



RESEARCH PAPER

Personality Traits and Individual Effectiveness: Moderating Role of Electronic Medical Records

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PAPER INFO	ABSTRACT
Received: June 06, 2021 Accepted: August 18, 2021 Online: August 21, 2021 Keywords: Electronic Medical Records, Individual Effectiveness, Personality Traits *Corresponding Author: faisalbutt@ciitwah.edu.pk	This research investigates the impact of five traits of personality on individual effectiveness in Pakistani medical industry. The study also examines the moderating role of Electronic Medical Records (EMRs) among personality traits and individual effectiveness. Simple random and stratified techniques of sampling were utilized in the study, 413 respondents (doctors) were engaged as sample size. The different statistical methods like correlation, cronbach alpha, descriptive statistics, regression and moderated regression were employed in the study. The results indicated that personality traits (Agreeableness, conscientiousness, extraversion and openness to experience) have an influence on individual effectiveness. Neuroticism has no effect on individual effectiveness. The results also supported the moderating relationship among personality traits (eliminating neuroticism) and individual effectiveness. The present study is an excellent contribution in the current literature on individual effectiveness.

Introduction

This investigative study targets to inspect the impact of five traits of personality on individual effectiveness in Pakistani healthcare sector. There are five personality traits which comprise of “conscientiousness, neuroticism, extraversion, openness to experience and agreeableness”. The moderating role of Electronic Medical Records (EMRs) between traits of personality and individual effectiveness has been investigated in this study. The healthcare industry is a conglomeration and joining of areas inside the economic framework that gives goods and services for the treatment of patients with healing, protective, amendatory and remedying consideration. Hospitals assume an extremely critical part in the medical services design of a country.

The area of therapeutic services is engaging to expand ability, superiority of care and patients' encounters(Butt, Nawab, & Zahid, 2016), so strong commitment and seriousness is needed to do this duty(Wachter, 2010). Due to the mistake and horrendous

demonstrations of doctors, the time of guardians is squandered up to 10 percent and it contributes and phenomenal input to care quality (Butt et al., 2016). Consequently, investigation is desirable to gain improved efficiency and viability of hospitals for handling such dissatisfactions. Besides, there is less number of studies accessible which have efficiently reviewed the reasons of these disappointments in the literature (Fredendall, Craig, Fowler, & Damali, 2009). Hence, there is still some room vacant to perform the additional investigation to acquire improvement of hospitals in Pakistani healthcare sector.

Literature Review

The healthcare services have revealed a fundamental part in sanctioning financial development and related literature has demonstrated imperative associations among wellness and effectiveness (Sachs & Malaney, 2002). Pakistan is a republic which is making a decent attempt to accomplish “Millennium Development Goals” (MDGs) which are established for every emerging country. The advancement of healthcare sector in Pakistan could not be overlooked since the hour of freedom. Pakistan has attempted to make a lot of progress in its medical services system and has brought out numerous changes (Kurji, Premani, & Mithani, 2016). There are many positive in Pakistani healthcare system like “Public Private Partnership, improving human resource development, infrastructure for basic health units”. At the same time, there are many weaknesses of Pakistani healthcare system like unequal access to healthcare services, bad governess, no health information system, corruption, etc. (Kurji et al., 2016). High performance workforces enhance the individual effectiveness and same connection exists in the sector of healthcare because personality has been connected to individual effectiveness (Barrick, Mount, & Judge, 2001).

The traits of personality are demeanors to show a specific sort of reaction across different circumstances (Rauch & Frese, 2007) that are extremely steady over a long period of time (Baum, Frese, & Baron, 2014). Because of the intricacy of humanoid character, a thorough model titled the Big Five model was created to clarify significant behaviors of personality in five general classes (Goldberg, 1990). Extensive provision was gotten by this model after its development aimed at the five variables—“conscientiousness, neuroticism, extraversion, openness to experience and agreeableness”—suggested by this model, has become the highly utilized orientation in the researches of personality (Brandstätter, 2011; Gosling, Rentfrow, & Swann Jr, 2003).

Regardless of the proportions of the Big Five model have an influence on individual effectiveness, has been the focal point of various investigations (H. Zhao & Seibert, 2006; X. Zhao, Lynch Jr, & Chen, 2010). Underneath, a concise review of literature is introduced to attest the pertinence of five traits of personality to individual effectiveness.

