


An empirical study on the job satisfaction and turnover intention of health-care professionals: Moderated moderation approach

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ABSTRACT

Objective: The objective of this study was to investigate relationship between job satisfaction and turnover intention of health-care professionals using the moderated moderation approach.

Methods: Explanatory sequential research design was applied. Non-probability convenience sampling technique was used to determine the sample size using Weiers formula. Scales adopted in the current study were validated through exploratory and confirmatory factor analysis. To test the hypothesis correlation, the hierarchical multiple regression was used. In the second stage, semi-structured face-to-face interviews from 35 interviewees were conducted and transcribed in Nvivo.

Results: Job descriptive index, cognitive style index (CSI), cognitive style indicator, and turnover intention scales were found to be reliable. Furthermore, correlation analysis shows that the factors of job satisfaction were significantly correlated with turnover intention. In addition, findings of the interviews highlighted the importance of cognitive styles for increasing the job satisfaction of health-care professionals.

Conclusions: Study concludes that the involvement of health-care professionals in making health-care policies enhances their job satisfaction that also reflected on their performance. Moreover, it also reduces their turnover intention of workforce.

Keywords: Cognition, decision-making, job satisfaction, turnover intention

Introduction

Turnover intention is a mental process and it needs a lot of thinking for decision-making. The decision of whether to leave the job or to stay at a job is very difficult.^[1,2] There are direct and indirect costs associated with turnover intention. For example, the recruitment and selection process, training, and development process need time and a lot of cost paid by organizations to train new employees.^[3] Meanwhile, it brings a lot of burden to existing employees for replacing the previous employee.^[4] Organizations, especially in health care, are very difficult to retain employee^[5] as it embroils a lot of thinking and decision-making how to reduce turnover intention. Allinson and Hayes^[4] have developed cognitive style index (CSI). They have divided human mind into two parts; one is called left brain it is also called analytical and second part is called intuition or right brain. People with analytical style tend to collect information first and then they make decisions while intuitive people make decision on basis of their experience, judgment, and feelings.^[6] Later on, Cools and Broeck^[7] developed cognitive style indicator (CoSI). She

has divided analytical style into three more parts and named those constructs knowing, planning, and creating for making decisions. It is believed that decision-making plays very important role in reducing turnover intention and increasing job satisfaction. Hence, it was very crucial to use a well-reported and validated instrument for decision-making in this study. Job satisfaction is an international phenomenon,^[8] in the 1960s, more than 4000 articles were published on job satisfaction. However, it gains popularity after the theories given by Herzberg two factor theory, Vroom's^[9] theory, McGregor Theory, Theory X and Theory Y, and job characteristics model by Hackman and Oldham^[10] Spector theory of job satisfaction.^[11] All these researchers confirmed that there are few attributes of job satisfaction that is held constant, for example, salary, supervisor, promotion, colleagues, work, work environment, and job security.^[12,13] Later on, researchers added more variables in theories of job satisfaction but for this study, researchers have chosen the above-mentioned variables.^[7,13] There is an American researcher named Judge, Klinger, and Simon^[13] conducted and reported many articles on job satisfaction. From the findings of this study, it was indicated from the results that instrument was found reliable

and valid.^[14,15] CoSI was only related with job and supervisor while CSI was not significantly related with any factor of job satisfaction. In addition, there was moderated moderating effect on satisfaction and salary only but no moderated moderation effect on other variables.^[16,17] Themes emerged from qualitative interviews and findings also supported the quantitative findings. Based on the above literature, we hypothesized proposed the following: H₁: There is a negative relationship between predictors and criterion variables, that is, satisfaction, salary, supervision, promotion, coworkers, work environment, work itself, CSI and CoSI, and turnover intention. H₂: There is a moderated moderating effect of CSI, CoSI on factors of job satisfaction, and turnover intention.

