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Investigating the Relationship between Nurses' Job Burnout and its Related Psychological Variables in Iranian Public Hospitals Using Fuzzy DEMATEL Method

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Abstract Today, nursing is one of the most stressful jobs and "job burnout" is considered as a common syndrome (resulting from stress) among nurses. Job burnout is the consequence of fatigue and workplace tensions and imposes considerable costs on health services and their employees. Considering the importance of this issue and its influence on employees' performance and productivity, the present paper aims at investigating the relationship between nurses' job burnout and its psychological variables in Iranian public hospitals. The present paper is a cross-sectional research performed through descriptive–analytical method. Research variables include quality of work life, organizational citizenship behavior, job burnout, mental health and ethics. The studied population is composed of 30 experts, authorities and head nurses in Iranian public hospitals selected by purposive sampling. Required data was collected through the questionnaire of pair comparisons and analyzed by Fuzzy DEMATEL Method. Results based on values of $(d_i + r_j)$ showed that job burnout (5.69) is the most important and organizational citizenship behavior (5.48) is the least important variable. Moreover, value of $(d_i + r_j)$ revealed that ethics (0.94) and organizational citizenship behavior (-0.87) are the most influencing and the most influenced variables, respectively. Also, obtained valued of demonstrated that job burnout plays the main role and has the strongest relationship with other variables.

Keywords: Nurses, Job Burnout, State Hospitals, Fuzzy DEMATEL Technique.

1 Introduction

Over the past decades, more attention is paid to recruiting mentally and physically healthy employees in service–educational organizations and institutions and this plays an irrefutable role in improving productivity. In fact, achieving organizational goals is highly dependent on appropriate use of human resources capacity [1]. This is of great importance in service organizations including hospitals. Meanwhile, one of the most important duties of hospital

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managers is to provide their workforce with opportunities to deliver proper services and improve their performance [2].

Furthermore, nurses compose the largest group of health care service providers and possess a considerable potential power in influencing quality of health care being provided. Nursing quality has a direct effect on efficiency and outcomes of health care system. From management point of view, nurses' competency is a significant factor ensuring quality of health care services and satisfying patients. This is considered as a critical factor in survival of hospitals in their competitive environment [3,4]. Job burnout influences employees' performance and behavior [5] and is believed to be an important mental factor affecting nurses' physical and intellectual health.

The term "job burnout" was first coined by Freudenberger in 1970s. He defined the term as a state of mental and physical fatigue resulting from job or professional life [6]. In fact, job burnout is a syndrome composed of physical and emotional fatigue leading to negative self-image, negative approach toward profession the feeling of lack of relationship with the patient while providing required care; and this may lead the individual toward mental and physical diseases [7]. As a main variables and employees' mental state, job burnout is investigated in several studies. Research proved it as a factor both influencing and influenced by other variables. Among all these influencing and being influenced variables [8, 9], however, the present paper consider four [quality of work life, organizational citizenship behavior, mental health and ethics] as variables related to job burnout.

Quality of work life has been proposed as an important issue in many organizations [including health care providing organizations] since 1970s. Although no official definition exists for this issue, but psychologists consider it as a construct concerning employees' welfare and focusing on job satisfaction [10]. Research on job burnout and quality of work life indicate a significant, reverse relationship between the two variables. Researchers [11] believe that improved quality of work life leads to a considerable reduction in burnout.

Organizational citizenship behavior refers to those role-dependent activities individuals perform beyond their responsibility expectations and job description. Such activities and behaviors have o definitions in organizational reward system but are totally useful for performance [12]. Today's organizations expect their employees to adhere to their jobs, be creative and innovative. These series of behaviors lead to enhanced organizational performance through encouraging efficient and effective organizational performance [13]. Results of Lambert (2010) demonstrate that job burnout is an important factor in promoting organizational citizenship behaviors. Moreover, they show that high level of burnout predicts and reduces such behaviors [14].

