal hybrid intelligence and its different constituents dimensions indicated a significant relationship among these dimensions ($P < 0.001$). A study by Fawcett et al. on 500 companies showed that managers' spiritual intelligence and the organizations' spiritual environment affect the organizational culture of companies (58). Also, Graham et al. stated that cultural intelligence can affect organizational values, and managers' judgments and moral intelligence (59).

Poursoltani et al. showed that algorithms of measurement's model of all the indicators of spiritual intelligence and cultural intelligence had been approved and was in acceptable level (60). Similarly, Faghihi Aram et al. found a direct and meaningful relationship between cultural intelligence and spiritual intelligence (61). Bahrami et al. also confirmed the relationship between spiritual intelligence and cultural intelligence among the nurses of Birjand teaching hospitals (62). Other studies that have reported a significant relationship between spiritual and moral intelligence as dimensions of ideal hybrid intelligence include: Sotoodeh et al. among nurses of Bojnourd hospitals in North-East of Iran (63), Asgari Sharabjani et al. among senior

high school students in Bostanabad among Ministry of Petroleum employees (64), and Golipour et al. among emergency response volunteers in Tehran, Iran (65). A positive correlation was found between moral intelligence and cultural intelligence among the women of west Islam Abad in Kermanshah Province and among the employees of a public organization in Tehran (66). Also, Presbitero and Teng-Calleja found that moral intelligence strengthens cultural intelligence (67).

According to Dargahi et al., in the present century, hybrid managerial intelligence is needed to direct organizations (48). Also, Mosadeghrad and Abbasi Wrote that managers performance manly depends on their intelligence. Managerial hybrid intelligence is vital for hospital managers' success. They also reported a meaningful statistical correlation was observed between intelligence quotient and emotional intelligence and political intelligence as constituents of hybrid intelligence (68). Dale believed that when joined with other types of intelligence, emotional intelligence plays a key role in solving problems at the time of climate change and geopolitical conflict (69). The present study demonstrated the relationship among all constituents dimensions of ideal hybrid intelligence, which has also been confirmed by other studies.

In this study, a significant relationship was found between cultural intelligence as a constituent dimension of ideal hybrid intelligence and organizational commitment. Dolatshah and Ghorban Hosseini in Arman

Financial Institute in Tehran and Rockstuhl et al. in a sample of 126 Swiss military officers defined cultural intelligence as a constituent dimension of hybrid intelligence was a strong predictor of organizational commitment and leadership effectiveness (70 , 71), which is in line with the results of this study. Aebdeen et al. in their study in Lahore and Renala Khurd (Pinjab) in Pakistan on banking sector employees, Chun et al. in their study on 3821 employees of 130 companies in Korea, and Clandia et al. stated that moral intelligence was correlated with organizational commitment (72 , 73). Moreover, Parandeh et al. emphasized that spiritual intelligence had a vital effect on employees' organizational commitment (74). It can therefore be concluded that the findings of the above studies are in line with current study results, that is to say, a combination of cultural, moral and spiritual intelligence as ideal hybrid intelligence affects organizational commitment in employees (75).

Finally, the results of this study showed that there was a significant relationship between cultural, moral and spiritual intelligence as constituents dimensions of ideal hybrid intelligence and employees' organizational commitment. Sternberg, Mirdamadi and Rezaeian, and also Sagharvani and Zabihi found that there was a relationship between hybrid intelligence and organizational commitment, which is compatible with our results (20 - 22). Therefore, different dimensions or components of intelligence need to be developed in managers so that they can achieve individual, organizational

and managerial success (48, 68).

Moreover, the results of the current study showed that when the other variables were fixed, managers' ideal hybrid intelligence including cultural, moral and spiritual intelligence affected employees' organizational commitment with an intensity of 0.52. Dargahi et al. showed that there was a significant relationship between hybrid intelligence in managers of clinical laboratories and transformational leadership, management skills, moral considerations, and other job variables such as organizational commitment and job satisfaction (53).

Despite advantages such as its new features and examination of many variables, the present study had some limitations. First, it was conducted using the self-assessment procedure. Second, it was a cross-sectional study, and it is likely that the results will be different if it is done at another time. Third, it was performed on the Vice Chancellors' Headquarters managers and employees of Tehran University of Medical Sciences, and therefore the findings cannot be generalized to the whole country.