Methods

Explanatory sequential research design

There are six research designs for mixed methods research; however, in this study, explanatory sequential research design is adopted, it has two stages of research. In the first stage, quantitative data were collected and analyzed, while, in the second stage, interviews were conducted for qualitative study and analyzed. Qualitative data were used to supplement, support, and strengthen the quantitative results. For quantitative study, positivism philosophy was employed whereas, for a qualitative study, a phenomenological approach was adopted as recommended by Creswell,^[18] Collis and Hussey.^[19] Pragmatism considers the happening of events to the situation. In a mixed method, the researcher is capable to solve the problem using both methods that help researchers to go deep into the problem or the issue understudy. Smith *et al.*^[20] suggested the use of at least 10 interviewees for the interpretative phenomenological approach (IPA), however, in the second stage of qualitative analyses, we have used 35 interviewees which is above the Smith threshold, that is, 10 participants. The majority of scientists and researchers have used survey questionnaires for the assessment of behaviors and attitudes of individuals and organizations.^[21] Thus, the survey is a common, popular, and easy method that allows the researcher to collect a very big data in less time and cost, therefore, in this study, survey was employed to collect data.

Population and sampling

The population of the study consisted of health-care professionals in the Riyadh region of Saudi Arabia that included 124 administrative and 23,246 staff members, thus, N of the study was 23,370. Since the population was big so it was impossible to contact every member to obtain their responses, therefore, sampling was essential. Probability and non-probability sampling techniques are given by researchers in health care. Both have their strengths and weaknesses.

In this study, researchers have used simple random stratified sampling, whereas, convenience sampling technique was

applied to collect responses from the respondents. Weiers^[22] has developed a statistical formula $[SD^2/((E^2/Z^2) + (SD^2/N))]$ for the finite population to determine sample size. Therefore, researchers have employed the Weiers formula. 95% confidence level is suggested by social scientists to determine the sample size for the finite population, which is equal to 1.96 z-value. Table 1 illuminates the procedure to determine the sample size of the study in hand.

Measures and procedures

The job satisfaction instrument was adopted from Busari *et al.*^[8] while turnover intention was taken Mughal *et al.*,^[4] and for CoSI, it was adopted from Cools and Broeck.^[7] Therefore, the instrument developed by Cools and Broeck^[7] was used in this study. The questionnaires were administered among administrators and staff. The questionnaire included four sections; first is about job satisfaction, second is about turnover intention, and the third is about the CoSI; all these sections were measured on a 5-point Likert scale. Job satisfaction has seven items, turnover has three items, and CoSI has 18 items, while the fourth section was demographic variables.

Data analysis

SPSS was used for quantitative data analysis. Exploratory factor analysis, bivariate correlation, and hierarchical multiple regression (HMR) were run to investigate the best fit model. Further for moderation, a procedure given by Aiken and West^[23] is used. First, the variables were mean centered to reduce the multicollinearity problem. Then, interaction term was created to test moderation results. Thereafter, all variables were entered into HMR according to theoretical significance. Then, interaction plots were plotted one standard above the mean and one standard deviation below the mean. Nvivo 8 was used for qualitative data analysis; nodes were developed, where from themes emerged [Figures 11 and 12]. Template analysis was used to analyze themes. Since, ideas and themes are parcel part of the respondents' lives. Researchers also focus on the phenomenological flavor of themes. The current study was conducted in 2020.

Results

A total of 301 employees have participated in the current study. There were total 225 male participants, that is, 74.75%, 76 females have participated in the current study, that is,

Table 1: Sample size

Respondents	SD	SE	N	Sampling procedure	n
Administrative officers	0.45	0.08	124	$[SD^2/((E^2/Z^2)+(SD^2/N))]$	121.552258
Other staff	0.62	0.09	23,246	$[0.45/(0.08/1.96+0.45/124)]$ $[0.62/(0.09/1.96+0.62/23246)]$	182.310022
Total (N) =			23,370	Total (n) =	301.86228

SD: Standard deviation, SE: Standard error N: Population, n: Sample

25.2%. Majority of the participants belong to public sector health-care organization such as 198 (65.7%) while 34.2% belong to private sector organizations. Further analyses of results revealed that most of the professionals were foreigners and belong to India, Pakistan, Egypt, and Sudan, that is, 49% Indian, 33% Pakistani, 9.9% Egyptian, and remaining Sudan. In the first run of exploratory factor analysis, it is necessary to check the sample is adequate for EFA or not? This objective was accomplished by Kaiser-Meyer-Olkin (KMO) of all variables KMO for cognitive style was recorded KMO = 0.7 which is above 0.5 Hair *et al.*^[24] for job satisfaction KMO = 0.775, for turnover intention KMO = 0.703. Bartlett's test of sphericity for all variables was significant. Promax was used for rotation, as shown in Table 2.