Mental health is a considerable and significant issue today. Several definitions are available for mental health. In fact, mental health means emotional – physical welfare and lack of mental disease [15]. Mental health indicators of a population are among the most important measures of that population's performance in providing its supported communities with health care services [16]. Awareness of nurses' mental health status and continual research on health care systems helps in planning and organizing available resources. A few studies on the relationship between job burnout and mental health [17] identified the relationship as significant. Findings indicate that job burnout predicts mental health.

Ethics is another effective factor on job burnout. Ethics in work has different definitions from different viewpoints. However, it is generally recognized as the "right" knowledge on "wrong" in work place and, then, doing the "right" and leaving the "wrong". In a more comprehensive definition, work ethics may be described as both a social norm and a series of characteristics in employees. As a social norm, it puts a positive value on excellent

performance and defines job as having an essential value [18]. Moreover, a short look at ethical books of previous philosophers reveals several cases in which ethics is compared to medicine so that they thought of ethics as medicine. Even some philosophers such as Zakariya al-Razi chose the name of "spiritual medicine" for his ethical book [19]. Medical ethics discusses ethical characteristics of medical practitioners (doctors, nurses, etc) and their behavior with patients [20]. Research in this area Sheikhepour et al. (2015) found a negative, significant relationship between work ethic and job burnout. This is another way of saying that ethic and its variables can predict job burnout [21].

The present paper aims at investigating the relationship between nurses' job burnout and its psychological variables in Iranian public hospitals to provide for efficient practices to enhance nurses' mental health and improve their performance if relationships between studied variables are evident.

2 Methodology

The present descriptive–analytical research was performed on Iranian public hospitals in summer 2016. Questionnaire and interview were employed tools to confirm variables and proposed model. In this context, a realized questionnaire composed of several parts was conducted and the questionnaire pertaining related variables was embedded in every part. Appropriateness of variables was evaluated using experts' opinions and final variables obtained based of collective comments.

Research population was composed of experts, head nurses and authorities of nursing status in Iranian public hospitals, sufficiently informed on the topic, who were selected through purposive sampling. Moreover, other problem-solving techniques (mathematical modeling) and Fuzzy DEMATEL Method were used.

The questionnaire of Fuzzy DEMATEL Method is that of pair comparisons for the sake of which 25 experts were interviewed in the hospital. It must be noted that a total number of 30 questionnaires were distributed (one for each expert) of which 25 returned questionnaires were identified as valid. In fact, the rate of valid response was estimated to be 0.83.

For expert-based techniques in studies by masters and experts of mathematical methods worldwide, comments and ideas of 4–15 experts are emphasized. Indeed, considering the technique being expert-based, a total number of 10 (or even 5) respondents seems desirable [22].

2.1 Fuzzy DEMATEL Method

DEMATEL is a relationship–structure analysis method capable of detecting vital measures of structure of complex systems. This technique id developed by the Science and Human Affairs Program of the Battelle Memorial Institute of Geneva and is considered to be an inclusive method to construct and analyze a causal model among complicated factors. The method can detect relationships between variables with high precision while measuring problems [23]. An important issue while employing DEMATEL method is to obtain the direct effect between two factors. The rate of this score is always obtained by surveying experts. In many cases, however, individuals' judgments are ambiguous in decision-making and measurement is not feasible with accurate numerical values. Therefore, employing Fuzzy logic in dealing with ambiguous and imprecise problems seems necessary [24]. Hence, better decision-making in

fuzzy environment requires development of DEMATEL method using fuzzy logic. Since DEMATEL needs experts' opinions, and the opinions are usually orally (and not transparently) stated, oral vocabulary of experts are better to be transformed into fuzzy figures to integrate and disambiguate them. For this, Wu & Lee (2007) proposed a model in which DEMATEL is employed in fuzzy conditions [25]. Steps of Fuzzy DEMATEL in this research are as follows:

First Step: First, experts were given the incomplete initial matrix. Then, they were asked to perform a pair comparison between every component on each line and every single component on each column an present the effect of line components on column ones as a figure in the range 0–4 (and put them in relative blanks), so that figure contain concepts below. That is, 0 represents No influence (No), 1 represents Very low influence (VL), 2 represents Low influence (L), 3 represents High influence (H) and 4 represents Very high influence (VH) (Table 1).