Conclusion

The results of the present study have different aspects in terms of conclusion. First, considering the remarkable developments and numerous changes in organizational culture and environment in the present century, managing organizations relies on the use of a new model called ideal hybrid intelligence; this is made of different

constituents dimensions including spiritual, cultural and moral intelligence, which are all essential to the development of employees' organizational commitment. Existence of all these various dimensions constitute ideal hybrid intelligence, which will give managers capabilities and capacities that will enable them to improve employees' organizational commitment and work ethics. Some measures that may facilitate the process include: testing ideal hybrid intelligence at the time of employment; socialized training and on the job training of managers to be appointed in different managerial positions; evaluating managers' ideal hybrid intelligence at different times; and establishment of empowerment trainings. However, we found that managers' ideal hybrid intelligence may affect employees' organizational commitment with an intensity of approximately 52%. This shows that employees' organizational commitment may influence other forms of intelligence, including emotional quotient (EQ), political quotient (PQ), intelligence quotient (IQ) and other organizational variables. However, intelligence is just one of the factors that determine managers' meritocracy when selecting and appointing them to managerial levels and positions.

Acknowledgements

The authors of this article sincerely appreciate the help and collaboration of all Vice Chancellors' Headquarters managers and employees of Tehran University of Medical Sciences in this research. This

article is based on the results of a research plan under the ethical code IR.TUMS.VCR.REC.1396.3689 sponsored by the Deputy of Research and Technology

of Tehran University of Medical Sciences. The authors of this article state that they have no conflict of interests in writing and publishing this article.

References

1. Kermanshahi S, Rouhanizadeh B, Govan P. Developing management policies and analyzing impact of change orders on labor productivity in construction projects. *Journal of Engineering, Design and Technology*. 2021. Doi: 10.1108/JEDT-10-2020-0428.
2. Wahid N, Warraich NF, Tahira M. Factors influencing scholarly publication productivity: a systematic review. *Information Discovery and Delivery*. 2021. Doi: 10.1108/IDD-04-2020-0036.
3. Westover JH, Westover AR, Westover LA. Enhancing long-term work productivity and performance. *International Journal of Productivity and Performance Management*. 2010; 59(4): 327-87.
4. Singhal TK, Gang B, Saxena D. Organizational productivity through emotional intelligence. *The Journal of Management Awareness*. 2014; 17(1): 47-55.
5. Nohar Al-Rfou A. Competition and organizational performance: empirical evidence from Jordanian firms. *Journal of Economics*. 2012; 3(1): 13-17.
6. Boyne CA, Meier KJ. Environmental change, human resources, and organizational turnaround. *Journal of Management Studies*. 2009; 46(5): 835-63.
7. Humphreys J, Brunsen B, Davis D. Emotional structure and commitment: implications for health care management. *J Health Organ Manag*. 2005; 19(2): 120-29.
8. Meyer JP, Allen NJ. A three-component conceptualization of organizational commitment. *Human Resource Management Review*. 1991; 1(1): 61-89.
9. Bhatti KK, Nawab S, Akbar A. Effect of direct participation on organizational commitment. *International Journal of Business and Social Science*. 2011; 2(9): 15-23.
10. Lines R. Influence of participation in strategic change: resistance, organizational commitment and change goal achievement. *Journal of Change Management*. 2004; 4(3): 193-215.
11. Imran A, Rehman KU, Ali SI, Zia M. Corporate social responsibility influences employee commitment and organizational performance. *African Journal of Business Management*. 2010; 4(12): 2796-801.
12. Salami SO. Demographic and psychological factors predicting organizational commitment among industrial workers. *Anthropologist*. 2008; 10(1): 31-8
13. Sanagoo A, Nikraves M, Dabbaghi F. Organizational commitment from nursing & midwifery faculty members' perspective. *Razi Journal Medical Science*. 2006; 13(52): 83-92. [in Persian]
14. Yousef DA. Organizational commitment, job satisfaction and attitudes toward organizational change. *International Journal of Public Administration*. 2016; 40(1): 77-88.
15. Johnson LK. *Handbook of Intelligence Studies*, 1STed. England: Routledge; 2007.
16. Ryan J. *Using Emotional Intelligence to Become Your Ideal Self*. USA: iUniverse; 2005.
17. Lomov BF, Venda VF. Human factors: problems of adapting systems for the interaction of information to the individual: the theory of hybrid intelligence. *Proceeding the Human Factors and Ergonomics Society Annual Meeting*. 1977; 21(1): 1-9.
18. Sternberg RJ, Kanfman JC. *The Evolution of Intelligence*. England; Springer; 2016, p. 74-80.
19. Goleman D. *Emotional Intelligence: What It Can Matter Than IQ*, 10th Anniversary ed. USA: Random House Publishing Group, 2005.
20. Sternberg R, Grigorenko E, Bundy DA, Palmer M. The practice value of IQ. *Merrill-Palmer Quarterly*. 2001; 47(1): 1-41.
21. Rezaeian A, Keshtehgar AAA. The relationship between emotional intelligence and organizational commitment. *Journal of Business Management Perspective*. 2008; 8(27): 27-39. [in Persian]