Table 3 presents the results of the correlation between predicting variables and the criterion variable. As expected, satisfaction is negatively related with turnover intention while positively but weakly related with CoSI and CSI, that is, $r = 0.463$, $P < 0.05$ and $r = 0.91$, $r = 0.91$, $P > 0.05$. Further examination of the relationship between salary and turnover

intention is found moderate and negative but significant, that is $r = -0.502$, $P < 0.05$, but salary is not related to CoSI and CSI.

Further examination of results shows that promotion is negatively but significantly related with turnover intention, that is $r = -0.332$, $P < 0.05$, but promotion is negatively related with CoSI, that is $r = -0.063$, $P > 0.05$ while promotion is positively but insignificantly related with CSI, that is $r = 0.028$, $P > 0.05$. In the same way, further examination of correlation results shows that job/work is negative but significant related with turnover intention but also significant related with CoSI but weakly related with CSI, that is $r = -0.412$, $P < 0.05$; $r = 0.134$, $P < 0.05$; and $r = 0.024$, $P > 0.05$. Furthermore, examination revealed that coworkers/colleagues are also negative but significant related with turnover intention but weakly and positively insignificant with CoSI and CSI, that is $r = -0.250$, $P < 0.05$; $r = 0.070$, $P > 0.05$; and $r = 0.050$, $P > 0.05$.

Likewise, results revealed that supervisor is negative and significant but weak related with turnover intention also significant related with CoSI but insignificant related with CSI, that is $r = -0.373$, $P < 0.05$, $r = 0.112$, $P = 0.05$, and $r = 0.012$, $P > 0.05$. Furthermore, work environment is negative and significant with turnover intention but insignificant with CoSI and CSI, that is $r = -0.304$, $P < 0.05$; $r = 0.105$, $P > 0.05$; and $r = 0.035$, $P > 0.05$, so on the basis of discussion from correlation results, it is clear that our hypothesis 1 is substantiated and accepted. This means that there is a significant positive relationship between the predictors and criterion variables of the study, Table 3.

There is different goodness of fit indices given by Hair *et al.*^[24] for model fitness. Fit indices and their fitness range values are given in Table 5.

Table 4 and Figure 1 illustrate results for model 1 of the study. AMOS-SEM was used to develop a measurement model. In Figure 1, measurement model is given. All the factor loadings are higher than 0.5 except one construct, that is, job it is 0.49, two constructs are deleted from analysis because of low factor loadings. All the goodness of fit index values met the required level, that is, Chi-square = 2.847, RFI = 0.889, NFI = 0.921, TLI = 0.925, CFI = 0.947, and IFI = 0.947, $P < 0.01$, all the values are in the specified range so the model if fit. Further analysis of results revealed construct reliabilities and average variance extracted values. Construct reliability for job satisfaction and CoSI is 0.786 and 0.706 while AVE value is 0.433 and 0.461 below 0.5 but construct reliability is met criteria, so reliability and validity are established.^[25]

Figure 2 was developed for the structural model. In this model, job satisfaction is independent; cognitive style is also independent (moderator is considered independent) and turnover intention is criterion variable. Table 6 shows the goodness of fit indices. It is found that model is fit, and all the goodness of fit indices are in the specified range, that is, $\chi^2 = 2.847$, RFI = 0.889, NFI = 0.921, TLI = 0.925, CFI = 0.947,

Table 2: Factor loading pattern matrix

Items	CS component			JS		TI
	F1	F2	F3	F1	F2	F1
P4	0.881					
P5	0.823					
3	0.714					
P6	0.695					
P1	0.683					
P7	0.674					
P2	0.669					
C6		0.791				
C7		0.790				
C4		0.757				
C5		0.740				
C2		0.672				
C3		0.652				
C1		0.618				
K3			0.818			
K2			0.818			
K4			0.720			
K1			0.657			
JS2				0.879		
JS3				0.768		
JS1				0.764		
JS5				0.538		
JS4				0.495	0.488	
JS6					0.903	
TI1					0.774	0.850
TI2						0.868
TI3						0.819

