RESEARCH ARTICLE

Impact of technostress and work-family conflict on turnover intention among nurses in Bangladesh: a moderation effect of perceived supervisor support

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Abstract

The objective of this study was to analyse the impact of Technostress (TS) and Work-family Conflict (WFC) on Turnover Intention (TI) with respect to Perceived Supervisory Support (PSS) as a moderator to influence turnover intention. This study used a cross-sectional survey research design. Participants were selected using the simple random sample method, and this study analysed a moderation impact using a structural equation model. The outcomes showed that technostress and work-family conflict affect the turnover intention of Bangladeshi nurses. This study likewise affirmed the moderating impact of perceived supervisory support on the relationship between technostress, work-family conflict, and turnover intention. From a commonsense perspective, this study gave policymakers a structure to grasp how technostress and work-family conflict influence nurses' turnover intentions. This would help clinics in arranging and executing approaches that lessen nurture quit expectations and turnover. This study also helps Human Resource Management (HRM) improve human resource management systems to decrease turnover and access the importance of a better working environment and supervisory support.

Keywords Supervisor support · Nurses turnover intention · Technostress · Work-family conflict · Health care facilities

Introduction

Since the COVID-19 crisis, nurses have been increasingly important to the healthcare systems of many nations, including Bangladesh. They serve as the foundation of patient care by giving people, families, and communities' access to crucial services

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and support. When it comes to direct help, medicine administration, vital sign monitoring, and ensuring patients' general wellbeing, nurses are at the forefront of patient care. They take on the role of patient advocates, collaborating with other medical specialists to guarantee the best results for their patients. A key intermediary between patients and doctors is the nurse. They work along with doctors and other healthcare specialists to provide patient information, support medical procedures, and carry out treatment plans (Gebregkziabher et al., 2020). They contribute to complete care by offering insightful information based on their close encounters with patients. During difficult times, nurses offer emotional support to patients and their families. They provide a sympathetic ear, comfort, and an opportunity to voice problems, assisting people in overcoming disease, discomfort, and worry. In healthcare settings, their empathic presence promotes trust and confidence (Chatterjee et al., 2023; Li et al., 2024). By controlling patient flow, coordinating treatment, and ensuring prompt interventions, nurses considerably improve the effectiveness of the healthcare system. They administer infection control procedures, make the most use of available resources, and encourage efficient teamwork among healthcare professionals (Akter et al., 2022; Majumder et al., 2022). However, in Bangladesh, nurses' high rate of turnover raises concerns despite their critical function. A nurse's intention to leave their current position is referred to as turnover. Some elements influence Bangladeshi nurses' inclination to leave the profession. Nurses frequently work long hours in stressful conditions with enormous workloads (Yildiz et al., 2021). These elements may cause burnout and unhappiness, which increases their propensity to think about quitting their current position. Inadequate pay and benefits are a potential problem for nurses in Bangladesh, which might lead to job unhappiness and plans to quit. Limited options for professional development and career advancement may make nurses less likely to stay in their current professions. They might start looking for better possibilities elsewhere if they can't get training and promotion opportunities. Nurse retention depends heavily on a supportive work environment that includes positive interpersonal interactions, organisational culture, and managerial support. Turnover Intention (TI) can be influenced by a toxic work environment that includes less appreciation, poor communication, and a lack of resources. The term turnover intention indicates that the intention to leave the job or the job preference will decrease day by day (Rahman et al., 2020b).

Still, the healthcare system faces an enormous global nurse shortage (Kovner et al., 2016). As a result, the healthcare sector faced significant challenges due to human resources shortages worldwide (Joarder et al., 2020). Accordingly, Lee and Jang (2020) suggested that an urgent priority be given to the global shortage of nurses. Nursing shortages in Bangladesh's hospitals have a negative effect on patient care, driving the poor and the marginalised to seek treatment from untrained hands (Karim & Debnath, 2022). According to Bae (2022), several nations are experiencing a shortage of skilled nurses due to a high turnover rate among nurses. In addition, there is a high degree of TI in the nursing profession (Simha & Pandey, 2021). According to Dewanto and Wardhani (2018), the nurses' turnover rate (15–18%) will lead to financial and service quality losses. Globally, the nurses' turnover rate differs from country to country (Pang et al., 2020). In Asian countries, in Indonesia, the nurses' turnover rate is 15% (Dewanto & Wardhani, 2018), whereas in South Korea, it is 12.4%

with 5.4 years of tenure (Bae, 2022). The average nurse turnover rate in first-class tertiary hospitals in China is 5.8%; in economically developed areas like Shanghai and Guangzhou, it rises to 8–10% (Ran et al., 2020). At this point, Ran et al. (2020) recommended that nurses' turnover intention variables be studied in China. In South Asian countries, Pakistan, Khowaja et al. (2019) reported that the newly-licenced registered nurses turnover rate is 17.5%. On the other hand, in Western countries, in the United States of America, the turnover rate is 17.8% (Thomas et al., 2022), whereas in Australia, it is 15.1% (Bae, 2022). Based on these points, it is essential to mitigate nurses' turnover (Huang et al., 2021). The high TI of nurses leads to a high nurse-patient ratio, resulting in an increased workload and a lower quality of patient care (Shin et al., 2019). However, past researchers were more amenable to using the TI construct than actual TI (Cohen et al., 2016). Ilyas et al. (2020) also admitted that the researchers should study TI rather than actual turnover because employees are less likely to describe the genuine reasons for leaving their organization. In contrast, leaving intentions may be reduced by analysing turnover intentions. As a result, TI is frequently used to predict actual turnover (Cohen et al., 2016). Therefore, the concept of turnover intention can be adopted to represent the actual turnover, which is acceptable (Rawashdeh & Tamimi, 2020).

