Impact of work environment perceptions and communication satisfaction on the intention to quit: An empirical analysis of nurses in Saudi Arabia

Abdulaziz M Alsufyani [Corresp., 1, 2], Khalid E Almalki [3], Yasir M Alsufyani [4], Sayer M Aljuaid [2], Abeer M Almutairi [5], Bandar O Alsufyani [6], Abdullah S Alshahrani [7], Omar G Baker [1], Ahmad E Aboshaiqah [1]

[1] College of Nursing, King Saud University, Riyadh, Saudi Arabia

[2] Comprehensive Rehabilitation Center, Ministry of Human Resources and Social Development, Taif, Saudi Arabia

[3] Primary Health Care Center, Ministry of Health, Riyadh, Saudi Arabia

[4] College of Nursing, King Khaled University, Abha, Saudi Arabia

[5] King Fahad Specialist Hospital, Ministry of Health, Buridah, Saudi Arabia

[6] King Abdulaziz Specialist Hospital, Ministry of Health, Taif, Saudi Arabia

[7] Ahad Rufidah Hospital, Ministry of Health, Asser region, Saudi Arabia

Corresponding Author: Abdulaziz M Alsufyani
Email address: A.M.Alsofyani2@hrsd.gov.sa

Objective: In consideration of the current nursing shortage in Saudi Arabia, we aimed to investigate the association among perceptions of work environment, communication satisfaction, and intentions to quit nursing profession among nurses. In addition, we aimed to investigate the mediating effect of communication satisfaction on the association between nurses' perception of work environment and their intentions to quit nursing profession.

Methods: This predictive correlational study was conducted at one of the major hospitals in Saudi Arabia from January 2020 to March 2020. It included a convenience sample of 367 full-time registered nurses who completed three types of close-ended questionnaires. We used IBM SPSS version 24.0 to analyze the collected data. Regression analyses were used to test the study's hypotheses. All regression assumptions were assessed and confirmed. Significance for all tests was set at $p \leq .05$.

Results: The findings indicated an affirmative association between work environment perception and communication satisfaction ($b = .764$, $p < .05$) among nurses. In addition, findings showed that work environment perception ($b = -.187$, $p < .05$) and communication satisfaction ($b = -.226$, $p < .05$) have negative impacts on the nurses' intentions to quit; indicating that as work environment perception or communication satisfaction increases, the intention to quit decreases among nurses. Further, a mediation effect of communication satisfaction on the relationship between work environment perception and intention to quit was confirmed.

Conclusion: This study presents a novel conceptual framework developed based on the literature about the predisposing factors for nurses' intentions to quit nursing profession. The findings highlighted that work environment perception and communication satisfaction among the most contributing factors for nurses' resignation. Effective communication was established as a crucial factor for establishing attractive and healthy working environment. Nursing managers can benefit by applying these findings to develop appropriate strategies to inhibit the shortage of nurses in Saudi Arabia.

1 # Impact of Work Environment Perceptions and

2 # Communication Satisfaction on the Intention to Quit:

3 # An Empirical Analysis of Nurses in Saudi Arabia

4

5 Abdulaziz M. Alsufyani[1,2*], Khalid E. Almalki[3], Yasir M. Alsufyani[4], Sayer M. Aljuaid[2], Abeer

6 M. Almutairi[5], Bandar O. Alsufyani[6], Abdullah S. Alshahrani[7], Omar G. Baker[1], Ahmad E.

7 Aboshaiqah[1]

8

9 [1] College of Nursing, King Saud University, Riyadh, Saudi Arabia

10 [2] Comprehensive Rehabilitation Center, Ministry of Human Resources and Social Development,

11 Taif, Saudi Arabia

12 [3] Primary Health Care Center, Ministry of Health, Riyadh, Saudi Arabia

13 [4] College of Nursing, King Khaled University, Abha, Saudi Arabia

14 [5] King Fahad Specialist Hospital, Ministry of Health, Buridah, Saudi Arabia

15 [6] King Abdulaziz Specialist Hospital, Ministry of Health, Taif, Saudi Arabia

16 [7] Ahad Rufidah Hospital, Ministry of Health, Asser region, Saudi Arabia

17

18

19

20 *** Corresponding Author:**

21 Abdulaziz M. Alsufyani

22 Email address: A.M.Alsofyani2@hrsd.gov.sa

Abstract

Objective: In consideration of the current nursing shortage in Saudi Arabia, we aimed to investigate the association among perceptions of work environment, communication satisfaction, and intentions to quit nursing profession among nurses. In addition, we aimed to investigate the mediating effect of communication satisfaction on the association between nurses' perception of work environment and their intentions to quit nursing profession.

Methods: This predictive correlational study was conducted at one of the major hospitals in Saudi Arabia from January 2020 to March 2020. It included a convenience sample of 367 full-time registered nurses who completed three types of close-ended questionnaires. We used IBM SPSS version 24.0 to analyze the collected data. Regression analyses were used to test the study's hypotheses. All regression assumptions were assessed and confirmed. Significance for all tests was set at $p \leq .05$.

Results: The findings indicated an affirmative association between work environment perception and communication satisfaction ($b= .764$, $p < .05$) among nurses. In addition, findings showed that work environment perception ($b=-.187$, $p < .05$) and communication satisfaction ($b= -.226$, $p < .05$) have negative impacts on the nurses' intentions to quit; indicating that as work environment perception or communication satisfaction increases, the intention to quit decreases among nurses. Further, a mediation effect of communication satisfaction on the relationship between work environment perception and intention to quit was confirmed.

Conclusion: This study presents a novel conceptual framework developed based on the literature about the predisposing factors for nurses' intentions to quit nursing profession. The findings highlighted that work environment perception and communication satisfaction among the most contributing factors for nurses' resignation. Effective communication was established as a crucial factor for establishing attractive and healthy working environment. Nursing managers can benefit by applying these findings to develop appropriate strategies to inhibit the shortage of nurses in Saudi Arabia.

Keywords. Communication Satisfaction, Intention to Quit, Nurses, Work Environment.

Introduction

In the Kingdom of Saudi Arabia, healthcare spending keeps on heightening. That is because health organizations are the central aspects of a healthcare system in Saudi Arabia as they significantly affect the health of community. Nurses are among the largest and crucial workforces within health care organizations as they are accountable to guide and provide the optimum care. According to Oliveira et al., (2017), concerns that adversely influence nurses elevate the probability of challenges in the delivery of optimal healthcare services. One of these challenges, is nursing shortage which is dominant in Saudi Arabia (Alsufyani et al., 2020; Aboshaiqah, 2016).

However, it was established that nursing shortage preceding by nurses' intentions to quit the profession. In addition, in the literature there are many factors linked to the nurses' resignation. For instance, Nantsupawat et al., (2016), stated that intention to quit nursing profession exacerbates by stressful work environment and poor communication climate and strategies. In addition, Özer et al., (2017) established that nurses' satisfaction about work environment and communication climate within their healthcare organization play an important role in their intentions to leave their jobs.