JS: Job satisfaction, TI: Turnover intention

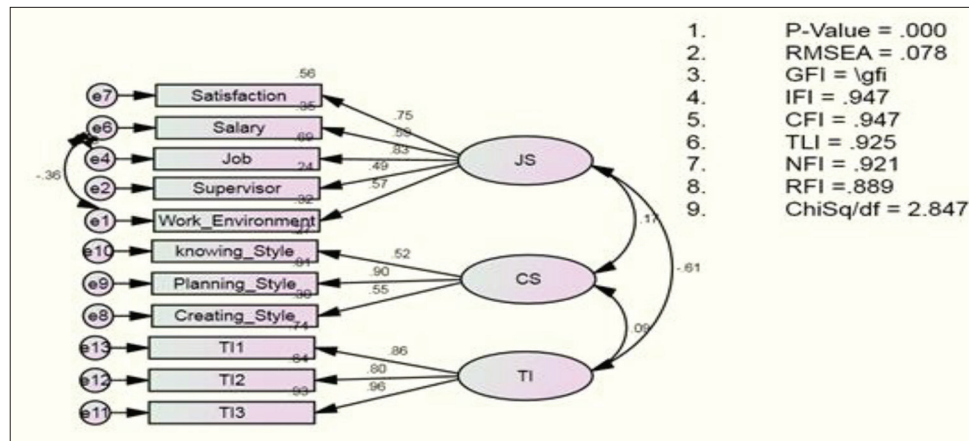


Figure 1: Measurement model. RMSEA: Root mean square error of approximation, GFI: Goodness of fit index, IFI: Incremental fit index, CFI: Comparative fit index, TLI: Tucker Lewis index, NFI: Normed fit index, RFI: Relative fit index. Chi-sq/df: Chi-square/Degree of freedom

Table 3: Correlation matrix

Variables	Satisfaction	Salary	Promotion	Job	Colleagues	Supervisor	WE	CoSI	Cognitive style
Satisfaction									
Salary	0.427**								
Promotion	0.293**	0.182**							
Job	0.646**	0.270**	0.379**						
Colleagues	0.230**	0.058	0.320**	0.376**					
Supervisor	0.314**	0.139*	0.300**	0.454**	0.535**				
WE	0.366**	0.090	0.417**	0.495**	0.464**	0.403**			
CoSI	0.091	0.000	-0.063	0.134*	0.070	0.112*	0.105		
Cognitive style	0.091	0.076	0.028	0.024	0.050	0.012	0.035	0.069	
Turnover intention	-0.463**	-0.502**	-0.332**	-0.412**	-0.250**	-0.373**	-0.304**	0.142*	0.142*

Table 4: Evaluating the model fit to fit before confirmatory factor analysis CFA

Variable	X ²	RFI	NFI	TLI	CFI	IFI	RMSEA	P	CR	AVE
JS	2.847	0.889	0.921	0.925	0.947	0.947	0.078	0.000	0.786	0.433
COSI									0.706	0.461
TI									0.908	0.767

RMSEA: Root mean square error of approximation, GFI: Goodness of fit index, IFI: Incremental fit index, CFI: Comparative fit index, TLI: Tucker Lewis index, NFI: Normed fit index, RFI: Relative fit index. Chi-sq/df: Chi-square/degree of freedom, CR: Composite reliability, AVE: Average variance extracted, CFA: Confirmatory factor analysis

Table 5: Model fitness measurement model results

Absolute		Relative		Parsimonious	
Test	Value	Test	Value	Test	Value
GFI	>.90	CFI	>.90	NFI	>.50
RMSEA	<0.08	NFI	>.90	CFI	>.50
		IFI	>.90		
		RFI	>.80		

RMSEA: Root mean square error of approximation, GFI: Goodness of fit index, IFI: Incremental fit index, CFI: Comparative fit index, TLI: Tucker Lewis index, NFI: Normed fit index, RFI: Relative fit index

IFI = 0.947, and RMSEA = 0.078. Further analysis of results revealed that correlation between job satisfaction and cognitive style is $r = 0.17$, $P < 0.01$, and impact of job satisfaction on

turnover intention is beta $\beta = -0.64$, $P < 0.05$ and $\beta = 0.20$, $P < 0.05$ is also significant and $R^2 = 0.41$ it means that job satisfaction and cognitive style show variance on turnover intention 41%. It means that there is a negative impact of job satisfaction on turnover intention and the positive impact of cognitive style on turnover intention.