In Bangladesh, Uddin (2022) recommended that Health Information Technology (HIT) can potentially solve healthcare-related problems to a considerable extent. The author also focused on health information technology's major functions, including electronic record keeping and improved provider-to-provider communication. Naturally, at a high level, it allows for sharing information among all healthcare professionals. Further, Jackson (2019) mentioned that inadequate research related to Technostress (TS) within the nursing profession warrants further investigation. In addition, prior researchers have ignored the effect of technostress on turnover intention. Nowadays, achieving a work-life balance is essential in most professions (Jia & Li, 2021; Majumder et al., 2022), and nursing is no exception. Grzywacz et al. (2006) reported that 50% of nurses experience work-family conflict in their work. In Bangladesh, Rony et al. (2023) confirmed that 56.65% of nurses have work-family conflict. The authors also stated that nurses experience a significant imbalance between their professional and personal lives due to issues like a heavy workload, a lack of staff, a high turnover rate, an unfavourable work environment, poor management practices, and a lack of organisational resources. In addition, Yildiz et al. (2021) revealed that research on WFC is relatively limited in the health sector. Rubel et al. (2017) pointed out that most work-family conflict studies were conducted in Western and European countries like the USA, UK, and Canada. As per our knowledge, in the Asian context, the relationship between constructs like WFC and TI was not examined. Therefore, this study examined the influence of WFC on TI among nurses in Bangladesh.

According to the Bangladesh Nursing and Midwifery Council (2023), the total number of registered nurses in Bangladesh is 77,838. Tajmim (2023) reported that Bangladesh has only 24% of the nurses it needs. In addition, according to the Joarder et al. (2021), Bangladesh has only 4.11 nurses to provide services to every 10,000 population. On the other hand, Alam (2019) revealed that the nurse-patient ratio is 21.07 in India, 21.15 in Sri Lanka, 15.09 in Bhutan, 26.85 in Nepal, 3.02 in Afghanistan, and 5 in Pakistan, the same population. Joarder et al. (2021) confirmed that there are more

doctors than nurses in Bangladesh. Besides, Joarder (2021) revealed that hospitals do not have enough nurses in Bangladesh. Joarder et al. (2021) recommended that a favourable policy environment is necessary to retain nurses to fulfil the population need in Bangladesh. Majumder et al. (2022) argued that although women still make up the vast majority of nurses in Bangladesh, many of them may become inactive or leave the profession altogether due to social pressures, a dearth of appropriate professional opportunities, and obstacles to advancement. In addition, in Bangladesh, the shortages of nurses are a growing problem, especially in public healthcare in rural areas (Xerri et al., 2019). Kabir et al. (2022) confirmed the high turnover intention among Bangladeshi female nurses. Accordingly, the writers reported 17% of female nurses's Turnover Intention (TI) in Bangladesh. Therefore, this study emphasises the nurses' turnover intention to mitigate genuine turnover in the healthcare sector of Bangladesh. Healthcare administrators and legislators must work together to address nurses' intentions to leave the profession. Improved working conditions, competitive pay and benefits, and possibilities for professional progression can all help to increase nurse retention in Bangladesh. Additionally, to lessen turnover intentions and guarantee a stable nursing staff, it is crucial to develop a healthy work environment and Perceived Supervisory Support (PSS) that acknowledges and rewards nurses' efforts. The contribution of this study would be a great addition to the health care field, not only in Bangladesh but also in developing countries.

Literature review

Technostress (TS) and turnover intention (TI)

The research on turnover first appeared around 1920 (Hom et al., 2017). Dwivedi (2015) defined turnover intention as "the aim of employees to search for alternative jobs or leave the organisation in the future." On the other hand, Brod (1984) coined the term technostress. Ragu-Nathan et al. (2008) described it as "any stress experienced by end-users of information and communication technologies." The healthcare industry is becoming increasingly digitalized (Golz et al., 2021). One of the significant factors that may contribute to work-related stress is technology (Wu et al., 2022). According to Golz et al. (2021), this strategy will cause a rise in technostress among health professionals. However, the stress caused by and related to the use of technology was rarely examined since the two were seen as conceptually distinct (Califf & Brooks, 2020). The association between technostress and turnover intention is postulated by the "Conservation of Resources (COR)" theory. As per the COR hypothesis, individuals frequently plan to save their assets, and potential dangers to critical assets can create mental pressure (Hobfoll, 1989). Specialists frequently use the COR hypothesis in mental pressure writing to guess individual pressure (Goetz & Boehm, 2020).

Besides, La Torre et al. (2019) focused on users' stress created by the increased exploitation of technology. According to COR theory, employees must invest their resources to enhance Information and Communication Technology (ICT) demands when using technology (Purisiol, 2020). In addition, employees are likely to experi-

ence technostress when they feel that their resources are threatened (Harris et al., 2015). Technostress constitutes a threat to their resources (Purisiol, 2020). Therefore, employees try to protect resources by investing time and effort rather than focusing on their job (Majumder et al., 2022; Purisiol, 2020). According to Harris et al. (2022), the COR hypothesis would recommend that representatives should grow profound assets towards dealing with their mechanical stressors as techno-overburden and techno-intrusion increment. As their put-away assets get depleted, dealing with the techno-overburden and techno-attack requests might succeed in adapting their assets (Harris et al., 2022). Subsequently, representatives might consider stopping the association to get away from this pressure by getting a new line of work that explains what is happening for buildings as opposed to debilitating assets (Harris et al., 2022). Recently, a study by Califf et al. (2020a) argued that Health Information Technology (HIT) creates psychological stress, commonly referred to as technostress. The psychological stress related to techno-stressors reduced job satisfaction and enhanced the propensity to leave (Califf et al., 2020a). La Torre et al. (2019) also stated that technostress leads to adverse organisational outcomes, such as reduced job performance, lower productivity, and enhanced turnover intention. In addition, the technostress creators enhance physical, emotional, and mental exhaustion, impacting the employees' turnover intention (Califf et al., 2020b). However, there is a paucity of research on the association between technostress and turnover intention in Bangladeshi healthcare. As the research on technostress is infrequent, the following hypothesis is posited:

H₁ There is a significant effect of technostress on nurses' turnover intention.