On the other hand, working environment constitutes a fundamental aspect for the effective perception and competent delivery of care among nurses. In this context, the work environment entails the social, physical, and psychological factors that influence and make-up the working conditions (Raziq & Maulabakhsh, 2015). In addition, the work environment was defined by Kohun (2005; p.27) as "the combination of efficiency factors, actions, and possible challenges associated with the performances and activities of individuals". Precisely, every element of the relationship is included in the organizational environment between individuals and their work setting (Tsai, 2011). However, the objective of building healthy and stable work environment is to enhance the quality of health services through retaining competent nurses and encouraging individuals' use of their skills, knowledge, and existing resources effectively and efficiently. Falatah and Conway (2019) postulate that a poor workplace environment results in stress and dissatisfaction which increases employees' intentions to quit. Workplace factors such as working hours, administrative style, perceived workload, coworkers support, and sharing in decision-making fundamentally influence the decision of employees to remain or leave their nursing jobs (Abdien, 2019; Al-Jenaibi, 2010; Masum et al., 2016). In addition, Admi et al. (2018), pointed

85   out that a poor work environment cause demoralization, dissatisfaction, and frustration. Further,

86   the problem in the working environment is worsened by a lack of communication, which, in turn,

87   leads to greater intentions to quit.

88   Communication is a social-sentimental status that strengthens the interpersonal relationship,

89   collaborative teamwork, and interactions. Communication is also a part of satisfaction in the

90   workplace; it is encompassing the distribution of information with and among personnel (Hua &

91   Omar, 2016). Communication satisfaction is demonstrated as the level to which a person is

92   satisfied with different elements of organizational interaction including work knowledge,

93   personal feedback, interdepartmental communication, horizontal communication,

94   communication with supervisors, the communication climate, and media quality (Alshammari,

95   Duff & Guilhermino, 2019; Andersson, 2018). Poor communication results in information

96   asymmetry and often, workplace conflicts which exacerbate misunderstanding between

97   employers and employees. Poor communication in nursing environment results in poor

98   collaboration among team's members in a unit, which adversely affects the quality of the offered

99   care to patients. In addition, it deteriorates nurses' attachment to the organization and this

100   provokes their willingness to leave the nursing profession (Doleman et al., 2020).

101   The intention to quit nursing profession among nurses in Saudi Arabia was recently gained more

102   attention. Unfortunately, many of these studies showed massive and terrible rates of intentions to

103   quit among nurses. For instance, Suliman (2009) reported the highest rate of intentions to quit

104   among nurses as it was 77.1% among bedside nurses, followed by 38% among nurse managers.

105   Al-Ahmadi (2014) reported another high rate of turnover intentions among nurses in Saudi

106   Arabia (60%). Surprisingly, the findings of Al-Ahmadi (2014) were congruent with a study has

107   conducted before 25 years by Saeed (1995) in Riyadh, Saudi Arabia. More recently, in a study

108   conducted by Alonazi and Omar (2013), the findings showed that the majority of the study's

109   sample (75%) showed their intentions to leave within 24 months. In this regard, Al-Zayyer,

110   (2003), estimated the average length of expatriate nurses' stay in their jobs in Saudi Arabia as 43

111   months. In addition, Filipino nurses were the most nationality had high rate of intentions to quit

112   nursing profession in Saudi Arabia, followed by Indian nurses (Albougami et al., 2020).

113   However, across the world, the impacts of working environment perception and communication

114   satisfaction on nurses' intentions to quit have been documented. In contrary, although Saudi

115   Arabia is currently experiencing shortage of nursing workforce and high rates of intentions to

116 leave the profession among nurses, these variables have been scantly investigated in Saudi

117 Arabia. Therefore, this study intends to examine the association among nurses' perceptions of

118 work environment, communication satisfaction, and their intentions to quit the nursing

119 profession in King Faisal Medical Complex (KFMC), Saudi Arabia. In addition, this study aims

120 to investigate the indirect effect of nurses' work environment perception on their intentions to

121 quit through communication satisfaction. Consistent with the conceptual framework which

122 guides this study, the following hypotheses were examined:

123 **H$_1$.** Nurses' perceptions of their work environment significantly predict their satisfaction about

124 communication in their institution.

125 **H$_2$.** Nurses' perceptions of their work environment significantly predict their intentions to quit

126 nursing profession.

127 **H$_3$.** Nurses' satisfaction about communication in their institution significantly predicts their

128 intentions to quit nursing profession.

129 **H$_4$**. Nurses' perceptions of work environments have significant indirect effect on their intentions

130 to quit through communication satisfaction as a mediator.

131

132 **Theoretical & Conceptual Framework**

133 The model of nurse turnover proposed by Lake (1998), as shown in Figure 1, was used to

134 develop the study's conceptual framework. This model emphasizes nurse's intention to quit and

135 personnel turnover as the main outcome variable. Job opportunity, individual factors, and work-

136 related factors were included in the initial stage, while clinical autonomy and satisfaction were

137 included in the middle phase of the affective responses. In the last stage of the framework, the

138 actual turnover was resulted as an outcome of intention to quit nursing profession.

139   [Inset Figure 1 here]

140 We also added some new variables found in previous studies to modify Lake's nurse turnover

141 model to discuss the relationship between intention to quit and work environment from the

142 nurses' viewpoint as shown in Figure 2. This new model comprises organizational factors as the

143 nursing work environment and affective responses to the job as communication satisfaction. It

144 drawn based on the organizational factors and affective responses leading toward nurses'

145 perceptions of their intentions to quit.

146   [Insert Figure 2 here]

Materials & Methods

Research Design and Setting

This predictive correlational study was conducted at King Faisal Medical Complex in Taif, Saudi Arabia throughout the cross-sectional period from January 2020 to March 2020. This facility is known as one of the finest major hospitals in Saudi Arabia with a capacity of 800 beds.

Sample and Population

Nurses were recruited from King Faisal Medical Complex using a convenience sampling technique. Staff nurses included in this study were those with a minimum of two years of experience who were designated to work at patients' bedsides. Nurses were included if they had a valid working license as a nurse by the Saudi Commission for Health Specialties and worked as full-time as staff nurse. Exclusion criteria were paramedics, internship nurses, educators, managers, supervisors, and dependent nurses under supervision. An a prior sample size estimation was calculated using 95% power, $\alpha=0.05$, and medium effect size with F test as the statistical basis of the calculation using G*Power 3.0™. As a result, the calculated sample size of 107 was deemed adequate to produce statistical differences.

Research Instruments

Three instruments were used in their original languages (English); including S Practice Environment Scale of the Nursing Working Index (PES-NWI) (Lake, 2002); Communication Satisfaction Questionnaire (CSQ) (Downs & Hazen, 1977); and Intention to Quit Scale (Cammann, 1979). These instruments were covered with an appropriate socio-demographic questionnaire.

Socio-demographic Questionnaire

Part of the survey used in this study included demographic profiles of the participants. Nurses' gender, age, nursing work experience, and nationality were assessed.