22. Zabihi MR, Saghravani S. The relationship between spiritual intelligence and organizational commitment in Khorasan Razavi Gas Company. *Journal of Future Studies Management*. 2011; 24(99): 31-40. [in Persian]
23. Prezerakos PE. Nurse Managers' emotional intelligence and effective leadership: a review of the current evidence. *Open Nurs*. 2018; 12: 86-92.
24. Goncalves G, Reis M, Sousa C, Santos J. Cultural intelligence and conflict management styles. *International Journal of organizational Analysis*. 2016; 24(4): 725-42.
25. Rathmell A. Towards postmodern intelligence. *Intelligence and National Security*. 2002; 17(3): 87-104.
26. Karimi F. Relationship between spiritual intelligence and job satisfaction among female high school teachers. *Educational Research and Reviews*. 2015; 10(6): 739-43.
27. Bahrami MA, Asami M, Fatehpanah A, Dehghani Tafti A, Ahmadi Tehrani G. Moral intelligence status of the faculty members and staff of the Shahid Sadoughi University of Medical Sciences of Yazd. *IJME*. 2012; 5(6): 81-95. [in Persian]
28. Mc Gregor SLT. *Consumer Moral Leadership*. Canada: Sense Publishers; 2010, p. 3-8.
29. Waskitho NT, Arif SS, Maksum M, Susanto S. Study on amortization in irrigation system management using knowledge management approach. *Proceedings of the Third International Conference on Mathematics and Natural Sciences*; 2010; Bandung, Indonesia; Bogor Agricultural University; 2010.
30. Van Dyne LNA, Ang S, Yee Ng K, Rockstuhl T, Tan ML, Koh C. Sub-dimensions of the four-model factor of cultural intelligence: expanding the conceptualization and measurement of cultural intelligence. *Social and Personality Psychology Compass*. 2012; 6(4): 293-313.
31. Lennick D, Kiel F. *Moral Intelligence, Enhancing Business Performance and Leadership Success*. USA: Wharton School Publishing; 2011, p. 13-20.
32. Martin DE, Austin B. Validation of moral competency inventory measurement instrument: content, construct, convergent and discriminant approaches. *Management Research Review*. 2010; 33(5): 437-51.
33. Arasteh H, Azizi Shamami M, Jafar-Rad A, Mohammadi Jahromi N. A study of ethical intelligence of students. [Rahbord Farhang]. 2010; 3(10-11): 201-14. [in Persian]
34. Raisi M, Ahmari Tehrani H, Bakouei S, Jafarbegloo M, Momenian S, Abedini Z. Evaluation of moral intelligence in nursing and midwifery students of Qom University of Medical Sciences. *Education and Ethics in Nursing*. 2016; 5(3): 9-16. [in Persian]
35. Nasiri Valikbani F, Abdolmaleki S, Sarchahani Z. The relationship between moral intelligence and organizational development: mediating role of organizational intelligence. *Ethics in Science and Technology*. 2018; 13(3): 31-9. [in Persian]
36. King DB, DeCicco TL. A viable model and self-report measure of spiritual intelligence. *International Journal of Transpersonal Studies*. 2009; 28(1): 68-85.
37. Ahmadi M, Izadi A, Poormansouri S, Sedighie L, Estebsari F, Zarea K. Relationship between nursing students' professional competence in spiritual care and spiritual intelligence. *Avicenna Journal of Nursing and Midwifery Care (Scientific Journal of Hamadan Nursing and Midwifery Faculty)*. 2018; 25(5): 189-99. [in Persian]
38. Dadras F, Nouhi E. Relationship between professional ethics and spiritual intelligence of medical students of Kerman University of Medical Sciences. *IJME*. 2019; 12(1): 338-48. [in Persian]
39. Karimi-Moonaghi H, Gozerani A, Vaghee S, Gholami S, Saleh Moghaddam AR, Gharibnazar R. The relationship between spiritual intelligence and clinical competency of nurses. *Iran J Nurs Midwifery Res*. 2015; 20(6): 665-69.