Table 1 Linguistic scale and the triangular fuzzy numbers

Linguistic terms	Linguistic values
Very high influence (VH): 4	(0.75, 1.0, 1.0)
High influence (H): 3	(0.5, 0.75, 1.0)
Low influence (L): 2	(0.25, 0.5, 0.75)
Very low influence (VL): 1	(0, 0.25, 0.5)
No influence (No): 0	(0, 0, 0.25)

Second Step: In order to determine the relationships between components $C = \{C_i \mid i = 1,2,\ldots,n\}$, a total number of P experts must be questioned and they have to state their oral comments on pair relationships between measures and components. Then, P fuzzy matrices are generated:

$$\tilde{Z}^{(K)} = \begin{bmatrix} 0 & \tilde{Z}_{12}^{(K)} & \cdots & \tilde{Z}_{1n}^{(K)} \\ \tilde{Z}_{21}^{(K)} & 0 & \ldots & \tilde{Z}_{2n}^{(K)} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{Z}_{n1}^{(K)} & \tilde{Z}_{n2}^{(K)} & \cdots & 0 \end{bmatrix} = k = 1,2,\ldots,P$$

Average experts' opinions is calculated using the following formula:

$$\tilde{z} = \frac{\left(\tilde{x}^1 \oplus \tilde{x}^2 \oplus \tilde{x}^3 \oplus \ldots \oplus x^p\right)}{p}$$

Then, the matrix for collective comments is obtained in a fuzzy manner:

$$\tilde{Z} = \begin{bmatrix} 0 & \tilde{Z}_{12} & \cdots & \tilde{Z}_{1n} \\ \tilde{Z}_{21} & 0 & \ldots & \tilde{Z}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{Z}_{n1} & \tilde{Z}_{n2} & \cdots & 0 \end{bmatrix}$$

The matrix is called "fuzzy relation initial matrix" in which $\tilde{z}_{ij} = \left(l_{ij}^{'}, m_{ij}^{'}, u_{ij}^{'}\right)$ represent triangular fuzzy numbers and $\tilde{z}_{ij}\left(i = 1,2,\ldots,n\right)$ is considered as a triangular fuzzy figure (0,0,0).

Third Step: Having the fuzzy direct-relation matrix normalized, the fuzzy direct-relation normalized matrix ($\tilde{X}$) is obtained:

$$\tilde{\mathrm{X}}=\begin{bmatrix} 0 & \tilde{\mathrm{X}}_{12} & \cdots & \tilde{\mathrm{X}}_{1n} \\ \tilde{\mathrm{X}}_{21} & 0 & \dots & \tilde{\mathrm{X}}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{\mathrm{X}}_{n1} & \tilde{\mathrm{X}}_{n2} & \cdots & 0 \end{bmatrix},\ \tilde{X}_{ij}=\frac{\tilde{z}_{\mathrm{ij}}}{r}=\left(\frac{l^{'}_{ij}}{r},\frac{m^{'}_{ij}}{r},\frac{u^{'}_{ij}}{r}\right)=\left(l^{''}_{ij},m^{''}_{ij},u^{''}_{ij}\right)$$

In which r is defined as:

$$r=max_{1\le i\le n}\left(\sum_{j=1}^{n}u_{ij}\right)$$

Fourth Step: When the above matrix is estimated, the matrix for total fuzzy relationships ($\tilde{T}$) is obtained. The matrix is defined as:

$$\tilde{T}=\lim_{k\to+\infty}\left(\tilde{X}^{1}\oplus\tilde{X}^{2}\oplus\ldots\oplus\tilde{X}^{k}\right)$$

$$\tilde{\mathrm{T}}=\begin{bmatrix} 0 & \tilde{\mathrm{t}}_{12} & \cdots & \tilde{\mathrm{t}}_{1n} \\ \tilde{\mathrm{t}}_{21} & 0 & \dots & \tilde{\mathrm{t}}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{\mathrm{t}}_{n1} & \tilde{\mathrm{t}}_{n2} & \cdots & 0 \end{bmatrix}$$