Practice Environment Scale of the Nursing Work Index (PES-NWI)

The PES-NWI was used in the survey to examine the perception of the nurses about the real work environment. The PES-NWI comprised five subdomains and a total of 31 items: nursing foundations for quality of care (n = 10), nurse participation in hospital affairs (n = 9), leadership and support of nurses (n = 5), staffing and resource adequacy (n = 4), and collegial nurse-

178   physician relations (n = 3). A four-point Likert scale was used to measure the items of the PES-

179   NWI, from strongly disagree = 1 to strongly agree = 4. Previously, Almuhsen et al. (2017)

180   verified the validity and reliability of the scale, which vary from 0.87 to 0.96. In addition, this

181   instrument was used in its original language. In this study, Cronbach's Alpha coefficient

182   indicated the reliability of the PES-NIW as $\alpha = .94$.

183   ***Communication Satisfaction Questionnaire (CSQ)***

184   Downs and Hazen (1977) introduced a communication satisfaction questionnaire, including 25

185   questions from five sub-dimensions: organizational feedback, communication with a supervisor,

186   communication climate, and organizational integration. A five-point Likert scale is used to

187   measure the questionnaire items, from 1 = strongly disagree to 5 = strongly agree. Previously,

188   Greenbaum, Clampitt, and Willihnganz (1988) found internally reliable and consistent

189   Cronbach's alpha scores across all organizations. In this study, Cronbach's coefficient alpha

190   calculated for the reliability of the CSQ and found to be $\alpha = .91$.

191   ***The Intention to Quit Scale***

192   Cammann et al. (1979) developed a scale for measuring employees' intentions to quit. The scale

193   is scored using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

194   This questionnaire has been used in previous studies and its inter-reliability has been established,

195   varying from 0.83 to 0.92. In the present study, the reliability of this scale was found to be

196   appropriate and valid with Cronbach's Alpha coefficient of $\alpha = .89$.

197

198   **Ethical Approval**

199   Ethical approval from an institutional review board was obtained from the Saudi Ministry of

200   Health, ref. No. HAP-02-T-067. Permission to conduct this study was granted by the nursing

201   management office of the King Faisal Medical Complex. The informed consents of the subjects'

202   agreement to participate in this study and the subjects' agreement to use their drawn data by the

203   researcher were gained. This study was consistent with the ethical principles of the Declaration

204   of Helsinki. Declaration of Helsinki is a set of ethical principles concerning protecting the human

205   beings in researches which was developed by the World Medical Association (WMA, 2013).

206

207

208

Data Collection Procedure

Data were collected during the three-month period from January 2020 to March 2020. The participants completed the questionnaires and returned them to the designated place of submission after first receiving guidance about the study objectives and providing their written consent to participate. All participants were asked to submit their completed questionnaires within five days. Submissions were received in collection boxes allocated for this purpose at KFMC.

Data Analysis

We used the IBM Statistical Package for Social Sciences (SPSS) version 24.0 to analyze the collected data. The demographic details related to nurses were presented through descriptive statistics. As the data was normally distributed, the relationships between communication satisfaction, intention to quit, and work environment were determined using Pearson's Correlation coefficient (r). Regression assumptions (normality, homoscedasticity, linearity, independence of errors, and multicollinearity) were assessed to present valid results. Normality was assessed using normal probability-probability (P-P) plot of residuals. As the assumptions of homoscedasticity and linearity relate to the errors (Filed, 2018), they were assessed by plotting the predicted values versus errors (*zpred* vs. *zresid*) on a scatterplot. Further, independence of errors was assessed using Durbin-Waston test for each model. Absence of multicollinearity was assessed through screening correlation matrix and Variance Inflation Factor (VIF). The study's hypotheses were tested using regression analyses with an equation of $y = \alpha + bx$, where is *"y"* denoted for the predicted value of the dependent variable; *"x"* denoted for the independent variable; *"b"* is slope of the line; and *"a"* is y-intercept (Gray, Grove, & Sutherland, 2017). Particularly, hypothesis one, two, and three were tested using simple linear models. Hypothesis four was tested using multiple linear model (MLR) with force entry technique. In MLR, we regressed work environment perception and communication satisfaction as predictors against nurses' intentions to quit nursing profession as a dependent variable. In addition, the used equation for MLR was as follows: $y = a + b_1x_1 + b_2 x_2$ (Shultz, Whitney, & Zickar, 2014); where is *"y"* denoted for the predicted value of nurses' intentions to quit; *"a"* denoted for y–intercept; *"b_1"* is the regression coefficient of work environment perception (x_1); and *"b_2"* is the regression

PeerJ

239   coefficient of communication satisfaction (x_2). The acceptable probability value for all the

240   statistical analyses was determined as $p \leq .05$.

241

242   Results

243   Of the 793 full-time nurses at the King Faisal Medical Complex, 500 received questionnaires and

244   367 completed surveys were returned, representing a response rate of 73.4%. Table 1 shows the

245   demographic profile of participants. The majority of the participants were female (78.7%), and

246   their ages ranged from 31–40 years. Most nurses (56.1%) were in the "other" category of

247   specialization, followed by OB/GYN, Med/Surg, and "critical," at 19.3%, 15.6%, and 9.0%,

248   respectively. Additionally, nurses of many nationalities participated in this study, including

249   Filipino (41.7%), Indian/Pakistani (25.3%), and Saudi (23.7%); "other nationalities" constituted

250   9.3% of the sample.

251   [Table 1 here]

252   Table 2 shows that out of these three factors, the mean score for work environment, 3.72 ± 0.63,

253   was greater compared to the other two factors. The satisfaction of nurses regarding

254   communication levels and work environment were moderate. Additionally, a moderate level of

255   probability was reported for intentions to quit among nurses, 2.47 ± 1.38. A positive and

256   significant relationship was revealed between work environment and communication satisfaction

257   ($r = .613$; $p < .05$). These findings confirm the absence of multicollinearity between the

258   predictors as their relationship was < 0.8 and > 0.3. In addition, the association between work

259   environment perception and the intention to quit was found to be negative and significant ($r = -$

260    $.702$; $p < .05$). Furthermore, the findings indicated that nurses' intentions to quite had inversely

261   significant relationship with their communication satisfaction ($r = -.581$; $p < .05$).

262   [Insert Table 2 here]

263   The findings of regression assumptions tests showed no assumption was violated. Figure 3 shows

264   that the residuals were normally distributed as they conformed to the fixed diagonal line of

265   normality shown in the plot. In addition, the result of plotting the predicted values versus errors

266   (*zpred vs. zresid*) on a scatterplot showed a random array of dots; indicated that data met

267   homoscedasticity and linearity assumptions of regression test. In addition, the absence of

268   multicollinearity was confirmed by the result of VIF test which showed no variable has VIF

269   greater than 10. Further, the results of Durbin-Watson test confirmed the autonomy of residuals

270   as its values varied from 1.73 to 1.99 in all models.