Moderating effects of cognitive style on job satisfaction and turnover intention were also checked in AMOS-SEM. Results are highlighted in Figure 3, it is found that job satisfaction has a negative impact on turnover intention, that is, $\beta = -0.81$, $P < 0.05$, while cognitive style has positive effect $\beta = 0.10$, $P < 0.05$, an interaction term was created by multiplying job satisfaction and cognitive style $\beta = 0.24$, $P < 0.05$, $R^2 = 0.37$ it means job satisfaction, cognitive style, and interaction term shows variance on turnover intention 37%. Next HMR is used for testing hypothesis 8, that is, there is moderated moderating effect of CoSI and CSI on job satisfaction factors and turnover intention. This moderated moderation results are also known as three-way interaction. All seven independent variables and their three-way interaction results are presented in Table 7.

In this study, CoSI is used as a moderator and the CSI is used as a moderated moderator. First examination of three-way

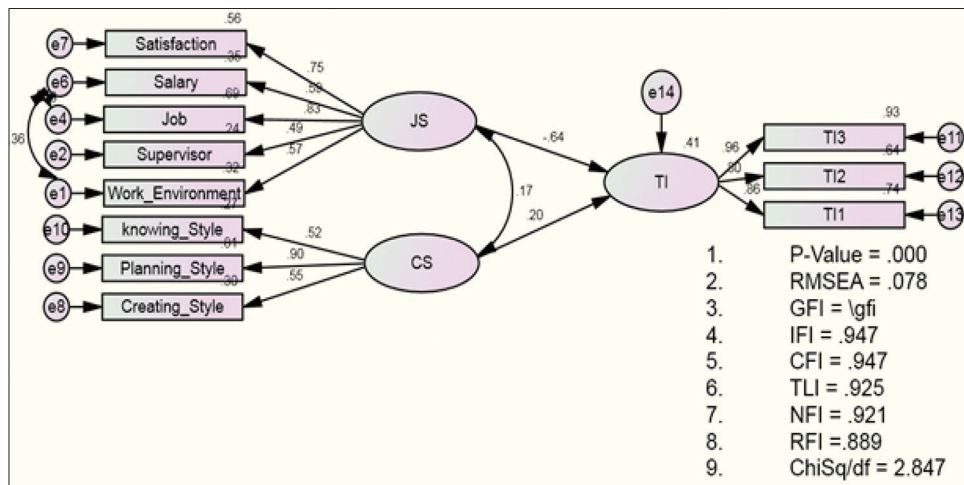


Figure 2: Structural model. RMSEA: Root mean square error of approximation, GFI: Goodness of fit index, IFI: Incremental fit index, CFI: Comparative fit index, TLI: Tucker Lewis index, NFI: Normed fit index, RFI: Relative fit index. Chi-sq/df: Chi-square/degree of freedom

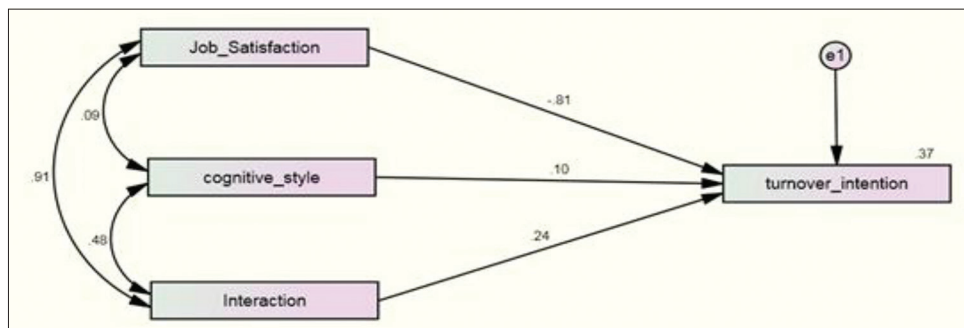


Figure 3: Moderation model

Table 6: Model fit

MODEL	χ^2	RFI	NFI	TLI	CFI	IFI	RMSEA	P
Figure 2	2.847	0.889	0.921	0.925	0.947	0.947	0.078	0.000

RMSEA: Root mean square error of approximation, GFI: Goodness of fit index, IFI: Incremental fit index, CFI: Comparative fit index, TLI: Tucker Lewis index, NFI: Normed fit index, RFI: Relative fit index. Chi-sq/df: Chi-square/degree of freedom

interaction done with satisfaction CoSI and CSI and turnover intention. The results revealed that the interaction term is significant and ΔR^2 is also significant it means that there is moderated moderation and CSI does act as a moderated moderator on the CoSI, satisfaction, and turnover intention. Three-way interaction was conducted using the same procedure and found that CSI does not act as a moderated moderator on CoSI, coworkers, and turnover intention, there is no significant interaction term and ΔR^2 is also not significant although there is changed in ΔR^2 is recorded.

