

Research Paper

The Relationship Between Nurses' Work Effectiveness and Work Engagement

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ABSTRACT

Background: Nurses significantly contribute to the healthcare system, constituting the highest number of healthcare staff. A positive attitude or mindset at work increases the ability to carry out the organization's duties, tasks, and plans. This study investigates the relationship between work effectiveness and work engagement of nurses in the selected hospitals affiliated with Iran University of Medical Sciences (IUMS), Tehran City, Iran, in 2021.

Methods: This descriptive cross-sectional study has employed a correlational design. A total of 255 nurses working in selected hospitals affiliated with IUMS were recruited through proportionate stratified sampling. The study data were collected using the utrecht work engagement scale (UWES) and conditions for work effectiveness questionnaire II (CWEQ-II). Statistical analyses involved descriptive statistics, the independent t-test, analysis of variance, the Pearson correlation, and regression in SPSS software, version 22. The significance level was set at $P < 0.05$.

Results: The Mean \pm SD work effectiveness among nurses was found to be 37.31 \pm 7.41, indicating their medium-to-high work effectiveness. Also, their Mean \pm SD work engagement was 68.96 \pm 15.48, indicating the high work engagement of nurses. There was also a significant positive relationship ($r=0.656$, $P < 0.001$) between the total work effectiveness score and work engagement. The results showed that the "support" dimension of work effectiveness exhibited the highest correlation with work engagement ($r=0.606$, $P < 0.001$). Also, the "absorption by work" dimension of work engagement had the highest correlation with work effectiveness ($r=0.653$, $P < 0.001$).

Conclusion: According to the study results, increasing the work effectiveness of nurses necessitates the creation of a positive attitude and perspective through managerial actions.

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Highlights

- Cultivating a positive mindset at work can increase the ability to perform organizational tasks, duties, and programs.
- Our findings indicated a positive and significant association between work effectiveness and work engagement.
- The dimension of “support” within work effectiveness exhibited the highest correlation with work engagement.
- The “absorption by work” dimension within work engagement had the highest correlation with work effectiveness.

Plain Language Summary

Nurses constitute the largest healthcare staff and play an essential role in caring for patients. Maintaining a positive mental state and a good attitude can help the organization perform tasks and programs better. This study explored the relationship between work effectiveness and work engagement of nurses in the selected hospitals affiliated with Iran University of Medical Sciences (IUMS), Tehran City, Iran, in 2021. The results indicated a positive and significant correlation between work effectiveness and work engagement, indicating that nurses’ work effectiveness increases with increasing work engagement. The “Support” dimension of work effectiveness had the highest correlation with work engagement. Also, the “absorption by work” dimension of work engagement had the highest correlation with work effectiveness.

1. Introduction

Nurses play an essential role in the healthcare system; they constitute the largest number of healthcare personnel. Nurses adopt a holistic approach to delivering care to human beings, attending to the patient’s biological, psychological, and social aspects, from acute emergency care to end-of-life palliative care. Among healthcare workers, nurses are the specialists who dedicate a substantial amount of time to patient care, making them the largest professional group in this system (García-Sierra et al., 2018). By involving nurses in decision-making and delegating authority, nursing managers can significantly empower nurses, create work motivation, increase job satisfaction, reduce tension, and improve healthcare team performance (Bikmoradi et al., 2016).

Generally, in developing countries, hospitals bear the bulk of healthcare costs. On the one hand, they allocate a significant share of the healthcare system budget (60%-80%); on the other hand, they house the largest number of educated personnel. However, in developed countries, the share of hospital costs from the healthcare department in the public sector is almost half (up to 40%). Since human resources costs such as salaries and benefits constitute a considerable part of hospital costs, successfully managing these resources is very important to improve the quality of care and optimize human resources’ productivity (efficiency and effectiveness). The

quality of care nurses provide is related to many factors and can be measured by specific methods; one of these metrics is work effectiveness (Riahi et al., 2013).

Introduced in 1980, work effectiveness serves as one of the most critical factors in business and education and an indicator for achieving organizational goals. The concept deals with issues such as the organization’s ability to access and attract resources (Al-Shaiba et al., 2019). The significance of work effectiveness as one of the most critical issues in public and private management sectors has surged and become managers’ main concern and the ultimate objective of successful management theories in recent years (Tahsildari & Shahnaei, 2015).