Big-5 Personality Traits

It is maybe the broadly utilized structure and generally acknowledged model in the examination of personality (Camps, Stouten, & Euwema, 2016). This is complete model for personality, where people perceive themselves just as relationship with others (Izzati, 2015).

Conscientiousness

The attribute addresses people's scrupulousness and how people are coordinated in their work exercises. The personalities who have elevated score in this quality are decent at goal-oriented effort. The persons who have great mark at conscientiousness are extra goal-oriented, effectively observe the guidelines and standards and they are additionally tireless and careful (Bogg & Roberts, 2013). Conscientiousness is the finest indicator of occupational related execution amongst the personality traits (Blickle et al., 2013). The folks who have extraordinary score in conscientiousness are added competitive and goal oriented and hence they execute the tasks better than those who have low score in conscientiousness (Marinova, Moon, & Kamdar, 2013). It has been observed that the people who low score in conscientiousness are generally depressed (Settles et al., 2012).

Neuroticism

It may be portrayed as expressively steady. The people who have high score in neuroticism are expressively unbalanced, sulkiness and despondency. The people who have low score in neuroticism are expressively steady and robust. This personality trait can be a source of personality sicknesses like temperamental and worried (Barlow, Ellard, Sauer-Zavala, Bullis, & Carl, 2014). Neuroticism is an important predictor of work performance in diverse occupations (Hormann & Maschke, 1996). The second imperative factor of employability of a contender is steady enthusiastic contemplations (Dunn, Mount, Barrick, & Ones, 1995). In certain circumstances, there is negative impact of neuroticism with effectiveness (Judge, Higgins, Thoresen, & Barrick, 1999).

Extraversion

Extraversion encompasses potentials like sociability, confidence and talkativeness. The individuals who have high score in extraversion are extra sparkling and optimistic. The individuals who have low score in extraversion are earmarked and have issues to mix with other individuals. It has been observed that this trait is positively connected to effectiveness and performance of job especially in the field of sales (Bing & Lounsbury, 2000; Lowery & Krilowicz, 1994; Mount, Barrick, & Strauss, 1999; Vinchur, Schippmann, Switzer III, & Roth, 1998). Nevertheless, sometimes, high extroverts create clatters that reduce the performance.

Openness to Experience

Openness to experience includes dynamic sentiments, creative empathy, thought to inward contemplations, a tendency for variety, profound thought and opportunity of judgment. This attribute addresses peoples' emblem as far as being imaginative, gutsy and open to new encounters. Individual who have low scores in this trait are traditional. People who have high score in this trait have are prepared for novel experimentations and explorations. This trait is positively associated with inventiveness and creativity (Baer & Oldham, 2006). A connection is found among heritability and openness to experience. This attribute is linked to success in the occupation of consultants (Hamilton, 1988), change

management (Rothmann & Coetzer, 2003) and training and development (Barrick & Mount, 1991).

Agreeableness

This attribute portrays proportions of personality like faith, sympathy and love. According to some researchers, this attribute is linked with societal conformism and public attractiveness related procedures (Paulhus & John, 1998). Agreeableness intends to be sincere, agreeable and supportive of societal. The people who have great score in this trait want to maintain pleasant social connections. This trait shows individual effort to uphold good relationships with other individuals. The individuals who have low score in this trait have disruptive conduct (Laursen, Pulkkinen, & Adams, 2002) and they face problems to regulating into community settings (Laursen, Hafen, Rubin, Booth-LaForce, & Rose-Krasnor, 2010). The low score in agreeableness also causes social adjustments (Wang, Hartl, Laursen, & Rubin, 2017).

Electronic Medical Records

Information technology is being utilized in practically every one of the fragments of life like training, transportation, construction, health, mass media etc., (Thorp, 2003). "An EMR is an official patient record that is shaped in digital design in hospitals and ambulatory settings". The arrangement of EMRs hold data including clinical activities, therapeutic symbolisms, patients' behavior and activities from medical services providers in a variety of arrangements (Mao & Sun, 2017). A great amount of clinical records have been created with the constant utilization of EMRs, attracting developing attention for researchers both medical services and information systems to direct important examinations with the enormous dataset (Mao & Sun, 2017). The formation of medical records in digital format empowers healthcare practitioners to share these records over the secured networks. It allows more consistent and safer healthcare process. It also allows healthcare practitioners in taking the correct decisions.