Further examination of the results revealed that there is moderated moderation occurs on the relationship between CoSI, promotion, work, work environment, and supervisor because all interaction terms were insignificant and there is no significant change in recorded in ΔR^2 but when CSI is used with salary and turnover and CoSI it does acts as moderator because interaction term is significant and ΔR^2 is also significant so CSI acts as a moderated moderator on CoSI

salary and turnover intention so our hypothesis 2 is partially accepted for satisfaction and salary. Table 7 highlights the moderated moderation result of this study.

To interpret the interactions, all three-way interactions were plotted, with cut values of one standard deviation below the mean and one standard deviation above the mean on each moderator variable. Examination of the first plot revealed that the CSI, that is, CSI is acting as a moderated moderator on CoSI, that is, COSI.

From the plot, it is also revealed that low CoSI and high CSI interact with high CoSI and high CSI. Hence, this plot [Figure 4] is consistent with the results shown in Table 3 for satisfaction. Further analysis of results shows that low COSI and low CSI fully moderate the relationship between salary, turnover intention, and CoSI. Hence, this plot [Figure 5] is consistent with the results shown in Table 7 for salary.

Similarly, examination of the plot [Figure 6] shows that CoSI and CSI interact with each other, but these two variables do not interact with coworker and turnover intention so three-way interaction does not exist in this Figure 6. Further examination of plot [Figure 7] indicated that high CoSI and high CSI and high CoSI and low CSI interact with promotion and turnover

Table 7: Moderated moderation results

Regression steps	Variables	Turnover intention			Variables	Turnover intention		
		Model 1	Model 2	Model 3		Model 1	Model 2	Model 3
Step 1	Satisfaction	-0.478**	-0.492**	-0.510**	Salary	-0.410**	-0.403**	-0.422**
Step2	COSI	0.190**	0.010*	0.116	COSI	0.015	0.000	0.008
Step3	CSI	-0.070	-0.052	0.052	CSI	0.166	0.162**	0.131**
	S×COSI		0.176	0.063	S×COSI		-0.084	-0.042
	S×CSI		-0.016	-0.117	S×CSI		-0.180**	-0.148**
	CSI×COSI		0.077	-0.550**	CSI×COSI		-0.057	0.017
	Interaction			0.653**	Interaction			0.212**
	R ²			0.253**	R ²			0.190
	ΔR ²			0.030**	ΔR ²			0.033**
Step 1	Coworker	-0.258**	-0.235**	-0.269**	WE	-0.320**	-0.317**	-0.325**
Step2	COSI	0.165**	0.462	0.569**	COSI	0.180**	0.259	0.289
Step3	CSI	-0.069	-0.039	0.060	CSI	-0.072	0.214	-0.183
	CW×COSI		-0.319	-0.418	WE×COSI		-0.095	-0.132
	CW×CSI		-0.030	-0.135	WE×CSI		0.152	0.118
	CSI×COSI		0.054	-0.426	CSI×COSI		0.061	-0.108
	Interaction			0.490	Interaction			0.180
	R ²			0.093	R ²			0.128
	ΔR ²			0.010	ΔR ²			0.003
Step 1	Promotion	-0.322**	-0.298**	-0.296**	Supervisor	-0.394**	-0.385**	-0.386**
Step2	COSI	0.126*	0.397**	0.394**	COSI	0.191**	0.228	0.247
	CSI	-0.071	-0.038	-0.037	CSI	-0.079	0.148	0.153
	P×COSI		-0.308**	-0.304*	S×COSI		-0.048	-0.066
	P×CSI		-0.040	-0.044	S×CSI		-0.230	-0.235
	COSI×CSI		0.050	0.093	CSI×COSI		0.042	-0.025
	Interaction			-0.048	Interaction			0.067
Step3	R ²			0.130**	R ²			0.180
	ΔR ²			0.000	ΔR ²			0.000
	Work	-0.438**	-0.436**	-0.443**				
Step 1	COSI	0.206**	0.249	0.241				
Step2	CSI	-0.075	0.296	0.347				
Step3	W×COSI		-0.058	-0.059				
	W×CSI		-0.377	-0.434				
	CSI×COSI		0.051	0.203				
	Interaction			0.264				
	R ²			0.215**				
	ΔR ²			0.004				