Every component of which is a fuzzy figure in the form of $\tilde{t}_{\mathrm{ij}}=\left(\mathrm{l}^{t}_{\mathrm{ij}},\mathrm{m}^{\mathrm{t}}_{\mathrm{ij}},\mathrm{u}^{\mathrm{t}}_{\mathrm{ij}}\right)$ and is obtained as follows:

$$\left[l^{\mathrm{t}}_{ij}\right]=X_{l}\times\left(I-X_{l}\right)^{-1}$$
$$\left[m^{\mathrm{t}}_{ij}\right]=X_{m}\times\left(I-X_{m}\right)^{-1}$$
$$[u^{\mathrm{t}}_{ij}]=X_{u}\times\left(I-X_{u}\right)^{-1}$$

Fifth Step: The next step is to obtain sum of lines and columns of the matrix $\tilde{T}$. The sum is estimated as follows:

$$\tilde{D}=(\tilde{D}_{i})_{n\times1}=\left[\sum_{j=1}^{n}\tilde{T}_{ij}\right]_{n\times1}$$
$$\tilde{R}=(\tilde{R}_{i})_{1\times n}=\left[\sum_{i=1}^{n}\tilde{T}_{ij}\right]_{1\times n}$$

Sixth Step: When matrix $\tilde{T}$ is obtained, $\tilde{D}_{i}-\tilde{R}_{i}$ and $\tilde{D}_{i}+\tilde{R}_{i}$ are calculated. Here, $\tilde{D}_{i}$ and $\tilde{R}_{i}$ represent sum of lines and columns of $\tilde{T}$, respectively. Finally, all $\tilde{D}_{i}-\tilde{R}_{i}$ and $\tilde{D}_{i}+\tilde{R}_{i}$ are defuzzificated. At last, two sets of figures remain: $(\tilde{D}_{i}+\tilde{R}_{i})^{def}$ which represents importance of measures, and $(\tilde{D}_{i}-\tilde{R}_{i})^{def}$ which shows the type of measures (causal or dependent). In general, if $(\tilde{D}_{i}-\tilde{R}_{i})^{def}$ is positive, the relative measures is in "causal" group

and if $(\tilde{D}_i - \tilde{R}_i)^{def}$ is negative, the relative measure is in "dependent" group. Below, causal chart of variables relationships is depicted and influencing and influenced variables are specified in it.

Li & Tzeng (2009), believe that to determine the relationships network map, acceptance threshold value must be estimated. In this way, insignificant relationships are neglected and the reliable relationship network is depicted. Only relationships the values of which (in matrix T) is greater than the threshold value are depicted in the map. The threshold value may be chosen through discussing experts' opinions or based on viewpoint of decision-maker [26].

Seventh Step: In this step, fuzzy figures $\tilde{D}_i + \tilde{R}_i$ and $\tilde{D}_i - \tilde{R}_i$ (obtained in previous step) are defuzzificated using the following formula [27]:

$$P\left(a_{ij}\right) = \frac{l_{ij} + 4m_{ij} + u_{ij}}{6}$$

$P\left(a_{ij}\right)$ is the defuzzificated form of fuzzy figures.

3 Results

As to descriptive findings concerning the statistical sample, it should be noted that of 30 questionnaires distributed among experts a total number of 25 were responded. In fact, the response rate was 83%. Among surveyed experts, 9 were female (36%) and 16 were male (64%) of which 7 individuals had PhD (28%), 8 individuals had Master's Degree (32%) and 10 had Bachelor's Degree (40%). In addition, 8 respondents aged between 20 and 30 years (32%), 10 between 31 and 40 (40%) and 7 over 40 years (28%).

As to analytical findings, results of multiple steps of fuzzy DEMATEL method based on data collected from pair comparison questionnaires and analyzed comments of 25 selected experts of Iranian public hospitals are presented in tables and figures below.

Table 2 shows the fuzzy initial direct-relation matrix and Table 3 presents the fuzzy normalized direct-relation matrix. Having the fuzzy total-relation matrix (T) obtained by the formula $T = D(I - D)^{-1}$, the matrix is presented in Table 4. Table 5 presents the T matrix converted into Crisp (non-fuzzy) figures.