271   [Insert Figure 3 here]

272   Table 3 shows that the work environment perception of nurses regressed against their

273   communication satisfaction. The findings showed statistically significant impact of work

274   environment perception on the intention to quit among nurses (b= .764, p < .05); indicating that

275   as work environment perception increases among nurses, their communication satisfaction

276   increases proportionately. In addition, work environment explains 84% of the total variance for

277   communication satisfaction (F = 1950.8; p < .05). Therefore, it is confirmed that nurses'

278   perceptions of work environment significantly predict their satisfaction about communication

279   inside their institution and, thus, H_1 was accepted. Based on these results, the formulated

280   regression equation described as: *communication satisfaction* = 4.454 + .764 (*work environment*

281   *perception*)

282   [Insert Table 3 here]

283   Table 4 presents that nurses' perceptions of work environment regressed against their intentions

284   to quit nursing profession. The findings indicated a significant negative influence of working

285   environment perception on the intention to quit among nurses (b= -.187, p < .05); indicating that

286   as nurses' perception of work environment increases, their intentions to quit declines and vice

287   versa. Further, it describes 79% of the total variation in nurses' intentions to quit (F = 1352.2; p

288   < .05). Therefore, it is confirmed that nurses' perception of work environment significantly

289   predicts nurses' intention to quit, thus accepting H_2. In addition, based on the results of model

290   two, the formulated regression equation was as follows: *intention to quit* = 29.053 - 0.187 (*work*

291   *environment perception*).

292   [Insert Table 4 here]

293   Similarly, H_3 was accepted as shown in Table 5, as findings indicated that nurses'

294   communication satisfaction significantly predicts nurses' intentions to quit (b= -.226, p < .05).

295   Further, nurses' communication satisfaction explains 78% of total variance in their intentions to

296   quit nursing profession (F = 1372.4; p < .05). The formulated regression equation shown as:

297   *intention to quit* = 28.311- 0.226 (*communication satisfaction*).

298   [Insert Table 5 here]

299 Lastly, as shown in Table 6, when communication satisfaction was added to the second model in

300 Table 4, which regressed the nurses' perceptions of work environment against their intention to

301 quit nursing profession, that relationship was considerably became weak from as it was b= -.187

302 to b= -.096, $p < .05$, 95% CI [-.119, -.073]; indicating a significant indirect effect of the nurses'

303 perceptions of work environment on their intention to quit through their communication

304 satisfaction as a mediator variable. In other words, the communication satisfaction explains the

305 association between the nurses' work environment perception their intentions to quit, thus, we

306 accepted H_4. When presenting these results into the MLR's equation, it showed as: *intention to*

307 *quit* = 29.586 - 0.096 (*work environment perception*) - 0.120 (*communication satisfaction*).

308 However, Figure 4 summarizes and presents the associations among the study's variables in a

309 schematic diagram.

310 [Insert Table 6 here]

311 [Insert Figure 4 here]

312

313 **Discussion**

314 This study investigates the associations between work environment perception, satisfaction about

315 communication within the healthcare organization among nurses. In addition, it investigates the

316 impact of these variables on the intention to quit from nursing profession as they were found in

317 the previous studies as determinants of intention to quit among nurses, which in turn, lead to

318 resignation and staff shortage (AbuAlRub et al., 2016; Albougami et al., 2020; Oliveira et al.,

319 2017; Özer, et al., 2017).

320 The findings showed that the participants demonstrated a moderate level of perception regarding

321 their work environment. These results are congruent with other studies conducted in Saudi

322 Arabia (AlMoosa et al., 2020; Almuhsen, et al., 2017), which showed the moderate level of

323 satisfaction about work environment among multi-nationalities nurses. Concomitantly, in

324 international studies, no exceptions, the situation is comparable (Al-Hamdan et al., 2017; Ulusoy

325 & Polatkan, 2016; Özer, et al., 2017). However, the modest levels of work environment

326 perception in Saudi Arabia are unexpected when they compared to the total governmental

327 expenses on the healthcare delivery system. In 2018, the governmental expenses on healthcare

328 system have reached to 90 billion Saudi Riyals which constituted about 9.2% of total

329 governmental budget (Ministry of Health, 2018). However, it is reasonable to link these modest

330   levels of work environment satisfaction to the current reported challenges in Saudi nursing

331   practice. Per Alsufyani et al., (2020), the status quo of nursing practice in Saudi Arabia is facing

332   several challenges including; shortage of staff, absence of clear and defined scope of practice,

333   and lack of national and international benchmarking.

334   Likewise, the findings showed that the study's participants ranked their satisfaction about

335   communication within KFMC as moderate. Due to the dearth of local studies assessing the

336   communication satisfaction among nurses in Saudi Arabia, these findings were compared to

337   international studies. However, these findings are in line with previous studies (Özer, et al.,

338   2017; Vermeir et al., 2018). Although these studies investigated the importance of

339   communication satisfaction and its role in enhancing job satisfaction, quality of care, and nurse

340   retention, they showed moderate levels of communication satisfaction. In addition, these studies

341   described and illustrated the presence of communication gap between top nursing management

342   and bedside nurses. However, this communication gap indicates the presence of centralized

343   management which restricts communication, sharing in decision-making, and professional

344   autonomy. Further, centralized management was also reported by Alsufyani et al., (2020) as one

345   of the challenges in nursing practice in Saudi Arabia. In addition, almost all of healthcare

346   organizations in Saudi Arabia depend heavily on non-Saudi nurses from various nationalities

347   with different mother languages such as: English, Hindi, Malayic, Tagalog, Tamil, and Urdu.

348   Hence, it is important to foster communication and feedback within Saudi Arabian healthcare

349   organizations through training programs concerning communication skills.

350   The findings of this study revealed a medium-level of intention to quit among nurses. These

351   findings are consistent with other Saudi Arabian studies (Albougami et al., 2020; Alsaqri et al.,

352   2014) and other overseas studies (Bal, 2013; Danayiyen, 2015; Özer, et al., 2017). Based on the

353   situation in Saudi Arabian healthcare organization, which relies heavily on expatriate nurses to

354   deliver care, the findings of this study must be taken seriously to develop and execute systematic

355   strategic plans aim to achieve an attractive nursing work environment to minimize these

356   confounding rates of intentions to leave profession among nurses.

357   On the other hand, the findings showed an affirmative positive association found between work

358   environment perception and nurses' satisfaction about communication within healthcare

359   organization. Further, it explained 84% of the total variance in communication satisfaction

360   among nurses. It was established that if the perception of work environment improves, the

361   communication satisfaction improves proportionately. These findings are congruent with Turkish

362   study conducted by Özer, et al., (2017). Undoubtedly, communication satisfaction is a key

363   ingredient in creating healthy work environment and vice versa. Therefore, it is reasonable to

364   assume that healthy work environment is a cornerstone for establishing skilled communicators.

365   The study's findings offered valuable insight into the link between the work environment

366   perception and the nurses' intentions to quit nursing profession. The results of this study

367   established that nurses' satisfaction level with their work environment was inversely proportional

368   to their intentions to quit. Specifically, the higher satisfaction with work environments among

369   nurses, the lower level of intentions to quit. These findings consistent with previously conducted

370   studies by Al-Hamdan et al., (2017), Özer, et al., (2017); and Zhang et al., (2014), in Jordan,

371   Turkey, and China respectively, whereby nurses have linked their intentions to quit mainly to

372   their work environment conditions.

373   Similarly, a negative association has been detected between nurses' satisfaction about

374   communication within their healthcare organization and their intentions of turnover. In other

375   words, it indicated that improving the communication strategies could inhibit the intentions to

376   quit nursing profession among nurses. These findings support the assertion of AlMoosa et al.,

377   (2020), which affirmed that fair treatment and satisfied communication climate minimize the

378   nursing shortage. Further, these findings found congruent with the findings of overseas studies.