Different dimensions of work effectiveness can be achieved through 4 components. First, people must have access to opportunities and prospects to learn and grow in the organization. The second component is access to resources, so people use the financial resources and supplies needed to do the work. Third, access to official and unofficial information is required to increase work effectiveness in the workplace. Finally, support, feedback, and guidance must be received from subordinates, peers, and superiors (Laschinger & Finegan, 2005). A study in Mashhad hospitals in Iran showed that the nurses’ work effectiveness was below the average, and there was a significant, direct relationship between nurses’ work effectiveness and their job satisfaction (Bonyad Karizme et al., 2016).

Work engagement as an attitude is an important concept that seems to help increase work effectiveness. [Lodahl and Kejner \(1965\)](#) introduced “work engagement” as conditions where work values become part of personal life. Work engagement refers to how much a person emotionally and psychologically identifies with involved work and participates in decision-making. The concept includes how employees perceive their work, work environment, and personal life intermingling. Notably, low work engagement leads to disconnection from work and organization, aimlessness, and separation between employees’ lives and work ([Darhult & Sandberg, 2018](#)). Conversely, high work engagement is characterized by a sense of meaningfulness, enthusiasm, pride, absorption by work, and pleasant feelings towards work. In this situation, people become attached to their work ([Schaufeli & Salanova, 2011](#)).

Work engagement as a positive mental state to execute and complete work has 3 dimensions: Vigor, reflecting high levels of energy and mental resilience while working; devotion, indicating a deep attachment to work and a sense of importance in work; and absorption, signifying full concentration and engrossment in one’s work with satisfaction and joy ([Schaufeli et al., 2002](#)). In addition, the structural empowerment of nurses by increasing their engagement has a direct and positive effect on their effectiveness ([García-Sierra et al., 2018](#)).

No research specifically examined the relationship between these two concepts in Iran. Given this gap and considering the different working conditions of Iranian nurses and the different structures of the countries’ health systems that can affect these concepts, it becomes necessary to conduct this research to determine the relationship between work effectiveness and work engagement of nurses.

2. Materials and Methods

This descriptive cross-sectional study adopted a correlational design. The study population comprised nurses working in selected hospitals ([Hazrat Rasool Akram \[PBUH\]](#), [Firozgar](#), [Shahid Hasheminejad](#), and [Shohadaye Hafte Tir](#)) affiliated with [Iran University of Medical Sciences \(IUMS\)](#), Tehran City, Iran, in 2021. The inclusion criteria were as follows: At least one year of work experience, having a bachelor’s degree or higher in nursing, and consent to participate in the study. Nurses who failed to complete all sections of the questionnaires were excluded.

The required sample size was estimated at 200, considering the confidence level of 95%, the test power of 80%, and the correlation coefficient between work effectiveness and work engagement of 0.2 (statistically significant). Anticipating a 20% dropout, the final sample size was adjusted to 255 people.

The subjects were recruited by proportionate stratified sampling. Thus, according to the number of nurses working in each hospital, a specific sample size was assigned, and then the sampling continued until reaching the determined sample size. The online questionnaire link was provided to the nurses to collect the data, and they were asked to complete it. Data collection spanned from July to September 2021.

Research instruments

The data were collected using a demographic information questionnaire, the Utrecht work engagement scale (UWES) by [Schaufeli et al. \(2002\)](#), and the conditions for work effectiveness questionnaire II (CWEQ-II) by [Laschinger et al. \(2001\)](#).

The demographic information questionnaire included gender, marital status, age, level of education, work experience, type of employment, name of workplace hospital, working department, having another job, and overtime work.

UWES scale was devised by [Schaufeli et al. \(2002\)](#) with 17 items grouped into 3 components: Enthusiasm at work (items 1-6), dedication to work (items 7-11), and absorption by work (items 12-17). This self-report scale is scored on a 7-point Likert scale (from 0 never to 6=always). The total score ranges from 0 to 102 and indicates the level of work engagement. Scores above the midpoint (51) indicate high work engagement and scores below the midpoint are considered low work engagement ([Schaufeli et al., 2002](#)). The Cronbach α coefficients (from 0.83 to 0.89) confirmed the reliability of the dimensions of the Persian version of the scale. The repeatability of the Persian version of the scale has also been confirmed by test re-test ($r=0.91$) ([Molaey et al., 2014](#)). The reliability of the Persian version has also been confirmed in a study by [Seyyednagavi and Safari \(2018\)](#). In the current study, the Cronbach α of the whole scale was 0.896, and the correlation coefficient of its dimensions was 0.978.