Table 2 The Fuzzy initial direct-relation matrix

	QWL	OCB	JB	MH	E
QWL	(0,0,0)	(0.452, 0.702, 0.952)	(0.738, 0.988, 0.1)	(0.297, 0.547, 0.797)	(0.095, 0.345, 0.595)
OCB	(0.178, 0.428, 0.678)	(0,0,0)	(0.214, 0.464, 0.714)	(0.261, 0.511, 0.714)	(0.261, 0.511, 0.714)
JB	(0.130, 0.380, 0.630)	(0.666, 0.916, 1)	(0,0,0)	(0.666, 0.916, 1)	(0.166, 0.411, 0.666)
MH	(0.523, 0.773, 0.976)	(0.404, 0.654, 0.904)	(0.142, 0.392, 0.642)	(0,0,0)	(0.380, 0.630, 0.880)
E	(0.559, 0.809, 0.964)	(0.464, 0.714, 0.869)	(0.666, 0.916, 1)	(0.452, 0.702, 0.892)	(0,0,0)

Note: Quality of Work Life (QWL), Organizational Citizenship Behavior (OCB), Job Burnout (JB), Mental Health (MH), Ethic (E).

Table 3 The Fuzzy normalized direct-relation matrix

	QWL	OCB	JB	MH	E
QWL	(0,0,0)	(0.121, 0.188, 0.256)	(0.198, 0.265, 0.268)	(0.080, 0.147, 0.214)	(0.026, 0.093, 0.160)
OCB	(0.048, 0.115, 0.182)	(0,0,0)	(0.058, 0.125, 0.192)	(0.070, 0.137, 0.192)	(0.070, 0.137, 0.192)
JB	(0.035, 0.102, 0.169)	(0.179, 0.246, 0.268)	(0,0,0)	(0.179, 0.246, 0.268)	(0.045, 0.112, 0.179)
MH	(0.141, 0.208, 0.262)	(0.109, 0.176, 0.243)	(0.038, 0.105, 0.173)	(0,0,0)	(0.102, 0.169, 0.236)
E	(0.150, 0.217, 0.259)	(0.125, 0.192, 0.233)	(0.179, 0.246, 0.268)	(0.121, 0.188, 0.240)	(0,0,0)

Note: Quality of Work Life (QWL), Organizational Citizenship Behavior (OCB), Job Burnout (JB), Mental Health (MH), Ethic (E).

Table 4 The Fuzzy total-relation matrix

	QWL	OCB	JB	MH	E
QWL	(0.048, 0.277, 1.383)	(0.194, 0.512, 1.766)	(0.236, 0.529, 1.632)	(0.148, 0.449, 1.621)	(0.066, 0.324, 1.394)
OCB	(0.083, 0.327, 1.370)	(0.051, 0.274, 1.368)	(0.097, 0.360, 1.406)	(0.109, 0.370, 1.427)	(0.091, 0.308, 1.262)
JB	(0.093, 0.380, 1.519)	(0.236, 0.551, 1.758)	(0.057, 0.309, 1.403)	(0.224, 0.519, 1.642)	(0.089, 0.345, 1.398)
MH	(0.181, 0.450, 1.629)	(0.173, 0.487, 1.793)	(0.110, 0.410, 1.604)	(0.062, 0.305, 1.477)	(0.130, 0.375, 1.476)
E	(0.206, 0.518, 1.734)	(0.223, 0.583, 1.911)	(0.250, 0.583, 1.780)	(0.205, 0.542, 1.786)	(0.053, 0.285, 1.384)

Note: Quality of Work Life (QWL), Organizational Citizenship Behavior (OCB), Job Burnout (JB), Mental Health (MH), Ethic (E).

Table 5 The defuzzified total-relation matrix

	QWL	OCB	JB	MH	E
QWL	0.42305	0.66789	0.66429	0.59423	0.45933
OCB	0.46030	0.41951	0.49095	0.50267	0.43113
JB	0.52187	0.69946	0.44916	0.65662	0.47780
MH	0.60199	0.65233	0.55907	0.45964	0.51808
E	0.66906	0.74420	0.72720	0.69320	0.42960

Note: Quality of Work Life (QWL), Organizational Citizenship Behavior (OCB), Job Burnout (JB), Mental Health (MH), Ethic (E).