40. Malik MS, Tariq S. Impact of spiritual intelligence on organizational performance. *International Review of Management and Marketing*. 2016; 6(2): 289-97.
41. Haji Ali J, Bemby B, Sentosa I. The intelligence, emotional, spiritual quotients and quality of managers. *Global Journal of Management and Business*. 2013; 13(3-A): 1-11.
42. Soebyakto B, Ming C. An empirical testing of intelligence, emotional and spiritual quotients quality of managers using structural equation modeling. *International Journal of Independent Research and Studies*. 2012; 1(1): 1-12.
43. Ahmadi SAA, Safarzadeh H, Hoozouri MJ, Dehnavi F. The role of cultural intelligence of managers on employees' conflict resolution ability. *Social Cognition*. 2013; 2(1): 101-16. [in Persian]
44. Rahmazadeh SA, Kavousi E, Karbalaei H. Relationship between cultural intelligence of provincial managers and promotions of personnel involvement in capital cities (case study: Fars news agency cultural institute). *Media Studies*. 2013; 7(19): 121-31. [in Persian]
45. Bahrami MA, Asami M, Fatehpanah A, Dehghani Tafti A, Ahmadi Tehrani G. Moral intelligence status of the faculty members and staff of the Shahid Sadoughi University of Medical Sciences of Yazd. *IJME*. 2012; 5(6): 81-95. [in Persian]
46. Hosseini SA, Khalili H, Nezamipour B. The effect of managers' moral intelligence on business performance. *International Journal of Organizational Leadership*. 2013; (2): 62-71.
47. Motlaghi M, Janani H, Rohani Z, Mottaghi S. The relationship between the leadership styles and moral intelligence. *Bulletin of Environment, Pharmacology and Life Science*. 2014; 3(11): 429-33.
48. Dargahi H, Veysi F. Investigation of relationship between hybrid quotient and employees' organizational commitment in staff departments of Tehran University of Medical Sciences. *Journal of Healthcare Management*. 2020; 11(35): 100-11. [in Persian]
49. Dargahi H, Sadat Tehrani SG. The relationship between management ethics and organizational commitment among employees of Tehran University of Medical Sciences. *IJME*. 2014; 7(1): 43-52. [in Persian]
50. Rajabnezhad Z, Dargahi H, Reshadatjo H. The relationship between spiritual quotient of managers with organizational commitment of staffs in Tehran University of Medical Sciences. *Payavard*. 2017; 11(3): 308-17. [in Persian]
51. Raadabadi M, Mojbfan A, Rajabi Vasokolaei GH, Dargahi H. The relationship of organizational commitment and political behavior tendency among the employees of Tehran University of Medical Sciences. *Asian Social Sciences*. 2015; 11(21): 62-70.
52. Dargahi H, Morshedi Torabi M. The relationship of organizational citizenship behaviour with job satisfaction and organizational commitment of nurses among public hospitals of Tehran University of Medical Sciences. *Manage Start Health Syst*. 2017; 2(3): 234-46. [in Persian]
53. Dargahi H, Rahmani H, Bigdeli Z, Javadi Ghale E. Managerial quotient: a systematic review among managers of Tehran University of Medical Sciences. *American Journal of Industrial and Business Management*. 2016; 6(4): 467-79.
54. Hosseini Nasab SD, Ghaderi W. A study of relationship between cultural intelligence and the Shahed School principles' productivity in West Azerbaijan province. (Journal of Instruction and Evaluation) *Journal of Educational of Sciences*. 2011; 4(13): 27-43. [in Persian]
55. Templer KJ, Tay C, Chandrasekar A. Motivational cultural intelligence, realistic job preview, realistic living conditions preview, and cross-cultural adjustment. *Group and Organization Management*. 2006; 31(1): 154-173.
56. Yaghoubi M, Yarmohammadin MH, Javadi M. Organizational commitment and job stress at Isfahan University of Medical Sciences teaching hospitals managers. *Journal of Health Administration*. 2008; 11(33): 63-68. [in Persian]