CWEQ-II was developed based on the theory of work effectiveness, which resulted from an initial ethnographic study (Kanter, 1977). The instrument was finally developed by Laschinger et al. in 1996. The current CWEQ-II is a modification developed by Laschinger et al. in 2001. It consists of 12 items to examine the nurses' work effectiveness in 4 dimensions. The first 3 items assess the opportunity dimension, the second 3 items are related to information, the third 3 items are related to support, and the fourth 3 items assess the resources at the workplace. These items are rated on a 5-point Likert scale from "very low" (1) to "very high" (5). Higher scores indicate more perceived work effectiveness at the workplace. The total score of the questionnaire ranges from 12 to 60. The scores higher than the determined midpoint of 36 suggest high effectiveness, and those lower than the midpoint indicate low effectiveness (Spence Laschinger et al., 2001).

In a Portuguese adaptation of the questionnaire, the validity and reliability of CWEQ-II were confirmed. The related Cronbach α coefficients for opportunity, information, support, and resources subscales were 0.85, 0.91, 0.89, and 0.70, respectively. The whole CWEQ-II reliability was 0.98 (Orgambidez-Ramos et al., 2015). After conducting a standard forward-back translation procedure, the questionnaire's psychometric properties were confirmed by face, content, and construct validities. The internal consistency reliability was assessed using the components' test re-test and Cronbach α values, ranging from 0.71 to 0.87, and the total scale was 0.84. The test re-test and intraclass correlation coefficients were 0.93 and 0.87, respectively, indicating its good test re-test reliability (Sadeghi-Gandomani et al., 2019). In the current study, Cronbach α coefficient was 0.783, and the correlation coefficient of the dimensions was 0.984.

Data analysis

The obtained data were analyzed using descriptive statistics, including measures of central tendency such as mean and dispersion indexes such as standard deviation. Inferential statistics included the independent t-test, ANOVA, and Pearson correlation coefficient. The Kolmogorov-Smirnov test checked the normal distribution of the data. The significance level was set at $P < 0.05$.

3. Results

Most nurses ($n=65.5\%$) were female, and their Mean \pm SD age was 34.60 ± 5.80 years. Also, 42.4% were 30-34 years old, 69.8% of the nurses were married, and 83.9 held a bachelor's degree. Nurses' Mean \pm SD work experience

was 10.11 ± 5.522 years, and 9.4% had less than 5 years of work experience. Nurses predominantly worked in the special departments (37.6%). In addition, 74.1% of the nurses did not engage in another job, and 40.8% worked overtime from 51 to 100 hours (Tables 1 and 2).

Table 3 indicates that the nurses' work effectiveness bears the highest score in the opportunity dimension, with an average of 10.96, and the lowest score in the information dimension, with an average of 8.65. The nurses' Mean \pm SD total work effectiveness score was 37.31 ± 7.41 , close to the instrument's midpoint, i.e. 36.

According to Table 4, work engagement takes the highest score in the dimension of enthusiasm, with an average of 24.32, and the lowest score in the dimension of dedication to work, with a mean of 20.56. The mean score of total work engagement was 68.96, which is higher than the midpoint of 51, indicating the high work effectiveness of the nurses.

Table 5 reveals a positive relationship between all dimensions of work effectiveness and all dimensions of work engagement ($P < 0.001$), meaning that with increasing work engagement dimensions, work effectiveness dimensions also increase. Total work engagement and work effectiveness also had a statistically positive and significant correlation ($P < 0.001$).

The results indicated a significant relationship between the nurses' age and work effectiveness ($P=0.016$). There were also significant relationships between the nurses' age ($P=0.001$), work experience ($P=0.01$), and work department ($P=0.001$) and their work engagement.

4. Discussion

This study explored the relationship between nurses' work effectiveness and work engagement in selected IUMS hospitals in 2022. The results showed that the average work effectiveness of nurses was 37.31, indicating their medium-to-high work effectiveness. The results of the study by García et al. (2018) showed that the work effectiveness of nurses working in Spanish healthcare centers was high, with an average of 36.12. The organizational effectiveness of nurses got a high score in a study by Jafari et al. (2018). Since work effectiveness is a part of organizational effectiveness, the outcome is consistent with the results of the present study. In another study that assessed the work effectiveness of nurses using CWEQ-II, 90% of nurses had an average level of work effectiveness, and only 6% had high work effectiveness (Teixeira & Barbieri-Figueiredo, 2015).