Considering values obtained for $(d_i + r_j)$, studied variables can be prioritized. Thus, the greater this value, the more prior and more important its relative variable. Rating of variables (for five organizational variables) based on values of $(d_i + r_j)$ in state hospitals of Babolsar city are as follows: job burnout (5.69) followed by mental health (5.69), ethics (5.57), quality of work life (5.48) and organizational citizenship behavior (5.48). Furthermore, rating of these variables based on values of $(d_i - r_j)$ starts with ethics (0.94), followed by quality of work life (0.13), job burnout (-0.08), mental health (-0.11) and organizational citizenship behavior (-0.87). According to this table, the variable job burnout plays a central role (having the highest value of $(d_i + r_j)$). In other words, job burnout has the most and strongest relationship with other variables.

Table 6 The sum of , $\tilde{D}_i$ $\tilde{R}_i$, $(d_i + r_j)$ and $(d_i - r_j)$ of influences given and received among variables

	$\tilde{D}_i$	$\tilde{R}_i$	$(\tilde{D}_i - \tilde{R}_i)$	$(\tilde{D}_i + \tilde{R}_i)$
QWL	(0.692, 2.091, 7.797)	(0.612, 1.953, 7.635)	(-6.943, 0.138, 7.185)	(1.304, 4.044, 15.432)
OCB	(0.431, 1.641, 6.834)	(0.877, 2.407, 8.595)	(-8.164, -0.767, 5.957)	(1.308, 4.048, 15.429)
JB	(0.699, 2.103, 7.718)	(0.750, 2.192, 7.825)	(-7.127, -0.089, 6.968)	(1.449, 4.295, 15.544)
MH	(0.657, 2.028, 7.979)	(0.747, 2.185, 7.953)	(-7.296, -0.157, 7.232)	(1.404, 4.212, 15.932)
E	(0.937, 2.512, 8.595)	(0.430, 1.638, 6.914)	(-5.977, 0.874, 8.165)	(1.367, 4.150, 15.509)

Note: Quality of Work Life (QWL), Organizational Citizenship Behavior (OCB), Job Burnout (JB), Mental Health (MH), Ethic (E).

Table 7 The sum of $(\tilde{D}_i)^{def}$, $(\tilde{R}_i)^{def}$, $(\tilde{D}_i - \tilde{R}_i)^{def}$ & $(\tilde{D}_i + \tilde{R}_i)^{def}$ of influences given and received among variables

	$(\tilde{D}_i)^{def}$	$(\tilde{R}_i)^{def}$	$(\tilde{D}_i - \tilde{R}_i)^{def}$	$(\tilde{D}_i + \tilde{R}_i)^{def}$
QWL	2.80	2.67	0.13	5.48
OCB	2.30	3.18	-0.87	5.48
JB	2.80	2.89	-0.08	5.69
MH	2.79	2.90	-0.11	5.69
E	3.26	2.31	0.94	5.57

Note: Quality of Work Life (QWL), Organizational Citizenship Behavior (OCB), Job Burnout (JB), Mental Health (MH), Ethic (E).

The strategic map for the five organizational variables is presented in Fig. 1. The Threshold value of T matrix (to accept negligible relationships) obtained from experts' opinions is 0.5800. In fact, among all possible relationships between variables (20 direct relationships and 5 interrelationships), 14 relations are omitted because of insignificance. The location map of causal relationships is depicted in Fig. 1.