Individual Effectiveness

Individual effectiveness means "a measure of your efficiency, your ability to create maximum value in the minimum time and effort; and to make good progress in the face of difficulties". Individual effectiveness means a degree of your competence, sense, your capability to generate all-out worth in the least time and energy; and then to make decent growth in the time of troubles (Development, 2013). Individual effectiveness corresponds with the way of thinking of continual enhancement. In addition, individual effectiveness includes objective setting, individual improvement and drive, management of time and stress; supposing obligation of own work and creating immensity and growth. So, extremely effective individuals have better communication skills, have encouraging relations with others, can handle problems and pressure and can manage time and vigor well, and hence accomplish better as compared to individuals who are ineffective.

Material and Methods

This study is quantitative in nature and tests different hypotheses which have been extracted from a theoretical framework. For this study, the target population is medical practitioners who are performing their duties in different private and public hospitals of Pakistan. As per the records of Pakistan Medical Commission (PMC), there are 281,072 licensed medical practitioners in Pakistan till 13th July 2021. The sample size for this study was 413 medical doctors. The following process was adopted for the selection of sample size.

- 1: A complete list of hospitals which are recognized by PMC was taken.
- 2: Sample frame consisting of 13 hospitals was taken. All these hospital were easily approachable.
- 3: Overall 710 questionnaires were distributed to medical doctors.
- 4: The quantity of questionnaires was dispersed to different hospitals as per their human resource of doctors.

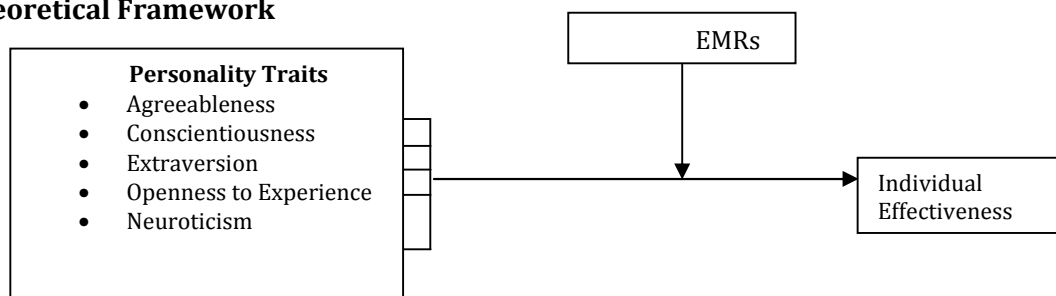
The structure of the questionnaires of study for existing investigation was to a great extent based on and obtained from three review surveys utilized in previous investigations. Seven point Likert scale was utilized in the research study. The subsequent table shows the different instruments which were used in the study.

**Table 1
Details of Instruments (N=413)**

S. No	Instrument Name	Source
1	Big Five Inventory	(John & Srivastava, 1999)
2	EMRs	(Kerollos, 2012)
3	Organizational Effectiveness	(Gold, Malhotra, & Segars, 2001)

In this study, out of 710 distributed questionnaires, 524 questionnaires were received. Out of 524 questionnaires, 413 questionnaires were selected for further investigations. The sampling techniques of simple random and stratified sampling were utilized in the research. Statistical Package for Social Sciences (SPSS) 25th edition was selected to perform statistical investigations. It was assured to the participants that the answers given by them will remain a private record in the protection of the investigators.

Theoretical Framework



Hypotheses of the Study

- H1: Agreeableness is associated with individual effectiveness.
- H2: Conscientiousness is associated with individual effectiveness.
- H3: Extraversion is associated with individual effectiveness.
- H4: Openness to Experience is associated with individual effectiveness.
- H5: Neuroticism is associated with individual effectiveness.
- H6: EMRs moderate the association between agreeableness and individual effectiveness.
- H7: EMRs moderate the association between conscientiousness and individual effectiveness.
- H8: EMRs moderate the association between extraversion and individual effectiveness.
- H9: EMRs moderate the association between openness to experience and individual effectiveness.
- H10: EMRs moderate the association between neuroticism and individual effectiveness.

Results and Discussion

The subsequent sections are envisioned for inclusive explanation and statistical enquiry of data to make this examination an unadulterated scholarly undertaking.