379   Particularly, the same association was detected in two studies conducted by Özer, et al., (2017)

380   and Vermeir et al., (2018), in Belgium and Turkey. In addition, Mustamil et al., (2014),

381   concluded that nurses' satisfaction about communication climate is a crucial factor in retaining

382   nurses.

383   Lastly, the mediation effect of communication satisfaction on the association between work

384   environment and intention to quit among nurses was revealed by the findings of this study. These

385   findings affirmed that communication satisfaction explained the relationship between work

386   environment perception and intention to quit among nurses. These findings supported by the

387   proposed standards by American Association Critical-Care Nurses (AACN) to create healthy

388   nursing work environment (AACN, 2005). These standards portrayed skilled communication as

389   a crucial factor for establishing an attractive and healthy work environment, which, in turn, leads

390   to minimizing the intention to quit profession among nurses. In addition, similar findings were

391   reported by Turkish study conducted by Özer, et al., (2017). However, these findings illustrate

392   the importance of effective communication climate on nurses' outcomes.

393   In term of study's limitations, this study was conducted in a specific healthcare organization,

394   King Faisal Medical Complex in Saudi Arabia, with conveniently selected sample, which may

395   minimize the proper presentation of the population. In addition, this study was limited as it only

396   focused on two factors that found inhibit the intention to quit the profession while ignoring other

397   equally important factors such as: leadership style, professional promotion, and workplace

398   violation rates. Further, our data in this study was collected through self-administered tools

399   which augment potentiality for bias as the researchers were unable to ensure that nurses reported

400   their own perceptions honestly. Thus, there is a need for future studies with mixed methods or

401   qualitative designs to ensure a wider range of understanding the phenomenon of quitting nursing

402   profession among nurses in Saudi Arabia.

403   However, in terms of implications for nursing management, the findings of this study present a

404   novel theoretical framework based on the previous knowledge and literature about the factors

405   that affect nurses' intentions to quit nursing profession and to leave their organizations. The

406   study's findings offer valuable evidence that a healthy work environment and effective

407   communication strategies within a healthcare organization positively influence nurses' retention.

408   These results lead to our recommendation that the shortage of nurses in Saudi Arabia can be

409   handled by appropriate nursing management that enhances communication satisfaction and work

410   environments, as these improvements would reduce nurses' intention to quit. In addition, this

411   study emphasizes the need for establishing effective communication strategies and channels with

412   periodic assessments to ensure their effectiveness.

413

414   Conclusion

415   This study highlighted two important factors affecting the nurses' intentions to quit nursing

416   profession in Saudi Arabia. Work environment perception and communication satisfaction were

417   found as modest levels among nurses which can be seen as indicators for further systematic

418   strategic plans to achieve attractive nursing working environment. These factors were found

419   contributing and predicting nurses' intention to leave and resignation. In addition,

420   communication climate was established as a crucial factor in establishing attractive and healthy

421   working environment. Noteworthy, this study presents a novel conceptual framework that has

422 developed based on the previous knowledge and literature for the contributing factors for nurses'
423 intention to quit nursing professional and shortage nurses.
424

Acknowledgements
426   The authors are very thankful to the Deanship of Scientific Research at King Saud
427 University, Saudi Arabia; all the associated personnel in any reference that contributed in/for the
428 purpose of this research are also acknowledged.
429

Funding
431   This study was funded and supported by the Deanship of Scientific Research at King Saud
432 University, Saudi Arabia; through Research Group No. RG-1436017
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450

References

451 **References**

452 Abdien, M. (2019). Impact of communication satisfaction and work-life balance on employee

453   turnover intention. Journal of Tourism Theory and Research, 228-238.

454   doi:10.24288/jttr.526678

455 Aboshaiqah, A. (2016). Strategies to address the nursing shortage in Saudi Arabia. International

456   Nursing Review, 63(3), 499-506. doi:10.1111/inr.12271

457 AbuAlRub, R., El-Jardali, F., Jamal, D., & Al-Rub, N. A. (2016). Exploring the relationship

458   between work environment, job satisfaction, and intent to stay of Jordanian nurses in

459   underserved areas. Applied Nursing Research, 31, 19-23. doi:10.1016/j.apnr.2015.11.014

460 Admi, H., Moshe-Eilon, Y., Sharon, D., & Mann, M. (2018). Nursing students' stress and

461   satisfaction in clinical practice along different stages: A cross-sectional study. Nurse

462   Education Today, 68, 86-92. doi:10.1016/j.nedt.2018.05.027

463 Al-Ahmadi, H. (2014). Anticipated nurses' turnover in public hospitals in Saudi Arabia. The

464   International Journal of Human Resource Management, 25(3), 412–433.

465   doi:10.1080/09585192.2013.792856

466 Albougami, A. S., Almazan, J. U., Cruz, J. P., Alquwez, N., Alamri, M. S., Adolfo, C. A., &

467   Roque, M. Y. (2020). Factors affecting nurses' intention to leave their current jobs in Saudi

468   Arabia. International Journal of Health Sciences, 14(3). Retrieved from

469   https://ijhs.org.sa/index.php/journal/article/view/3814

470 Al-Hamdan, Z., Manojlovich, M. & Tanima, B. (2017) Jordanian nursing work environments,

471   intent to stay, and job satisfaction. Journal of Nursing Scholarship, 49 (1), 103–110.

472   doi:10.1111/jnu.12265

473 AlMoosa, M., Hassanein, S. E., Alnems, A., Abdrbo, A. A., Minguez, O., & Ghadheeb, F. A.

474   (2020). Perception of Nurses Work Environment in Tertiary Care Hospital in Saudi Arabia.

475   American Journal of Nursing Science, 9(1), 23. doi:10.11648/j.ajns.20200901.14

476 Almuhsen, F., Alkorashy, H., Baddar, F., & Qasim, A. (2017). Work environment characteristics

477   as perceived by nurses in Saudi Arabia. International Journal of Advanced Nursing