Table 1. Personal characteristics of the nurses

Personal Information		No. (%) / Mean \pm SD / Min-Max
Gender	Male	88(34.5)
	Female	167(65.5)
	Total	255(100)
Age (y)	25-29	39(15.3)
	30-34	108(42.4)
	35-39	57(22.4)
	≥ 40	51(20)
		34.60 \pm 5.80
Marital status	Single	77(30.2)
	Married	178(69.8)
	Total	255(100)
Education	BS	214(83.9)
	MS	38(14.9)
	PhD	3(1.2)
	Total	255(100)

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Our findings revealed that the nurses' work effectiveness was better in the "access to opportunity" dimension. Another study also showed that the highest scores of nurses were related to the dimension of "access to opportunities," which is consistent with the present study (García-Sierra & Fernández-Castro, 2018).

The results showed that the average work engagement of nurses is 68.69, indicating a high work engagement among nurses, with the dimension of "enthusiasm at work" achieving the highest mean among the other work engagement dimensions. Meanwhile, in another study, the average score of work engagement was evaluated as medium, inconsistent with the present study (Enwereuzor Ugwu & Eze, 2018). The average work engagement of nurses in a healthcare center in Spain was high (García-Sierra & Fernández-Castro, 2018), consistent with the current study. The elevated work engagement among nurses can be attributed to the nature of the nursing profession and the high sensitivity of this job (Momenpur et al., 2015). Consistent with our results, another study in Iran estimated the average work engagement of nurses as 36.18, denoting the high work engagement of nurses

(Hasani et al., 2016). However, the results of another study were indicative of medium work engagement of nurses (Saeed et al., 2015), inconsistent with our results.

The findings showed a positive and significant correlation between the total score of work effectiveness and work engagement. In addition, the structural empowerment of nurses by increasing their effectiveness directly and positively influences their engagement because structural empowerment works as a mediator between the transformational leadership of nurse managers and nurse engagement (García-Sierra & Fernández-Castro, 2018).

In their study, Jafari & colleagues (2018) concluded that servant leadership increases organizational effectiveness, improves work engagement, and facilitates realizing hospital goals. The results align with the present study since work effectiveness is a subset of organizational effectiveness. High work effectiveness helps nurses to become aware of their feelings and emotions, and in this way, they can avoid adverse effects on work. As a result, while facing the problems, their mental re-

Table 2. Occupational characteristics of the nurses

Job Characteristics	No. (%) / Mean ± SD / Min-Max	
Work experience (y)	<5	24(9.4)
	5-9	124(48.6)
	10-14	52(20.4)
	≥15	55(21.6)
	Total	255(100)
		10.11±5.526
Type of employment	Corporate	42(16.5)
	Contract	55(21.6)
	Contractual	73(28.6)
	Official	85(33.3)
	Total	255(100)
Work department	Special	96(37.6)
	General	71(27.8)
	Pediatrics	15(5.9)
	COVID-19	73(28.6)
	Total	255(100)
Having another job	No	189(74.1)
	Yes-nursing	40(15.7)
	Yes-non-nursing	26(10.2)
	Total	255(100)
Overtime (h)	No	13(5.1)
	Yes (<50)	56(22.0)
	Yes (51-100)	104(40.8)
	Yes (101-150)	56(22.0)
	Yes (>150)	26(10.2)
	Total	255(100)

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silience strengthens, and they are encouraged to increase work engagement (Han et al., 2021).

The results showed that in addition to a direct positive relationship between work effectiveness and work engagement, significant direct relationships exist among

the dimensions of these two main variables. In line with our study, another study highlighted a positive and significant correlation between structural empowerment and its components with work engagement (Bonyad Karizme et al., 2016).