Test of Alpha for Evaluating Consistency for Variables

Nevertheless strategies were all around verified, researchers likewise needed to execute further examination of the variables by performing test of alpha to get protection that all items have reliability and inter-item consistency against the gathered sample. Hence, coefficients of cronbach alpha were planned to validate the consistency of actions and essential trustworthiness intended for diverse scales.

The values of cronbach alpha close to and above 0.7 are reflected satisfactory for reliability of gauge questionnaire. The different values of cronbach alpha for diverse scales range from 0.771 to 0.901, as shown in *Table 2*.

Table 2
Reliability Scales (N=413)

Construct	No. of Items	Cronbach Alpha Coefficient
Personality Traits	44	0.784
EMRs	17	0.901
Individual Effectiveness	12	0.771

Descriptive Statistics

An intriguing examination is an arrangement that attempts to expand extra information about a nitty gritty characteristic inside a specific field of study. Upheld expressive measurements are important in unfurling a bunch of figures (Triola, 2003). The descriptive statistics which incorporate score for mean and standard deviations are uncovered in *Table 3*. The value of mean for neuroticism is 3.590 which basically clarifies that most of the respondents have showed moderately disagree answer for neuroticism.

The standard deviation score for neuroticism is 0.819 which shows that the dissimilarity of information from mean of neuroticism. The wide range of various values of mean and standard deviation are reasonable as shown in *Table 3*.

Table 3
Descriptive Statistics (N=413)

Construct	Means	Standard Deviation
Neuroticism	3.590	0.819
Extraversion	4.980	0.704
Openness to Experience	5.252	0.739
Agreeableness	4.528	0.608
Conscientiousness	4.063	0.597
Individual Effectiveness	5.146	0.634
Electronic Medical Records	4.201	0.802

Bivariate relationship

The examination of correlation is the impression of conduct of data and is used to show relationship among assorted factors utilized in the research. The results of correlation are utilized to drop the extent of uncertainty. The forecasts upheld by investigation of correlation are dependable and close to reasonableness. It is utilized to check the relationship between two or more than two constructs. The value of correlation among openness to experience and individual effectiveness is 0.279. The value of association among agreeableness and EMRs is 0.281. All the details of correlation values have been shown in *Table 4*. The values of correlation are suitable for the study.

Table 4
Correlation Analysis (N=413)

Construct	1	2	3	4	5	6	7
Neuroticism	1						
Extraversion	0.88	1					
Openness to Exp	-0.098*	0.347**	1				
Agreeableness	0.194**	0.184**	0.183**	1			
Conscientiousness	0.278**	0.013	-0.021	0.220**	1		
Ind. Effectiveness	0.046	0.197**	0.279**	0.148**	0.183**	1	
EMRs	0.042	0.186**	0.169**	0.281**	0.197**	0.205**	1

** "Correlation is significant at 0.01 level (2-tailed)"

* "Correlation is significant at 0.05 level (2-tailed)"

Demographics

Demographics show a quantifiable perspective of a populace, by and large incorporates age, sex, salary, profession etc. In this study, demographics have been calculated as shown in *Table 5*. According to *Table 5*, there are 52.1 were male doctors and 47.9 were female doctors. Majority of the doctors belong to the age group of 46-50. Majority have the experience of 0-5 years. 52.3 percent of the doctors were having the degree of Bachelor of Medicine and Bachelor of Surgery.

Table 5
Demographics Details (N=413)

Gender	N	%
Male	215	52.1
Female	198	47.9
Age		
20-25	54	13.1
26-30	80	19.4
31-35	40	9.7
36-40	47	11.7
41-45	51	12.3
46-50	86	20.8
51 & above	55	13.3
Job Experience		
0-5	141	34.1
6-10	53	12.8
11-15	37	9.0
16-20	121	29.3
21-25	13	3.1
26-30	30	7.3
31 & above	18	4.4
Qualification		
Bachelor of Medicine and Bachelor of Bachelors of Dental Surgery	216	52.3
Fellow College of Physicians and Surgeons	26	6.3
Member of College of Physicians and Surgeons	57	13.8
Fellowship of the Royal College of Surgeons	22	5.3
	92	22.3

Regression Analysis

It is mostly employed for predicting and forecasting. The regression outcomes of five traits of personality on individual effectiveness are showed in *Table 6*. Five personality traits (openness to experience, agreeableness, neuroticism, extraversion and conscientiousness) are independent variable while individual effectiveness is the dependent variable. The value of $F=11.748$ and $Sig =0.000$, so the model is statistical significant. The elements appeared in the archetypal have the value of explained variance = 12.6 part in the reliant mutable i.e. individual effectiveness. Between autonomous

variables, openness to experience has major impact on individual effectiveness with beta value =0.205, t=4.742 and p=0.000. As the value of beta =0.205, so one unit of increase or decrease will bring 0.205 unit increase or decrease in the dependent variable. The value is p=0.000, so this indicates of acceptance of hypothesis H4 i.e., Openness to Experience is associated with individual effectiveness.