478   Studies, 6(1), 45. doi:10.14419/ijans.v6i1.7453

479 Alonazi, N., & Omar, M. (2013). Factors affecting the retention of nurses. Saudi Medical

480   Journal, 34(3), 288–294.

481 Alsaqri, S. (2014). A Survey of Intention to Leave, Job Stress, Burnout and Job Satisfaction
482   among Nurses Employed in the Ha'il Region's Hospitals in Saudi Arabia (Doctoral
483   dissertation). Retrieved from Google Scholar. RMIT University.
484 Alshammari, M., Duff, J., & Guilhermino, M. (2019). Barriers to nurse–patient communication
485   in Saudi Arabia: An integrative review. BMC Nursing, 18(1). doi:10.1186/s12912-019-
486   0385-4
487 Alsufyani, A. M., Alforihidi, M. A., Almalki, K. E., Aljuaid, S. M., Alamri, A. A., & Alghamdi,
488   M. S. (2020). Linking the Saudi Arabian 2030 vision with nursing transformation in Saudi
489   Arabia: Roadmap for nursing policies and strategies. International Journal of Africa
490   Nursing Sciences, 3(34), 1-6. doi:10.1016/j.ijans.2020.100256
491 Al-Zayyer, W. (2003). The Effectiveness of Recruitment and Retention Strategies and the
492   Severity of Recruitment and Retention Barriers of Staff Nurses in Selected Tertiary Care
493   Hospitals Saudi Arabia (Doctoral dissertation). Retrieved from Google Scholar. George
494   Mason University.
495 American Association of Critical-Care Nurses (2005). AACN standards for establishing and
496   sustaining healthy work environments: a journey to excellence (2nd ed.). Aliso Viejo: CA:
497   American Association of Critical-Care Nurses
498 Andersson, R. (2018). Employee Communication Responsibility: Its Antecedents and
499   Implications for Strategic Communication Management. International Journal of Strategic
500   Communication, 13(1), 60-75. doi:10.1080/1553118x.2018.1547731
501 Bal, C. G. (2013). A field study on communication satisfaction in health institutions. Selcuk
502   University: The Journal of Social Economic Research, 13(25), 107–125
503 Cammann C, Fichman M, Jenkins D, Klesh J (1979). The Michigan organizational assessment
504   questionnaire. Unpublished manuscript, University of Michigan, Ann Arbor.
505 Danayiyen, A. (2015). Impact of new communication media to corporate communication
506   satisfaction in the hospitals. (Master's Thesis). Istanbul, Turkey: Okan University.
507 Doleman, G., Twigg, D., & Bayes, S. (2020). A comparison of middle managers' and paediatric
508   nurses' satisfaction with organisational communication. Journal of Nursing Management.
509   doi:10.1111/jonm.13064
510 Downs, C. W., & Hazen, M. D. (1977). A Factor Analytic Study of Communication Satisfaction.
511   Journal of Business Communication, 14(3), 63-73. doi:10.1177/002194367701400306

512   Falatah, R., & Conway, E. (2019). Linking relational coordination to nurses' job satisfaction,

513   affective commitment and turnover intention in Saudi Arabia. Journal of Nursing

514   Management, 27(4), 715-721. doi:10.1111/jonm.12735

515   Field, A. P. (2018). Discovering statistics using IBM SPSS statistics. Thousand Oaks, CA: Sage

516   Publications.

517   Gray, J. R., Grove, S. K., & Sutherland, S. (2017). Burns and Grove's the practice of

518   nursing research: Appraisal, synthesis, and generation of evidence. St. Louis, MO:

519   Elsevier.

520   Greenbaum, H. H., Clampitt, P., & Willihnganz, S. (1988). Organizational Communication.

521   Management Communication Quarterly, 2(2), 245-282.

522   doi:10.1177/0893318988002002008

523   Hua W, Omar B (2016). Examining communication satisfaction, confucian work dynamism and

524   job satisfaction: a comparative study of international and domestic hotels in Hainan, China.

525   The Journal of the South East Asia Research Centre for Communications and Humanities.

526   8, 105-27. Retrieved from: http://search.taylors.edu.my/documents/journals/2016-8-

527   1/SEARCH-2016-8-1-J6.pdf

528   Kang, K. H., Han, Y. H., & Kang, S. J. (2012). Relationship Between Organizational

529   Communication Satisfaction and Organizational Commitment among Hospital Nurses.

530   Journal of Korean Academy of Nursing Administration, 18(1), 13.

531   doi:10.11111/jkana.2012.18.1.13

532   Kohun S. Business environment. Ibadan: University Press Kyko OC (2005). Instrumentation:

533   Know Yourself and Others Longman Dictionary of Contemporary English (2003) 3rd

534   edition: Harloa Pearson Educational Limited. 1992.

535   Lake ET (1998). Advances in understanding and predicting nurse turnover. Res Sociol Health

536   Care.147-72.

537   Lake, E. T. (2002). Development of the practice environment scale of the nursing work index.

538   Research in Nursing & Health, 25(3), 176-188. doi:10.1002/nur.10032

539   Masum, A. K., Azad, M. A., Hoque, K. E., Beh, L., Wanke, P., & Arslan, Ö. (2016). Job

540   satisfaction and intention to quit: An empirical analysis of nurses in Turkey. PeerJ, 4.

541   doi:10.7717/peerj.1896

542 Ministry of Health. (2018). Statistical yearbook. Available at:
543   https://www.moh.gov.sa/en/Ministry/Statistics/book/Pages/default.aspx/ [accessed 01 July
544   2020].

545 Nantsupawat, A., Kunaviktikul, W., Nantsupawat, R., Wichaikhum, O., Thienthong, H., &
546   Poghosyan, L. (2016). Effects of nurse work environment on job dissatisfaction, burnout,
547   intention to leave. International Nursing Review, 64(1), 91-98. doi:10.1111/inr.12342

548 Oliveira, D. R., Griep, R. H., Portela, L. F., & Rotenberg, L. (2017). Intention to leave
549   profession, psychosocial environment and self-rated health among registered nurses from
550   large hospitals in Brazil: A cross-sectional study. BMC Health Services Research, 17(1).
551   doi:10.1186/s12913-016-1949-6

552 Özer, Ö, Şantaş, F., Şantaş, G., & Şahin, D. S. (2017). Impact of nurses' perceptions of work
553   environment and communication satisfaction on their intention to quit. International
554   Journal of Nursing Practice, 23(6). doi:10.1111/ijn.12596

555 Pongton P, Suntrayuth S. Communication Satisfaction, Employee Engagement, Job Satisfaction,
556   and Job Performance in Higher Education Institutions. ABAC Journal. 39(3). 90-110.

557 Raziq, A., & Maulabakhsh, R. (2015). Impact of Working Environment on Job Satisfaction.
558   Procedia Economics and Finance, 23, 717-725. doi:10.1016/s2212-5671(15)00524-9

559 Saeed, K. (1995). Factors which influence nurses' intention to leave the hospital, Riyadh city,
560   Saudi Arabia. Journal of King Saud University, 7(2), 85–105.

561 Shultz, K. S., Whitney, D. J., & Zickar, M. J. (2014). *Measurement theory in action: Case*
562   *studies and exercises*. New York: Routledge/ Taylor & Francis Group.