CSI: Cognitive style index, COSI: Cognitive style indicator R2: Coefficient of determination

intention but low COSI and low CSI do not interact so there is no three-way interaction exists. Further examination of plots revealed that Figures 8-10 also consistent with regression results.

Discussion

In this study, we have used 35 interviews, whereas Creswell^[27] Smith *et al.*^[29] suggested the use of at least 10 interviews for qualitative analysis. Furthermore, Silverman^[25] suggested

that in qualitative research, qualitative data must be natural. There should be no coding and the researcher is not allowed to minimize data. Semi-structured interviews are the best source for qualitative study as in this study researchers aimed to understand the phenomena in-depth, additionally; this method allows the interviewees to ponder freely on the issues. In the first instance, researchers got the consent of all the interviewees then an interview guide was provided to them as Rubin and Rubin^[26] considered an interview guide as the scaffolding of the interview. The date and time for the interview were fixed

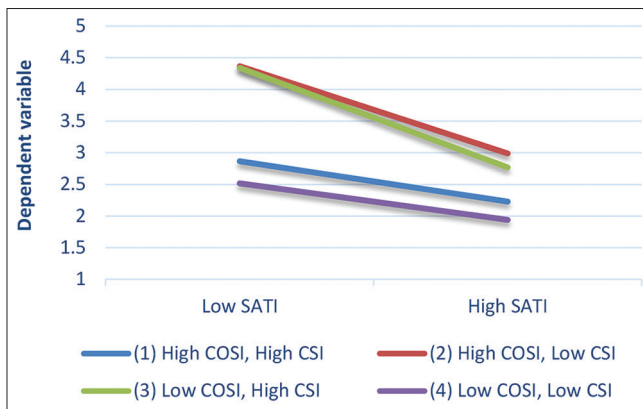


Figure 4: Satisfaction CoSI, CSI. CSI: Cognitive style index, CoSI: Cognitive style indicator



Figure 5: Salary CoSI, CSI. CSI: Cognitive style index, CoSI: Cognitive style indicator

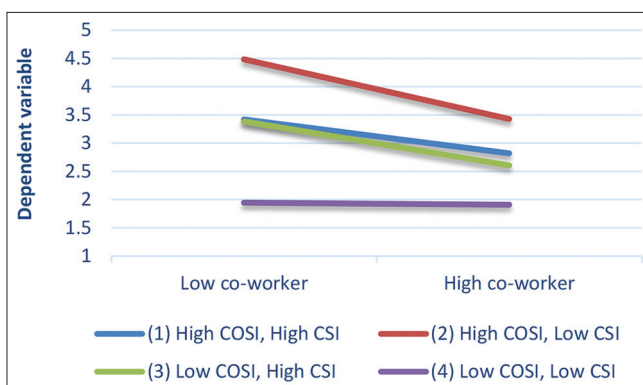


Figure 6: Coworkers CoSI, CSI. CSI: Cognitive style index, CoSI: Cognitive style indicator

mutually as practiced by Smith *et al.*,^[20] and interviews were recorded suggested by IPA. All interviews were transcribed verbatim. As asserted by Remenyi *et al.*,^[27] the researcher has read transcription thoroughly and made necessary corrections to make sense of it. Below is the narration and analyses of the interview data. Different questions were asked from interviewees about different attributes of their current job. Interviewees respond in the following manner: “Regarding