Work-family conflict (WFC) and turnover intention (TI)

The concept of work-family conflict was first defined by Kahn et al. (1964). Many researchers defined WFC; however, most researchers use the definition of Greenhaus and Beutell (1985). The authors described the WFC as a "form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (p. 77) and Hobfoll (1989) conceptualised WFC as a type of stress in COR theory. Ribeiro et al. (2023) argued that, following the COR theory (Hobfoll, 1989), since each person has a finite amount of energy and resources, using those resources in one area (such as work) results in a shortage in another area (such as family), which raises the likelihood of conflict. When people worry that they might lose access to a valuable resource, they work harder to secure and hold onto it (Hobfoll, 1989). Stress is inescapable when vital assets are undermined by misfortune, lost, or not gained (Hobfoll et al., 2018). Those with additional assets are less defenceless against asset misfortune and better ready to procure assets (Majumder et al., 2021, 2022; Rahman et al., 2020a; Shagirbasha et al., 2023). At the point when people with not many assets face asset utilisation, they as often as possible enter a horrible parody that expands their own asset usage (Hobfoll, 1989). As indicated by the COR hypothesis, a singular's assets are vital for anticipating business-related results, and negative work occasions (for example, expectations to leave) exhaust a

singular's assets (Hobfoll et al., 2018). According to the COR hypothesis, a person will actually want to adapt to difficult circumstances more the more assets they have (Brouer et al., 2011). Hobfoll et al. (2018) contended that WFC causes attendants stress, exhausting their mental assets, and making them quit their positions. Medical caretakers who have WFC at work can say that leaving their place of employment is a superior method for tackling the issue (Gull et al., 2023). Prior researchers observed inconclusive findings regarding the relationship between WFC and TI. Some writers found a significant favourable influence of WFC on TI; for example, Zhang et al. (2019), Jabeen et al. (2020), and Labrague (2020). However, Farkhani and Piotrowski (2020) identified mixed results about the link between WFC and TI, and the researchers found that WFC significantly and positively impacted Iranian nurses' TI. In contrast, WFC does not predict Polish nurses' turnover intentions. On the other hand, few authors have identified that no association exists between WFC and TI; for example, Han et al. (2015). The above discussion shows that the association between WFC and TI is unclear and needs further investigation. Based on these arguments, the following hypothesis is posited:

H₂ There is a significant effect of work-family conflict on nurses' turnover intention.

Perceived supervisor support (PSS) as a moderator

Eisenberger et al. (2002) defined perceived supervisor support (PSS) as employees "developing global views concerning the degree to which supervisors value their contributions and care about their wellbeing. Afzal et al. (2019) stated that the concept of PSS depends on social exchanges between an individual and his or her supervisor. Yeosock (2020) said that PSS is viewed as an advantage that causes an extension of trade connections. In this way, the managers' positive treatment causes representatives to feel committed to being reimbursed with advantageous mentalities and ways of behaving (Yeosock, 2020). As indicated by the social trade hypothesis created by Blau (1964), when an individual gets some boss help, they respond by drawing on the ways of behaving that are favourable to the manager (Afzal et al., 2019). These mutual associations notify the workplace environment, decrease stress, and enhance job satisfaction and task performance (Supportive Supervisors, 2020). As a result, individuals are more likely to stay at work for a longer period of time, reducing their likelihood of leaving. Ibrahim et al. (2019) additionally utilised the Social Exchange Theory (SET) to recognise the connection between boss help and turnover goals. The scholars contended that representatives feel committed to repaying the organisation when they see that the business establishes a climate with strong bosses. This study analysed the direct impact of PSS on the connection between technostress, WFC, and TI. The COR theory postulated that PSS helps employees establish a balance between work and family responsibilities and lessen WFC (Jansen et al., 2003). The COR theory states that a supportive supervisor fulfils employees' family needs, which is assumed to mitigate WFC (Glavelia et al., 2013). Zhang et al. (2019) described that PSS (resource gain) could reduce the negative influence of resource loss for nurses facing WFC. With the correct support from businesses, technology can boost work-

place productivity and efficiency; yet, without this perceived support, technology tends to be a burden and a source of stress (Harunavamwe & Ward, 2022). When dealing with technostress, perceived support generates a sense of security and favourably meets employees' emotional needs, claim Harunavamwe and Ward (2022). This shows that when workers feel that their managers are encouraging them to succeed; they are more likely to experience positive psychological wellbeing, even when they are dealing with challenges. In times of crisis when employees are under pressure to meet deadlines, supervisors who care about their workers' wellbeing keep an eye out for signs of technostress and act quickly to provide remedial measures and best practices (Harunavamwe & Ward, 2022). Hobfoll et al. (2018) stated that individuals experience stress when they fear losing or failing to access vital resources. In light of the calculated structure, this study analyses the components of asset gain, achieved by PSS, and asset loss, achieved by technostress and work-family struggle, as well as the impact of this addition and adversity on turnover intention among Bangladeshi medical attendants. Work support (asset gain, Jia and Li (2021) shield a person from stress or strain (TS and WFC) by lessening pressure insights, giving arrangements and survival techniques, and diminishing issue trouble and significance (French et al., 2018). In this manner, they improve work results, for example, the expectation to leave (Nohe & Sonntag, 2014).