The impact of agreeableness on individual effectiveness =0.198. The p value=0.000, so the hypothesis H1 is also accepted. The hypotheses H2, H3 are also accepted. The hypothesis H5 is rejected as the value of p > 0.05. All the outcomes are revealed in Table 6.

Table 6
Regression between Personality Traits and Individual Effectiveness (N=413)

Ind. Var	Dep.Var	R ²	F-value	Sig	Beta	t	p
Agreeableness	Individual Effectiveness	0.126	11.748	0.000	0.198	3.940	0.000
Conscientiousness					0.187	3.590	0.000
Extraversion					0.093	2.053	0.041
Openness to Exp					0.205	4.724	0.000
Neuroticism					0.002	0.051	0.959

Ind. Var standpoints for Independent Variables Dep. Var standpoints for Dependent Variables

Moderation Analysis of Regression of Electronic Medical Records between Personality Traits and Individual Effectiveness

The moderation analysis of regression is applied to see the impact of moderation variable among independent and dependent variable (Cohen, Cohen, West, & Aiken, 2013).The method of Baron and Kenny has been used in the analysis of moderation.

Table 7 displays the connection among agreeableness and individual effectiveness moderated by EMRs. The model is statistically significant at all the steps. At step 1, the value of R² = 12 percent. The worth of Beta for EMRs and agreeableness =0.183 and 0.143 respectively. At step 2, the value of R² = 15.5 percent and shows that 15.5 percent of the variance can be described by agreeableness and EMRs. At step 2, interaction term has been introduced. The outcome shows that the value of beta = 0.945, t value =4.521 and the value of p = 0.000, so it indicates that EMRs moderate the association between agreeableness and individual effectiveness.

So the hypothesis H6 is accepted, which statuses that EMRs moderate the association between agreeableness and individual effectiveness.

Table 7
Regression among Agreeableness and Individual Effectiveness moderated by EMRs

Step	Ind. Var	Dep.Var	R ²	F-value	Sig	Beta	t	p
1	Agreeableness	Ind. Eff	0.120	22.457	0.000	0.183	5.901	0.000
	EMRs					0.143	7.899	0.000

2	Agreeableness	Ind. Eff	0.155	14.936	0.000	0.536	3.877	0.000
	EMRs					0.922	5.741	0.000
	Interaction					0.945	4.521	0.000

Table 8 demonstrates the connection among conscientiousness and individual effectiveness moderated by EMRs. The models are statistically significant at all the steps. The interaction term shows that the assessment of p is less than 0.005, so it establishes that the hypothesis H7 is recognized which shapes that EMRs moderate the connotation between conscientiousness and individual effectiveness.

Table 9 displays the connotation between extraversion and individual effectiveness moderated by EMRs and here the hypothesis H8 is also acknowledged which statuses that EMRs moderate the connotation between extraversion and individual effectiveness. From Table 10, it is proved that our hypothesis H9 is also acknowledged which statuses that EMRs moderate the association between openness to experience and individual effectiveness.

Table 11 shows that the value of interaction term in case of p is greater than 0.005, so our hypothesis H10 is overruled which shapes that EMRs moderate the association between neuroticism and individual effectiveness.