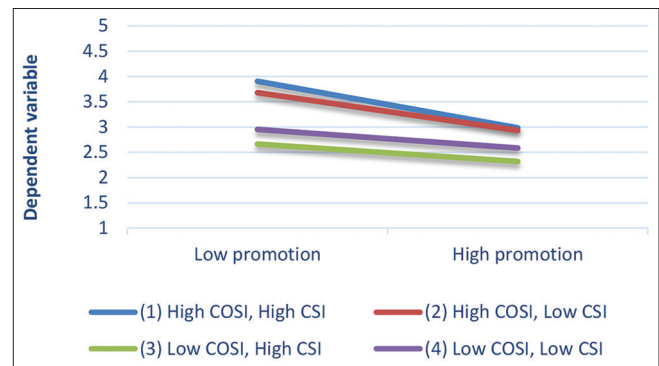


Figure 7: Promotion CoSI, CSI. CSI: Cognitive style index, CoSI: Cognitive style indicator

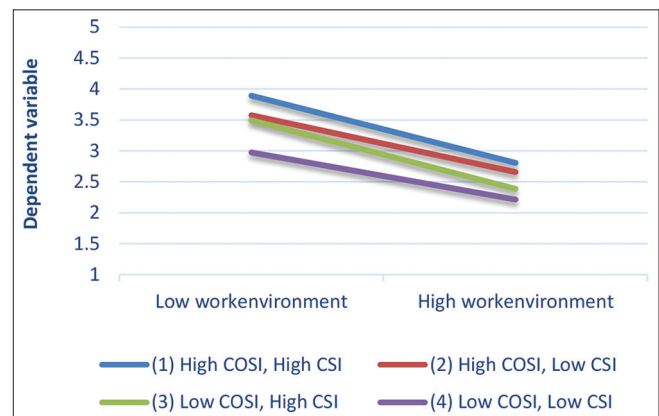


Figure 8: Supervisor CoSI, CSI. CSI: Cognitive style index, CoSI: Cognitive style indicator

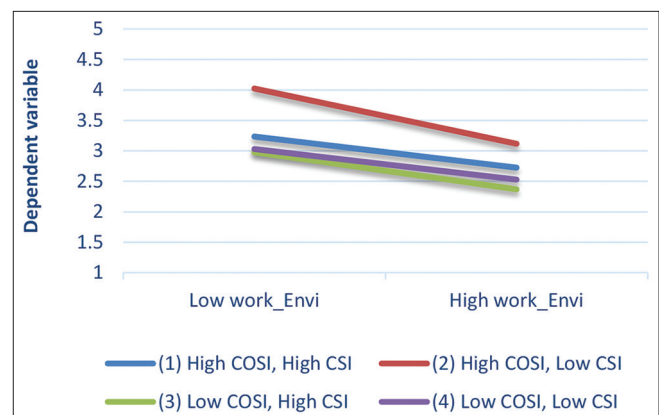


Figure 9: Work environment CoSI, CSI. CSI: Cognitive style index, CoSI: Cognitive style indicator

salary my package is according to government rules and you know in public sector rules are already defined for each cadre and scale. So, salary is not an issue.” Another respondent explained “My package is attractive, and I am happy with this package, but I am not satisfied from the workload in this organization that is beyond the capacity, sometimes, I have to complete the work of my colleagues.” Other interviewees

spontaneous decisions. However, I am intuitive by nature.” This study has some limitations which can affect some potential areas. First, the sample size of this study is small and collected from health-care organizations only and that to in Riyadh region, thus findings of this research could not be generalized to other sectors such as banks and universities, therefore, it will be better if future studies may use large sample size. Second, this study is quantitative; future studies can use mixed methods and longitudinal data for more thought provoking results. The third limitation is methodological limitations. This study has used two moderators, whereas, future studies can use multiple or series of mediators to come up with novel results and findings. Other dimensions of cognition such as feelings, emotions, and judgment can be used in future studies.^[28,29]

Conclusions

It is imperative for the health-care organizations to enhance the satisfaction of their professionals by applying different strategies for involving them in decision-making policies, this not only increases their job satisfaction but also reduces turnover intention of workforce. Furthermore, management and leadership of the health-care professionals play very important role in increasing the job satisfaction of their professionals.

Authors' Declaration Statements

Ethical approval

The current study was carried out without receiving any funding and was approved by Qassim University Ethical Committee.

Data availability

All data sets are available with authors and it will be produced on reasonable request.

Authors' Contributions

G.M.K and Y.H.M participated in manuscript drafting, conceptualization, the idea of study design, and methodology. F.A and S.A.P.: Perform review, editing, formal data analysis, and validation. All authors have read and agreed to the published version of the manuscript.

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