From the above discussion, it is clear that a higher level of PSS helps to reduce technostress and WFC, thus lessening turnover intention. In contrast, a lower level of PSS enhances technostress and WFC, thus increasing the propensity to leave. Therefore, based on these arguments, the following hypotheses are posited:

H_1 Perceived supervisor support moderates the effect of technostress on nurses' turnover intention.

H_1 Perceived supervisor support moderates the effect of work-family conflict on nurses' turnover intention.

Research framework

The research model depicted in Fig. 1 below was developed to show the relationship between technostress (TS), WFC, and turnover intention (TI). In addition, this study also examined the moderating effect of PSS on the relationship between technostress (TS), WFC, and turnover intention (TI). The social exchange theory (SET) and conservation of resources (COR) theories both support this research framework.

Methods

Sample and procedure

A positivist approach is seen as the most appropriate for this study in order to offer a unique addition to the field. A cross-sectional survey research design was used to
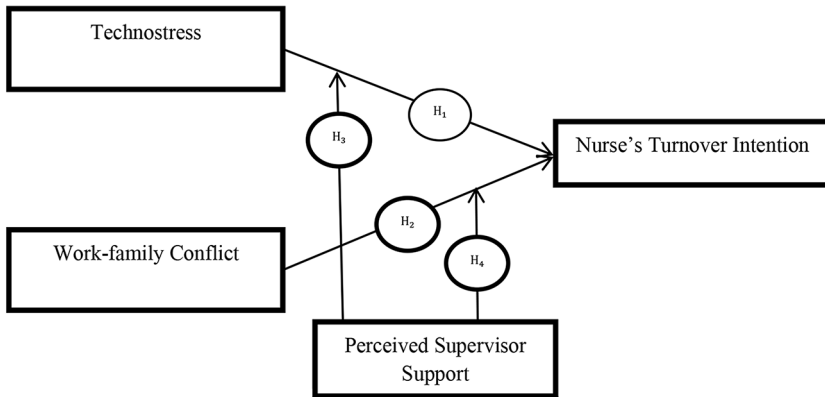
Fig. 1 Relationship between technostress, work-family conflict and turnover intention: Moderated by perceived supervisor support

gather data from nurses in Bangladesh. Participants were selected by using the simple random sampling method. This study employed Labrague's (2020) sample selection criteria: a licenced professional nurse with at least three months of work experience in the current hospital and private or government-owned hospitals. Rozario et al. (2018) found that the roles of nurses were almost similar in Bangladesh. Therefore, data were collected from 386 nurses in five selected hospitals in Bangladesh. Wolf et al. (2013) and Majumder and Rahman (2023) suggested that a sample size of 300 is sufficient for structural equation modelling (SEM). This study used the drop-off/pick-up (DOPU) data collection method. Data were collected between January and February 2023 (2 months) from the respective hospitals. The directors of the hospitals were asked to distribute the questionnaires (in hard copy) among nurses. The directors were requested to select the first two hundred nurses from the list of hospitals. During this time, the researcher reminds the hospital's director by making follow-up calls. The directors also informed the researcher to collect all the filled-out questionnaires after the period given by the researcher. Later, the nurses submitted their filled-out questionnaires to the hospital's director. Finally, after two months, all the filled-out questionnaires were collected from the respective hospitals' directors. The average response rate was 39.65%.

However, this research work was approved by *"Director General of Directorate General of Nursing and Midwifery, Ministry of Health, Bangladesh"* (Approval Reference Number: 45.03.0000.001.99.001.21–3311) granted permission to conduct surveys in the designated hospitals. Subsequently, administrative approval was obtained from the *"Director General of the Directorate General of Health Services, Ministry of Health, Bangladesh"* (Approval Reference Number: 45.01.0000.017.34.001.22.46).

Measures and variables

In order to achieve the objectives of this study, a composite structured questionnaire was constructed using a set of four variables, such as Technostress (TI), Work-family Conflict (WFC), Perceived Supervisory Support (PSS), Turnover Intention (TI), and

a socio-demographic questionnaire. Table 1 shows the construct and survey items details and Appendix Table 2 shows the descriptive statistics of the variables. Moreover, the variables are described in the following:

Technostress

To measure the technostress, this study used Korczynski et al.'s (2020) instrument, which is the shortened version of the instrument of Ragu-Nathan et al. (2008). These instruments contain five items. The Cronbach's alpha (CA) of the technostress scale represented 0.714, and that implies that the dependability of the examination is affirmed. The things of technostress were evaluated on a 5-point Likert scale for all measures "(Likert scale such as "Strongly Disagree=1, Disagree=2, Neutral=3, Agree=4, Strongly Agree=5" and this scale is appropriate as well as valid for Bangladesh.

Work-family conflict (WFC)

In this study, the WFC instrument developed by Netemeyer et al. (1996) was adapted to assess the perceptions of nurses regarding WFC. Labrague (2020) also utilised this scale to evaluate the WFC and revealed that CA was greater than 0.70. Therefore, the same scale was used in this investigation on a 5-point Likert scale.