563 Suliman, W. (2009). Leadership styles of nurse managers in a multinational environment.
564   Nursing Administration Quarterly, 33(4), 301–309. doi: 10.1097/NAQ.0b013e3181b9dd35

565 Tsai, Y. (2011). Relationship between Organizational Culture, Leadership Behavior and Job
566   Satisfaction. BMC Health Services Research, 11(1). doi:10.1186/1472-6963-11-98

567 Ulusoy, H., & Polatkan, R. (2016). Assessment of the nurses' work environment using the
568   nursing work index scale. Cumhuriyet Medical Journal, 38(4), 246–257.
569   doi:10.7197/cmj.v38i3.5000196868

570 Vermeir, P., Blot, S., Degroote, S., Vandijck, D., Mariman, A., Vanacker, T., . . . Vogelaers, D.
571   (2018). Communication satisfaction and job satisfaction among critical care nurses and

572   their impact on burnout and intention to leave: A questionnaire study. Intensive and

573   Critical Care Nursing, 48, 21-27. doi:10.1016/j.iccn.2018.07.001

574   World Medical Association (2013). Declaration of Helsinki: Ethical Principles for Medical

575   Research Involving Human Subjects. JAMA, 310(20), 2191.

576   doi:10.1001/jama.2013.281053

577   Zhang, L. F., You, L. M., Liu, K., Zheng, J., Fang, J. B., Lu, M. M., … Bu, X. Q. (2014). The

578   association of Chinese hospital work environment with nurse burnout, job satisfaction, and

579   intention to leave. Nursing Outlook, 62(2), 128–137. doi:10.1016/j.outlook.2013.10.010

Table 1(on next page)

Selected demographic characteristics of participants

1

2

Table 1: Selected demographic characteristics of participants

Variable		Participants (n=367)	
		F	**%**
Gender	Male	78	21.3 %
	Female	289	78.7 %
Age groups	25 – 30 years	71	19.4 %
	31 – 40 years	263	71.7 %
	41 – 50 years	33	8.9 %
Number of years worked as a nurse	2 – 10 Years	103	28.1 %
	11 – 20 Years	236	64.3 %
	21 – 30 Years	28	7.6 %
Nursing Area	Med/Surg	57	15.6 %
	OB/GYN	71	19.3 %
	Critical	33	9.0 %
	Other	206	56.1 %
Nationality	Saudi	87	23.7 %
	Filipino	153	41.7 %
	Indian / Pakistani	93	25.3 %
	Others	34	9.3 %

3

4

Table 2(on next page)

Descriptive statistics and inter-correlations between work environment, communication satisfaction, and intention to quit

Table 2: Descriptive statistics and inter-correlations between work environment, communication satisfaction, and intention to quit

Variables	Mean ± SD	1	2	3
Intention to Quit (1)	2.47 ± 1.38	(1)		
Working environment (2)	3.72 ± 0.63	-.602-**	(1)	
Communication Satisfaction (3)	3.71 ± 0.65	-.581-**	.613**	(1)

** *p* < .05 (2-tailed).

Table 3(on next page)

Working environment regressed against Communication satisfaction —model summary

Table 3. Working environment regressed against Communication satisfaction —model summary

Independent Variable	b	Std. error	β	t	p	CI 95%
(constant)	4.454	2.025		.814	.028	[.471, 8.436]
Working environment [a]	.764	.017	.918	15.460	<.05	[.730, .798]

R = .92

R^2 = .84

F = 1950.8; p < .05

Durbin Watson = 1.97

a: Predictors: (constant), Working environment
b: Dependent variable: Communication satisfaction

Table 4(on next page)

Working environment regressed against intention to quit—model summary

Table 4. Working environment regressed against intention to quit—model summary

Independent Variable	b	Std. error	β	t	p	CI 95%
(constant)	29.053	.597		48.669	<.05	[27.879, 30.227]
Working environment [a]	-.187	.005	-.887	-36.772	<.05	[-.197, -.177]
R = .89						
R² = .79						
F = 1352.2; p < .05						
Durbin Watson = 1.99						

a: Predictors: (constant), Working environment
b: Dependent variable: Intention to quit

Table 5(on next page)

Communication satisfaction regressed against intention to quit—model summary

Table 5. Communication satisfaction regressed against intention to quit—model summary   1

Independent Variable	*b*	Std. error	*β*	*t*	*p*	CI 95%
(constant)	28.311	.573		49.424	$< .05$	[27.184, 29.437]
Communication satisfaction [a]	-.226	.006	-.889	-37.046	<.05	[-.238, -.214]
R = .88						
R² = .79						
F = 1372.4; *p* < .05						
Durbin Watson = 1.73						

a: Predictors: (constant), Communication satisfaction.   2
b: Dependent variable: Intention to quit.   3
    4

Table 6(on next page)

Work environment and communication satisfaction regressed against intention to quit—model summary

Table 6. Work environment and communication satisfaction regressed against intention to quit— 2
model summary 3

Independent Variable	*b*	Std. error	*β*	*t*	*p*	CI 95%
(constant)	29.586	.550		53.804	<.05	[28.505, 30.668]
Work environment [a]	-.096	.012	-.455	-8.173	<.05	[-.119, -.073]
Communication satisfaction [b]	-.120	.014	-.472	-8.477	<.05	[-.147, -.092]

R = .91

R^2= .822

$F = 843.303; p < .05$

Durbin Watson = 1.854

a: Predictors: (constant), Work environment, Communication satisfaction. 4
b: Dependent variable: Intention to quit. 5

6

7

Figure 1

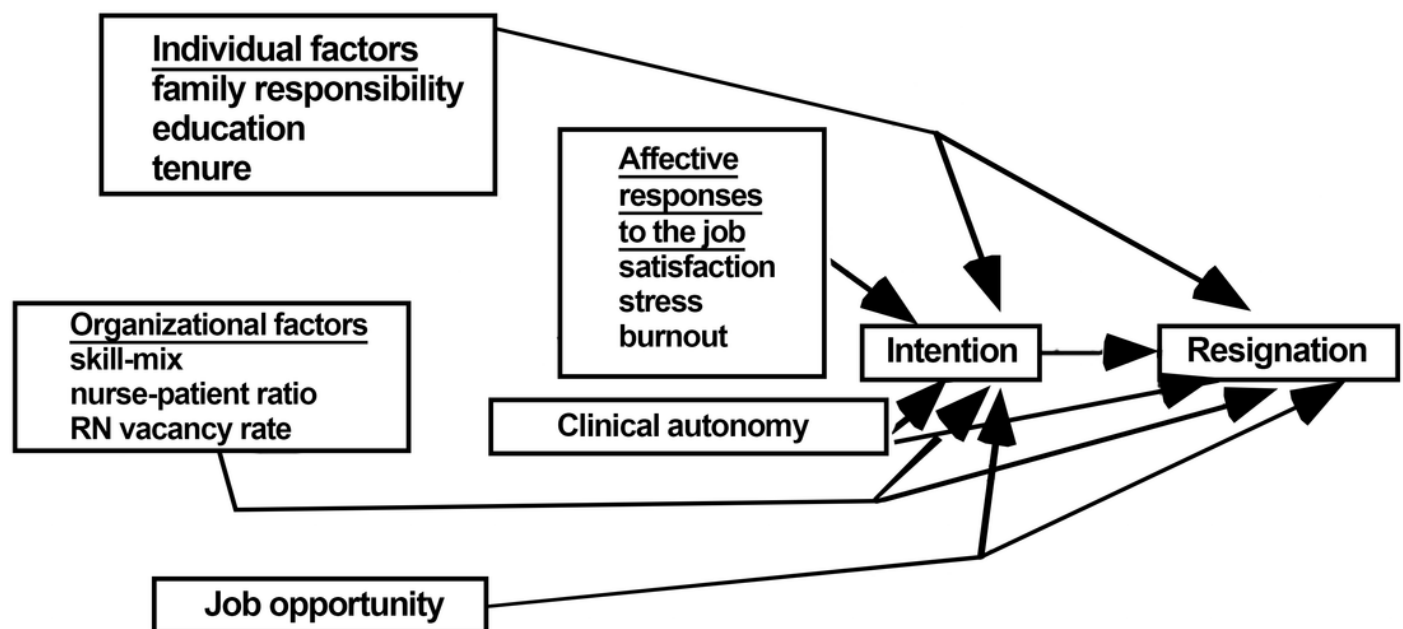Lake's Model of Nurse Turnover (Lake, 1998)