Table 3. The Mean±SD of the nurses' work effectiveness and its dimensions

Work Effectiveness and Dimensions	Min	Max	Mean±SD
Opportunity	3	15	10.96±1.813
Information	3	15	8.65±2.391
Support	3	15	9.01±2.538
Resources	3	15	8.69±2.764
Total work effectiveness	16	60	37.31±7.416

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Table 4. Mean±SD of work engagement and its dimensions in nurses

Work Engagement and Dimensions	Min	Max	Mean±SD
Enthusiasm at work	0	36	24.32±5.94
Dedication to work	0	36	20.56±5.377
Absorption by work	0	36	24.08±5.97
Total work engagement	0	102	68.96±15.49

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The findings further indicate a weak association between work effectiveness and the age of the subjects, meaning that with an increase in age, work effectiveness improves. [Teixeira and colleagues \(2015\)](#) found a positive and significant correlation between work effectiveness and its dimensions with age and gender. Additionally, the findings indicated a significant relationship between the nurses' work engagement and their work department; the mean work engagement of the nurses who

worked in special departments was significantly lower than those in the General and COVID-19 departments. In addition, there were significant relationships between work engagement and the age and work experience of the nurses, so with an increase in age and work experience, work engagement also increased. [García-Sierra and colleagues \(2018\)](#) reported that the nurses' age and gender correlate positively and significantly with work engagement. Still, work experience does not affect the level of

Table 5. Correlation of work effectiveness and work engagement of the nurses

Work Effectiveness and Dimensions	Work Engagement and Dimensions			
	Enthusiasm at Work	Dedication to Work	Absorption by Work	Total Work Engagement
Opportunity	r=0.466 P<0.001	r=0.431 P<0.001	r=0.484 P<0.001	r=0.515 P<0.001
Information	r=0.378 P<0.001	r=0.430 P<0.001	r=0.482 P<0.001	r=0.480 P<0.001
Support	r=0.484 P<0.001	r=0.568 P<0.001	r=0.578 P<0.001	r=0.606 P<0.001
Resources	r=0.350 P<0.001	r=0.372 P<0.001	r=0.488 P<0.001	r=0.451 P<0.001
Total work effectiveness	r=0.532 P<0.001	r=0.577 P<0.001	r=0.653 P<0.001	r=0.656 P<0.001

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work engagement. Another study suggests that nurses' work engagement positively and significantly correlates with work experience and gender (Mostafa & Abed El-Motalib, 2020). Saeed et al. (2015) found no significant difference among nurses concerning work engagement and the work department, which is inconsistent with the current research. It seems that the support provided in the work environment and the person's commitment to the job can be related to work engagement; the study's results by Yang et al. (2014) can confirm this finding.

The fatigue and time constraints of nurses caused by caring for coronavirus patients in the workplace departments can impact the completion of the questionnaires and their answers. Thus, the questionnaires were provided to the nurses online, and they were given 3-4 days to complete the tools. In addition, this research was limited to nurses in hospitals affiliated with IUMS, so caution should be exercised in generalizing the results to other health centers. The questionnaires were completed by nurses in the form of self-assessment. In the self-reporting tool, the individual's desire to report good results is sometimes greater, which is one of the uncontrollable factors in such studies. The present study encompasses the specific limitations of cross-sectional studies, so caution should be used in interpreting the results.

5. Conclusion

There was a significant positive relationship between the total work effectiveness score and work engagement. Therefore, hospital nursing managers and officials are responsible for increasing nurses' work effectiveness and engagement by providing a suitable work environment, optimal relationships in the work environment, and other management strategies. In today's world, governments, groups, and individuals constantly monitor the health and treatment system to safeguard the most essential human resource: Health. Leadership in the treatment system is one of the critical pillars on which care outcomes are highly dependent. As the leaders of the largest treatment group, nursing managers should be aware of nurses' work effectiveness and work engagement. More reliable results on the relationship between nurses' work effectiveness and work engagement can be achieved using alternative measurement tools, especially not self-reporting tools. It is also suggested to determine the relationship between work effectiveness and other essential components, such as quality of work life, and to conduct similar studies with a larger sample size in Iranian hospitals. This research was conducted on nurses; it is suggested to conduct similar research on other treatment team members. The results of the present study can

be the first step of more comprehensive research with a larger sample or intervention studies aimed at improving the work effectiveness or work engagement of nurses.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the [Iran University of Medical Science](#) (Code: IR.IUMS.REC.1400.261). In adherence to ethical considerations, all subjects were asked to hand over their letter of informed consent, and they were told that they were entitled to leave the research if they were willing to.

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Authors' contributions

The authors equally contributed in preparation of this article.

Conflict of interest

The authors declared no conflict of interest.

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