Table 1 Profile of respondents

		Frequency	Percent
Gender	Male	53	13.7
	Female	333	86.3
Age	30 and below	184	47.67
	31–40 years	99	25.65
	41–50 years	70	18.13
	Above 50 years	33	8.55
Highest Education	Secondary School Certificate	8	2.07
	Higher Secondary Certificate	11	2.85
	Diploma in Nursing	258	66.84
	Bachelor in Nursing	59	15.28
	Master in Nursing	50	12.95
Length of Service	More than three months but less than two years	118	30.57
	2–3 years	60	15.54
	4–5 years	57	14.77
	More than five years	151	39.12
Employment	Public sector	286	74.1
	Private Sector	100	25.9
Religion	Islam	317	82.12
	Hindu	52	13.47
	Others	17	4.4
Marital Status	Married	275	71.24
	Unmarried	111	28.76

Table 2 Test of internal consistency and convergent validity

Constructs	Items	Loadings	AVE	Cronbach's Alpha	CR
TS	TS1	0.92	0.84	0.93	0.95
	TS2	0.94			
	TS3	0.92			
	TS4	0.88			
WFC	WFC1	0.90	0.81	0.94	0.95
	WFC2	0.92			
	WFC3	0.92			
	WFC4	0.90			
	WFC5	0.86			
PSS	PSS1	0.93	0.81	0.94	0.95
	PSS2	0.93			
	PSS3	0.91			
	PSS4	0.80			
	PSS5	0.91			
TI	TI1	0.90	0.76	0.92	0.92
	TI2	0.83			
	TI3	0.89			
	TI4	0.87			
	TI5	0.86			
Cronbach's Alpha (Overall)				0.699 (N of Items: 19)	

Perceived supervisor support

Rhoades et al. (2001) and Wong (2018) developed a questionnaire to measure PSS. Four items are borrowed from Rhoades et al. (2001) and two items from Wong (2018). The reliability score was 0.86 in the study of Rhoades et al. (2001) and 0.85 in the study of Wong (2018). Ghosh et al. (2019) used the four-item scale. The reliability score was 0.82, which was more than the recommended level. Therefore, a total of six items were included in the survey instrument for PSS on a 5-point Likert scale.

Turnover intention

The turnover intention scale developed by Jung and Yoon (2013) was used to measure nurses' turnover intention. Jung and Yoon (2013) reported the instrument's composite reliability (CR) as 0.86. This scale was used by Memon et al. (2021) to assess turnover intention. The CR score was 0.936, which showed high reliability.

Hypothesis testing and data analysis procedure

Table 1 represents the respondents' demographic profile, including gender, age, and highest education, length of service, employment, religion, and marital status. According to Table 4.5, the frequency and percentage of male respondents (13.7%) are less than those of female respondents (86.3%). The majority of respondents falls under the ages 30 and below (47.67%), followed by 31 to 40 years (25.65%), 41 to 50 years (18.13%), and above 50 years (8.55%). In terms of educational qualifications, the majority of the respondents passed a diploma in nursing (66.84%), followed by a bachelor's in nursing (15.28%) and a master's in nursing (12.95%). Approximately half of the nurses had hospital experience spanning more than five years. Further, in the current hospital experience, 30.57% of nurses have more than three months but less than two years of work experience in the same hospitals. 15.54% of nurses have work experience between 2 and 3 years, whereas the percentage of nurses with work experience of 4–5 years was 14.77%. In the employment category, the public sector employs the most respondents (74.1%), with the private sector coming in second (25.9%). More than three-quarters of nurses came from Muslim backgrounds (82.12%), followed by 13.47% of Hindus and 4.4% of other religions. The maximum number of respondents was married (71.24%), and the percentage of unmarried respondents was 28.76% in total.

This study utilized the Kock's (2015) full collinearity test to assess the common method bias. The threshold value for each relationship's variation inflation factor (VIF) is that it must be lower than 5 (Hair et al., 2019b). All of the VIF values for the structural model's lateral and vertical relationships fall below value of 5. Data were found normal in the study. A serious multicollinearity problem exists if the correlation value is more than 0.80 between the two independent variables (Gujarati & Porter, 2009). However, all the correlation values are less than the recommended value; indicates non-existence of multicollinearity issues. Hu et al. (2022) suggested that the "total average score ≤ 1 indicates very low turnover intention, > 1 and ≤ 2 indicate low turnover intention, > 2 and ≤ 3 indicate high turnover intention, and > 3 indicate very high turnover intention." In this study, the mean of turnover intention is 2.59. That means the turnover intention is high among nurses in Bangladesh. Therefore, nurses' turnover intention should reduce in the context of Bangladesh.

To test the hypotheses, SmartPLS 4 (Version 4.0.9.2) was utilised for this study. According to Hair et al. (2019a), the PLS-SEM analyses the relationship between measurement and structural model independently using ordinary least squares regression. Internal consistency is measured by Cronbach alpha (CA), composite reliability (CR), and convergent validity are measured by outer loadings and average variance extracted (AVE). In Table 2, CA measures the reliability of a set of indicators. Hair et al. (2019a) argued that the CA value of 0.708 is regarded as acceptable, but the threshold ought to be higher; for example, 0.8 or 0.9 is more desirable. Due to a reliability issue, items PSS1 and TS2 (and other items renamed) are excluded from the study. In Table 2, all constructs's CA values exceed the recommended value, which means good internal consistency. Hair et al. (2019a) identified that the composite reliability value should exceed 0.708. Here, all the CR values are greater than 0.708, which means a satisfactory level. Outer loadings and AVE are used to measure con-

Table 3 Results of HTMT

	PSS	TI	TS	WFC
PSS				
TI	0.59			
TS	0.55	0.52		
WFC	0.61	0.44	0.50	

Table 4 Results of coefficient of determination (R^2)

	R-square	*R*-square adjusted
TI	0.39	0.38

Table 5 Results of Predictive Relevance (Q^2)

	Q²predict	RMSE	MAE
TI	0.36	0.80	0.62

vergent validity. Hair et al. (2019a) suggested that the loading values should be above 0.708, as it indicates that the variables explain more than 50% of the variance of the indicator, thus providing acceptable item reliability. Table 2 shows that all the items in the outer loadings are greater than 0.708. Ringle et al. (2018) suggested that all AVE values should be greater than the acceptable threshold of 0.50 to confirm convergent validity. The AVE values range from 0.76 to 0.84, which is higher than 0.50. Therefore, this study confirms that there is no convergent validity issue. The discriminant validity was assessed using the "Heterotrait-Monotrait Ratio (HTMT)" (see Table 3). Hair et al. (2019a) suggested that the value of HTMT should be less than 0.90. From the HTMT results, all values are less than 0.90, which is acceptable. Therefore, all the constructs confirm discriminant validity.