57. Delgoshaei B, Toufighi SH, Kermani B. Relationship between organizational climate and organizational commitment among Iran University of Medical Sciences teaching hospitals. [Ofogh Danesh]. 2009; 15(1): 60-68. [in Persian]
58. Fawcett SE, Brau JC, Rhoads GK, Whitlark D, Fawcett AM. Spirituality and organizational culture: cultivating the ABCs of an inspiring workplace. *International Journal of Public Administration*. 2008; 31(4): 420-38.
59. Graham J, Meindl P, Beal E, Johnson KM. Cultural differences in moral judgement and behavior, across and within societies. *Current Opinion in Psychology*. 2016; 8: 125-30.
60. Poursoltani Zarandi H, Mirzaee F, Zareian H. The relationship between spiritual intelligence and cultural intelligence with productivity of sport science and research center personnel. *Journal of Sport Management Review*. 2014; 5(20): 15-36. [in Persian]
61. Faghih Aram B, Moradi S, Kazemi M. The relationship between cultural intelligence and spiritual intelligence with student social identity. *Educational Science From Islamic Point of View*. 2018; 6(11): 129-50. [in Persian]
62. Bahrami M, Binayian S, Binayian H, Sharifzadeh G, Mehri M. The relationship between spiritual and cultural intelligence with occupational conflict in nurses. *Journal of Nursing Education*. 2020; 8(6): 48-56. [in Persian]
63. Sotoodeh H, Shakernia I, Kheyraati M, Dargahi SH, Ghasemi Jobneh R. Surveying the relationship between spiritual and moral intelligence and the psychological well – being nurses. *IJME*. 2016; 9(1): 63-73. [in Persian]
64. Asghari Sharabjani A, Kazemi N, Mousavi SV. The role of personality trait in predicting the spiritual intelligence of senior high school students in Bostanabad. *Journal of Research on Religion and Health*. 2019; 4(5): 67-76. [in Persian]
65. Golipour S, Haghighat S, Manavipour D. The relationship between spiritual and moral intelligence with the meaning of life among the volunteers of emergent reaction. *The Neuroscience Journal of Shefaye Khatam*. 2014; 2(4): 20-29. [in Persian]
66. Nadi M, Akbari F, Mohammad Hosseinian Arash. The relationship between cultural intelligence and professional ethics. *Ethics in Science and Technology*. 2019; 14(2): 150-1. [in Persian]
67. Presbitero A, Calleja M. Ethical leadership, team leader's cultural intelligence and ethical behavior of team members: implications for managing human resources in global teams. *Personnel Review*. 2019; 48(5): 1381-92.
68. Mosadeghrad AM, Abbasi M. Managerial intelligence of hospital managers of hospital managers in Sari, Iran. *Manage Strat Health Syst*. 2020; 4(4): 281-94. [in Persian]
69. Dale R. The era of AI-human hybrid intelligence. [cited on July 2021]; <https://techcrunch.com/2016/04/12/the-era-of-ai-human-hybrid-intelligence/>
70. Dolatshah A, Ghorban Hosseini M. The relationship between cultural intelligence and organizational commitment and burnout among employees of Arman Financial Institute. *European Online Journal of Natural and Social Science Proceedings*. [cited on July 2021]; https://european-science.com/eojnss_proc/article/view/4338
71. Rockstuhl T, Seiler S, Ang S, Dyne LV, Annen H. Beyond general intelligence (IQ) and emotional intelligence (EQ): The role of cultural intelligence (CQ) on cross-border leadership effectiveness in a globalized world. *Journal of Social Issues*. 2011; 67(4): 825-40.
72. Aebdeen Z, Nazar khan M, Mehmood khan HG, Farooq HQ, Salman M, Rizwan M. The impact of ethical leadership, leadership effectiveness, work related stress and turnover intention on the organizational commitment. *International Journal of Economics and Business Administration*. 2016; 2(2): 7-14.

73. Chun JS, Shin Y, Nam C, See Kin M. How does corporate ethics contribute to firm financial performance? The mediating role of collective organizational commitment and organizational citizenship behavior. *Journal of Management*. 2011; 39(4): 853-77.
74. Parandeh A, Ezadi A, Ebadi A, Ghanbari M. Relationship between spiritual intelligence and organizational commitment in nurse-managers in military hospital. *Journal of Military Psychology*. 2011; 2(6): 69-78. [in Persian]
75. Mamade C, Riberio N, Gomes DR, Rego A. Leader's moral intelligence and employee's affective commitment: the mediating role of transformational leadership. [cited on July 2021]; <https://iconline.ipleiria.pt/handle/10400.8/3678?locale=en>