Table 8
Regression among Conscientiousness and Individual Effectiveness moderated by EMRs

Step	Ind. Var	Dep.Var	R ²	F-value	Sig	Beta	t	p
1	Conscientiousness	Ind. Eff	0.332	25.396	0.000	0.081	2.687	0.008
	EMRs					0.179	5.941	0.000
2	Conscientiousness	Ind. Eff	0.337	17.520	0.000	0.089	2.897	0.004
	EMRs					0.182	6.018	0.000
	Interaction					0.033	2.297	0.003

Table 9
Regression among Extraversion and Individual Effectiveness moderated by EMRs

Step	Ind. Var	Dep.Var	R ²	F-value	Sig	Beta	t	p
1	Extraversion	Ind. Eff	0.115	26.568	0.000	0.092	3.056	0.002
	EMRs					0.178	5.933	0.000
2	Extraversion	Ind. Eff	0.120	17.561	0.000	0.180	3.052	0.002
	EMRs					0.098	5.924	0.000
	Interaction					0.022	4.072	0.000

Table 10
Regression among Openness to Experience and Individual Effectiveness moderated by EMRs

Step	Ind. Var	Dep.Var	R ²	F-value	Sig	Beta	t	p
1	Openness to Experience	Ind. Eff	0.148	35.472	0.000	0.170	5.046	0.000
	EMRs					0.148	5.791	0.000
2	Openness to Experience	Ind. Eff	0.150	23.855	0.000	0.149	5.066	0.000
	EMRs					0.175	5.838	0.000
	Interaction					0.024	2.822	0.001

Table 11
Regression among Neuroticism and Individual Effectiveness moderated by EMRs

Step	Ind. Var	Dep.Var	R ²	F-value	Sig	Beta	t	p
1	Neuroticism	Ind. Eff	0.096	21.691	0.000	0.021	0.714	0.476
	EMRs					0.194	6.512	0.000
2	Neuroticism	Ind. Eff	0.097	14.568	0.000	0.023	0.766	0.444
	EMRs					0.195	6.529	0.000
	Interaction					-0.016	-0.622	0.535

The results of current research are gauged to the outcomes of past investigations. The distinguished connection among agreeableness and individual effectiveness was practically nonexistent in the past researches. The outcomes of this investigation are in concurrence with the consequences of (Witt, Burke, Barrick, & Mount, 2002). Thus, agreeableness is a significant forecaster of individual effectiveness and it emphatically affects expanding individual effectiveness in hospital settings. As far as conscientiousness is concerned, the results of this research are as per the results of (Hassan, Akhtar, & Yilmaz, 2016). So there is empirical proof that conscientiousness do relate with individual effectiveness of doctors working in hospitals. The result of the current study in case of extraversion is also as per the study of (Klang, 2012). So it means extraversion also do impact on the performance of doctors in hospitals. Openness to experience is also a forecaster of individual effectiveness at hospital settings as the outcome of this study is per the study of (Amir, Naz, Hafeez, Ashfaq, & Dogar, 2014). Neuroticism is not linked with individual effectiveness in hospitals and the result is per the study of (JALAL, ZEB, & FAYYAZ, 2019). In case of moderation outcomes, EMRs moderate the connection between (agreeableness, conscientiousness, extraversion and openness to experience) and individual effectiveness.

This study is envisioned to be quite possibly the main commitments in the field of individual effectiveness. The present study adds to eliminate the pragmatic openings in the field of individual effectiveness. The current investigation has been completed in the hierarchical setting; along these lines, this setting has given adequacy of the results of the study.

Conclusion

The findings of the study offer a profound understanding into many factors which have remarkable effects on individual effectiveness in healthcare industry of Pakistan. According to findings of this research, following ends could be extracted. The study was quantitative in nature which was led to inspect and explore the association among five traits of personality and individual effectiveness. Agreeableness, conscientiousness, extraversion and openness to experience have an influence on individual effectiveness. Neuroticism has no effect on individual effectiveness. The study also focused on the moderating role of EMRs between five traits of personality and individual effectiveness. Except neuroticism, all other traits of personality have an influence on individual effectiveness. So, it is obvious that EMRs moderate the connection between five traits of personality and individual effectiveness excluding neuroticism.

So as per the findings of this study, the doctors who have features of agreeableness, conscientiousness, extraversion and openness to experience, tolerate alliances to be formed, which allow superior elevations of individual effectiveness in hospital settings. The research is very important for the management of hospitals i.e., they must evaluate the personality traits of doctors before appointing them.

Recommendations

The following are some specific suggestions and recommendations which can be monitored in upcoming studies.

- 1: This study was based on direct and moderating relationships among the variables; in future mediating studies are suggested.
- 2: This study was quantitative in nature; qualitative study is also recommended to get refined results.
- 3: The current research may also be deployed in some other organizations to enhance its generalizability.

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