The effect of exogenous and endogenous variables is also portrayed by. Hair et al. (2019b) suggested the "value of ranges from 0 to 1, where 0 indicates no relationship and 1 indicates a perfect relationship." The degree of predictive accuracy is significant when the value is 0.26; 0.13 means moderate, and 0.02 means weak (Cohen, 1988). In Table 4, the endogenous variable value is greater than 0.26, indicating a substantial degree of predictive accuracy for the model. The "Predictive Relevance (PR)" of the model is measured by reproducing the observed values by the model itself. Hair et al. (2019b); Rahman et al. (2020b) suggested that the path model's predictive accuracy is acceptable if the value is larger than zero, and values less than zero indicate a lack of PR. In Table 5, the value of turnover intention is greater than zero. Therefore, the model has predictive relevance.

According to Ringle et al. (2022), standard PLS-SEM studies provide information on the relative importance of components in elucidating other constructs in the structural model. The writers also suggested that PLS-SEM results are expanded by importance-performance map analysis (IPMA), which also considers the performance of each construct. Therefore, judgements on two dimensions (i.e., importance and performance) can be reached, which is crucial for prioritising managerial actions. According to Table 6, technostress is particularly significant to illustrate the target construct of turnover intention. More specifically, a one-unit point increase in technostress's performance increases the performance of turnover intention by the value of technostress's total effect on turnover intention, which is 0.38. Also, the perfor-

Table 6 IPMA results full data set

Turnover Intention		
Latent Variable	Total Effect (Importance)	Index Value (Performance)
TS	0.38	44.67
WFC	0.23	33.01

Table 7 Results of path co-efficient (direct effect)

Hypothesis	Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics	P values	Decision
H_1	TS -> TI	0.38	0.38	0.06	6.78	0.00	Supported
H_2	WFC -> TI	0.23	0.24	0.06	4.19	0.00	Supported

Table 8 Results of moderating effect of perceived supervisor support on the relationship between technostress and turnover intention

Hypothesis	Path	Original sample (O)	Sample mean (M)	Standard deviation	T statistics	P values	Decision
H_3	PSS x TS -> TI	-0.13	-0.13	0.06	2.25	0.03	Supported

mance of technostress is relatively high, making the element at the foundation of this construct especially pertinent for managerial actions. Since work-family conflict's performance was relatively low, there is substantial room for improvement.

The path coefficient of the construct was evaluated by executing the bootstrapping procedures. The values of the path coefficient vary between -1 and $+1$. The stronger predictive relationship between the constructs occurs with higher absolute values. Hair et al. (2011) suggested that the significant value for T statistics is 1.96 for a two-tailed test, and the P-value is less than 0.05. Table 7 shows that the t-value and p-value of both hypotheses confirm the recommended value. Therefore, they are accepted. This study investigates the significant moderating effect of PSS on the liaison between technostress and TI. Therefore, the hypothesis is supported. According to Table 8, PSS negatively (β = -0.13) affects the relationship between technostress and TI. Thus, a high PSS reduces technostress and consequently reduces TI. In contrast, when PSS is minimal, technostress and TI increase. In addition, this study also revealed the significant moderating effect of PSS on the relationship between WFC and TI. Thus, the hypothesis is accepted. According to Table 9, PSS negatively (β = -0.17) affects the affiliation between WFC and TI. Therefore, high PSS minimises WFC and lowers the likelihood of turnover. On the other side, technostress and the intention to leave the organisation would be higher in cases of low perceived supervisor support.

Table 9 Results of moderating effect of perceived supervisor support on the relationship between technostress and turnover intention

Hypothesis	Path	Original sample (O)	Sample mean (M)	Standard deviation	T statistics	*P* values	Decision
H_4	PSS x WFC -> TI	-0.17	-0.17	0.05	3.63	0.00	Supported

Discussion

This study demonstrated the significant positive effect of technostress on turnover intention in our sample. Our findings were supported by the results obtained in previous studies such as La Torre et al. (2019); Califf et al. (2020b). This hypothesis is underpinned by the COR theory. Golz et al. (2021) stated that physicians and nurses had the greatest levels of technostress among the health workers. Califf (2022) also argued that Healthcare Information Technology (HIT) is critical to how nurses provide care. As a result, nurses are frequently confronted with a range of stressful situations related to the usage of healthcare information technology. According to Harris et al. (2022), COR theory (Hobfoll, 2001) suggests that as technostress rise, workers will need to devote more of their emotional resources to dealing with these stresses. As their stored resources become depleted, the demands of managing technostress may surpass their coping resources. As a result, employees may contemplate leaving the organisation for a position that provides a more stable environment for building rather than depleting resources (Harris et al., 2022).