Figure 2

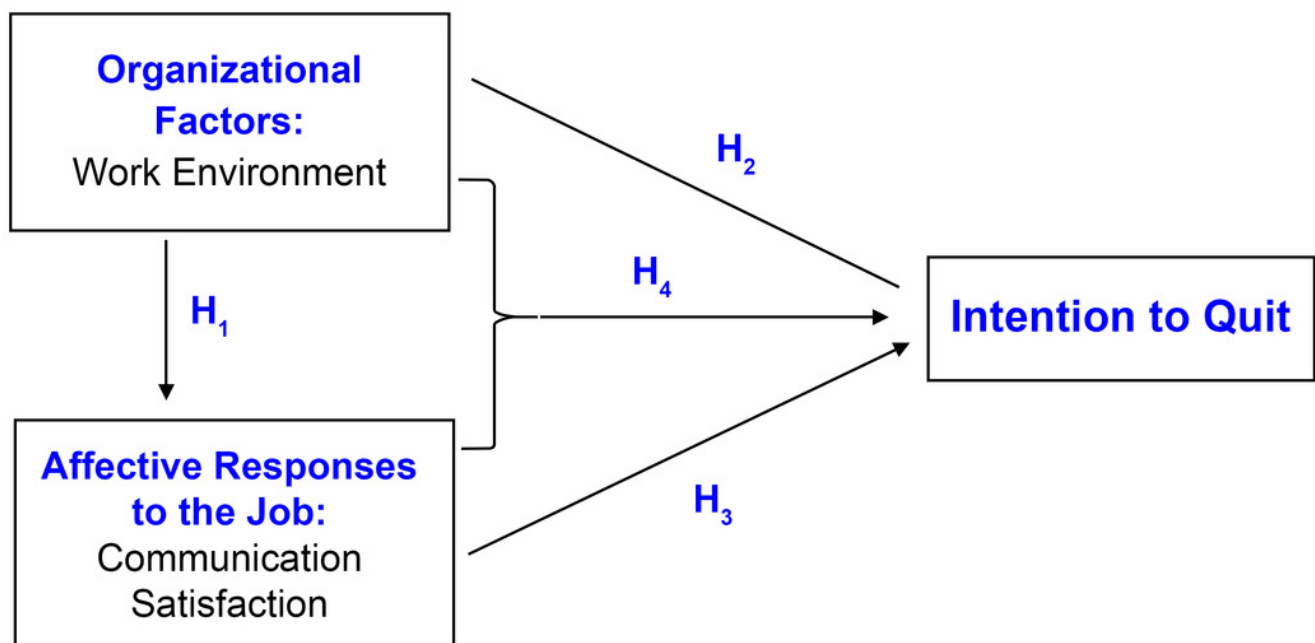The conceptual model for the current study

Figure 3

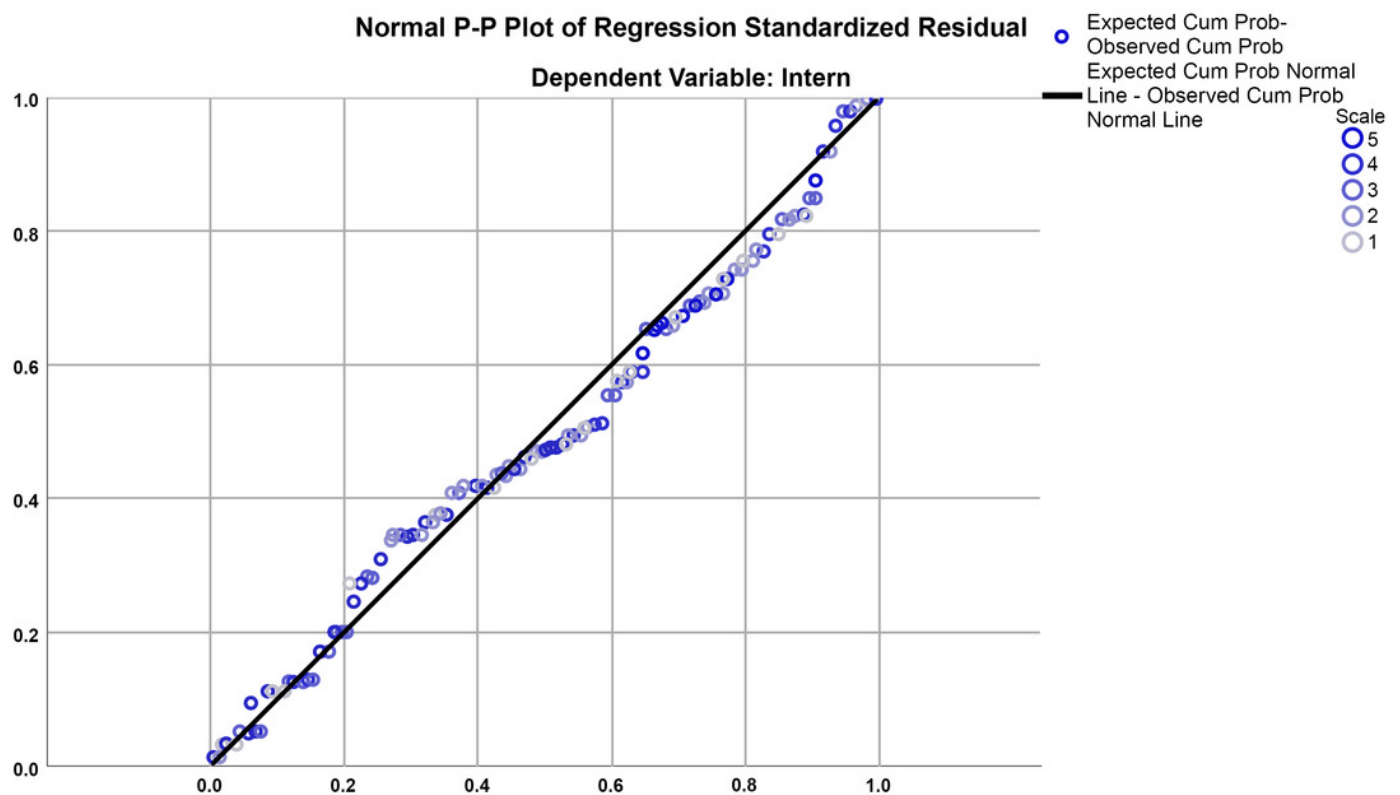Normal probability plot (P-P) of the regression standardized residuals

Figure 4

Summary of the relationships between study's variables

(a): the association between work environment and communication satisfaction

(b): the association between work environment and intention to quit

(c): the association between communication satisfaction and intention to quit

(c'): the indirect effect of work environment on intention to quit through communication satisfaction as a mediator.