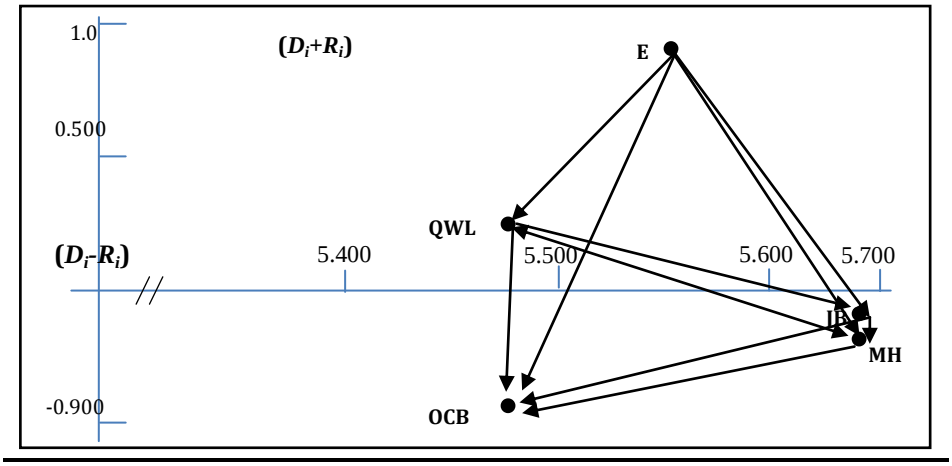

Fig. 1 Cause and effect diagram among variables

4 Discussion

In health service and nursing environments, dissatisfaction and turnover are considerably increasing and job burnout directly influences these factors. Hence, the present paper aimed at explaining psychological components of job burnout in Iranian public hospitals.

Results of fuzzy DEMATEL method revealed that nurses' job burnout is influenced by their life quality. That is, an enhancement in quality of nurses' work life reduces their job burnout. In fact, low quality of work life causes several problems such as physical and mental disorders and this leads to job burnout. This is consistent with Arandelovich et al (2010). Accordingly, managers and head nurses may enhance nurses' quality of work life by supporting them in order to reduce physical consequences of mental stress and the rate of job burnout.

Findings of this paper also show that job burnout influences nurses' organizational citizenship behavior. That is, an increase in job burnout rate significantly deteriorates nurses' organizational citizenship behavior. In addition to job stress, job burnout diffuses into life style and sleep time of the individual and causes exhaustion, fatigue, irritation and impatience. Thus, the individual has no incentive to express citizenship behavior. In fact, job burnout is directly related to nurses' performance so that those facing it lose their productivity and effectiveness. This is consistent with Lambert (2010), Liang (2012), and Gilbert et al (2010) who showed that reduced job burnout is mainly contributes to promotion of organizational citizenship behavior.

Results indicated that nurses' job burnout influences their mental health. This implies that an increased job burnout reduces deteriorates their mental health. Job burnout is manifested through turnover, frequent absence, inappropriate performance, mental depression and reduced level of mental health. This is consistent with Tokuda et al (2009) and Salimi et al (2013). They emphasized the influence of job burnout on mental health of employees.

Accordingly, managers and authorities must focus on their employees' satisfaction since this may enhance their mental health, reduce health care service costs and improve employees' performance considering factors leading to job burnout.

Another finding of the present research is the influence of ethics on nurses' job burnout. It can be said that elevated level of ethics can significantly decrease their job burnout. In fact, ethics declines burnout rate with an emphasize on cooperation and through promoting ways of overcoming obstacles in achieving individual needs and developing positive incentives. This is consistent with Sheikhepour et al (2015). Hospital managers are suggested to develop and improve ethical principles by expanding spiritual programs in their organization to control job burnout in nurses.

Based on variables significance, results demonstrate that job burnout and organizational citizenship behavior are the most and the least important variables in causal relationships, respectively. Moreover, an interesting finding of this paper is the evident contribution of ethics to other variables (as the most influencing variable).

5 Conclusion

In general, results indicated that in rating of variables based on values of $(d_i + r_j)$, job burnout and organizational citizenship behavior are the most and least important variables, respectively. In addition, ratings based on values of $(d_i - r_j)$ revealed that ethics and organizational citizenship behavior are the most influencing and the most influenced variables, respectively. Considering the value of $(d_i + r_j)$, the central role of job burnout becomes evident. In other words, this variable has the most relationship with other ones. In fact, employees' job burnout is of great importance for organizations, especially for highly stressful jobs, such as nursing, that concern health and life of human beings. Employees' burnout involves a wide range of workplace aspects and influences health and various dimensions of job (and is also influenced by them). Therefore, conducting strategic plans to enhance employees' health by hospital managers is an important issue requiring precise investigations.

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