The results of this study additionally affirmed the immediate positive impact of WFC on nurturing TI in Bangladesh. The findings support the discoveries of the review shown in Zhang et al. (2019), Jabeen et al. (2020), and Labrague (2020). This speculation is upheld by COR hypothesis. As per the COR hypothesis, clashes created by family prerequisites lead to asset loss, which decreases the impact (Hobfoll et al., 2018). Furthermore, in Bangladesh, most medical attendants are female (Akter et al., 2019). Gandi et al. (2011) expressed that functioning movements, as well as housework and childcare obligations, obscure the qualification between work and home. Subsequently, the weakening of the work-family equilibrium might be the basic reason for this turnover aim (Haddad et al., 2020). In Bangladeshi culture, women oftentimes have family and work obligations, especially after marriage. Moreover, the public authority clinics remembered for this study was connected with clinical universities. Subsequently, attendants had to show nursing understudies, notwithstanding their ordinary medical clinic obligations. Thus, their work was bound to be requesting and unpleasant, adding to work-family struggle and a powerful urge to leave the calling. The analysis confirmed the significant moderating effect of PSS on the relationship between technostress and TI. This hypothesis is postulated by COR theory. This finding is unique in turnover intention research. Based on COR theory, Purisiol (2020) indicated that supervisors could frequently assist employees in managing resources by being a source of workplace support. Likewise, as per the COR hypothesis (Hobfoll, 2001), as innovative pressure brought about by abundance and intrusion increments, workers make ineffective endeavors to deal with their mechani-

cal stressors (Nayak & Budhwar, 2022). Therefore, in order to avoid these conflicting situations, employees consider leaving the organization. Finally, the results confirmed that a high PSS reduces technostress and consequently reduces turnover intention. In contrast, when PSS is minimal, technostress and turnover intention are increased. The investigation likewise showed the huge directing impact of PSS on the connection among WFC and turnover expectation. The consequences of the review are predictable given the COR hypothesis' propositions (Hobfoll, 1989). There is a lack of examination on the directing impact of PSS in the relationship among WFC and turnover aim. Talukder (2019) expressed that PSS can diminish the WFC. The creator focused on the center of COR hypothesis, which expresses that the plausible energy got from manager backing can make up for WFC. Fei et al. (2023) contended that nursing managers ought to do whatever it may take to diminish the predominance of WFC among attendants and, subsequently, their TI, as their better way of behaving can decidedly impact their nurses. Therefore, high PSS minimizes WFC and lowers the likelihood of turnover. On the other side, technostress and the intention to leave the organization would be higher in cases of low perceived supervisor support.

Conclusion and implications of study

The main purpose of this study was to evaluate the impact of technostress and WFC on turnover intention among nurses in Bangladesh where PSS work as a moderator of the empirical analysis. However, primary data was collected from the public and private hospitals in Bangladesh. This study follows the empirical model which is best for the data series to explain the impact of observed variables on latent variables such as turnover intention. Besides, not many researchers inspected the impact of technostress on nurse's TI. Accordingly, this study gives insights into how technostress influences turnover expectations. Hence, this study adds to the more complete information on the degree to which technostress happens in the medical care area. The impact of WFC on turnover expectations has been concentrated on by earlier researchers. Nonetheless, understanding WFC diminishes family obligations by taking on a COR hypothesis perspective to help us better comprehend the instruments in question and the workplace (Gull et al., 2023). The findings of this study have extended WFC in the nursing calling with COR factors such as "resource loss and resource gain." Obviously, less PSS (resource loss) straightforwardly affects WFC (resource loss), though work-family struggle additionally essentially affects TI (resource loss). This concentrate additionally affirms the moderating impact of PSS on the relationship between technostress and turnover expectations. Hence, this study adds to the more complete information on the degree to which technostress happens in the medical care area. This study's findings have a variety of useful applications. According to the Financial Express (2021), in Bangladesh, whenever the media discusses the health sector, they always highlight the absence of doctors, amenities, necessary medications, sanitation, etc. They merely ignore the fact that nurses are a different crucial service provider. As a result, they are not acknowledged in public recognition or policy discussions. This would help medical clinics in arranging and executing strategies that diminish nurture quit expectations and real turnover,

a critical issue in the medical care industry. Furthermore, this study makes a hypothetical commitment to nursing writing and helps human resource managers upgrade human asset management methods for limiting nurses's turnover, which is especially significant in Bangladesh and, by and large, in any country confronting practically identical difficulties. Finally, this study broadened our understanding of the issues that healthcare professionals have identified, as well as the one feasible solution that can be provided by assisting them with their supervisor's support. In addition, work and family obligations influence female nurses (Akter et al., 2023; Gull et al., 2023). Consequently, clinic organisations ought to choose the best chiefs who can uphold their subordinates through testing plans and have extraordinary listening abilities to give solace when workers impart WFC. This study supported the moderating impact of PSS. Based on the discoveries, it tends to be reasoned that an elevated degree of PSS diminishes WFC and reduces turnover intention. Subsequently, directors ought to have a top-to-bottom comprehension of the positive and adverse consequences of innovation use in the working environment so they can utilise innovation and authoritative designs all the more effectively to implant frameworks that help representatives (Brivio et al., 2018) and work with organisational conditions that lessen turnover (Harris et al., 2022). In terms of technostress coping mechanisms, it is critical to examine the positive benefits of a supportive work environment (Harunavamwe & Kanengoni, 2023). Hospital managers may highlight the long-term benefits of health information technology (HIT) to care providers by demonstrating how it is valuable to their careers and keeps patients healthy and safe. This, in turn, may assist in easing some of the anxiety associated with utilising technology. Finally, while this study looked at turnover intentions, actual turnover is something we should want to avoid if at all feasible.

Recommendations

This research has been suggested to look into and compare the experiences of other healthcare workers, such as support employees, physicians, and managers, both now working at the hospital and those who have since left the industry. By hearing from all parties involved, we can acquire a more nuanced picture of turnover intentions and the interplay between technostress, work-family conflict, and perceived supervisor support. A cross-sectional approach was taken for this investigation. In order to improve upon previous findings, it is suggested that future studies employ longitudinal study methods that account for cause-and-effect relationships. At the aggregate level, emphasis should be placed on the role of national laws, policies, and retention strategies in reducing nurses' intention to abandon the profession, thereby improving healthcare provision. Any country, including Bangladesh that wants to reduce nurse turnover needs to take a holistic approach that tackles both the organisational and individual causes of turnover. This study made the recommendation based on empirical data that it is vital to create a pleasant work environment for nurses by ensuring that they have appropriate workloads, fair compensation, and access to the tools and resources they require. Provide defined career pathways as well as opportunities for professional development. Open channels of communication between the manage-

ment and the nurses. Encourage regular communication and feedback so that nurses may voice their opinions, thoughts, and worries. Actively hear what they have to say and then respond accordingly. Encourage a respectful, cooperative, and cooperative culture of the supervisor or other stuffs. Encourage the independence and participation of nurses in decision-making. Recognise and value their accomplishments by implementing rewards, incentives, and recognition programs. Implement measures to enhance work-life balance, such as paid time off, flexible scheduling, and family-friendly rules. Recognise the significance of nurses' private lives and general wellbeing. Give nurses the chance to work on projects that matter and have an impact. Encourage their participation in plans for improving quality, decision-making procedures, and trade associations. Celebrate and acknowledge their accomplishments, which may reduce the stress and volatility of working duties. Give nurses good leadership, support, and direction from your supervisor. Create nurse leaders who can guide and speak up for their peers. Make sure supervisors are friendly, available, and attentive to the requirements and concerns of nurses. Employ management and stress-reduction techniques for nurses. Provide counselling services, employee support programmes, and stress management grams. Encourage healthy work-life balance and self-care behaviours. Keep in mind that the organisation and its executives must put forth constant effort and dedication to reduce nurse turnover. Evaluate adopted tactics frequently, make any revisions, and keep working to build a nurturing and satisfying work environment for nurses. However, only two independent variables were highlighted in this study, such as technostress and work-family conflict. This study encourages future research that extends this model to include undesirable employee outcomes, such as absenteeism and burnout, as well as desirable employee outcomes, such as attitude towards one's job, self-efficacy, job satisfaction, motivation, and organisational loyalty. The primary focus of this study was on the negative effects of technostress. However, it would also be fascinating to examine techno-eustress (Tarafdar et al., 2019) and the extent to which techno-eustress can be beneficial to the employee. Future research in these areas will provide answers to additional questions raised by our findings. Although this study revealed the extent to which individuals rely on technology, the researchers were unable to influence the nature of their work or the instruments they employed. In addition, as stated in earlier studies, there is a sufficient amount of literature that examines the causes of workplace stress (Ayyagari et al., 2011). However, interest in the long-term psychological and physiological challenges posed by the various workplace technologies is relatively recent. Therefore, additional research into the effects of other forms of stress when combined with technology-related stress in the workplace is warranted.

Appendix

Table 1 Construct and survey items details

Construct	Item Code	Survey Items
Perceived Supervisor Support	PSS1	My supervisor strongly considers my goals and values
	PSS2	My supervisor cares about my well-being
	PSS3	My supervisor is willing to help me when I need a special favour
	PSS4	My supervisor shows very little concern for me. (R)
	PSS5	My supervisor takes pride in my accomplishments at work
Work-family Conflict	WFC1	The demands of my work interfere with my home and family life
	WFC2	The amount of time my job takes up makes it difficult to fulfil family responsibilities
	WFC3	Things I want to do at home do not get done because of the demands my job puts on me
	WFC4	My job produces strain that makes it difficult to fulfil family duties
	WFC5	Due to work-related duties, I have to make changes to my plans for family activities
Technostress	TS1	I have a higher workload because of increased technology complexity
	TS2	I often find it too much trouble for me to learn to use new technologies
	TS3	I feel a threat to my job security due to new technologies
	TS4	There are frequent new developments in the technologies we use in our hospital
Turnover Intention	TI1	I am seriously considering leaving my current job to work at another job
	TI2	I sometimes feel compelled to quit my job in my current workplace
	TI3	I will probably look for a new job in the next year
	TI4	Within the next six months, I would rate the likelihood of leaving my present job as high
	TI5	I will quit this hospital if the condition gets even worse than now

Table 2 Descriptive statistics of the variables

	N	Minimum	Maximum	Mean	Std. Deviation
PSS1	386	1	5	3.49	1.298
PSS2	386	1	5	3.48	1.298
PSS3	386	1	5	3.56	1.320
PSS4	386	1	5	3.38	1.534
PSS5	386	1	5	3.57	1.357
WFC1	386	1	5	2.24	1.143
WFC2	386	1	5	2.29	1.188
WFC3	386	1	5	2.37	1.217
WFC4	386	1	5	2.32	1.219
WFC5	386	1	5	2.41	1.272
TS1	386	1	5	2.70	1.272
TS2	386	1	5	2.74	1.327
TS3	386	1	5	2.75	1.313
TS4	386	1	5	2.99	1.399
TI1	386	1	5	2.52	1.444

Table 2 Descriptive statistics of the variables

	N	Minimum	Maximum	Mean	Std. Deviation
TI2	386	1	5	2.64	1.422
TI3	386	1	5	2.48	1.403
TI4	386	1	5	2.49	1.387
TI5	386	1	5	2.80	1.533

Data availability Data will be available based on request.

Declarations

Conflict of interest There is no conflict of interest.

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