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Correlation Among Relational Coordination, Work Engagement, And Proactive Work Behavior Of Head Nurses Working In Tertiary Care Hospitals Of Punjab, Pakistan

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Abstract: Healthcare organizations are very complex systems. Multidisciplinary personnel work as a team to improve patient care. Relational coordination, engagement with work, and employees who work proactively play a crucial role in promising efficiency and positive outcomes for an organization. Therefore, a descriptive correlational study was conducted to assess the level of relational coordination among head nurses, charge nurses, nursing administrators, and physicians, to assess the level of work engagement and proactive work behavior of head nurses, and to assess the correlation among relational coordination, work engagement and proactive work behavior of head nurses working in tertiary care hospitals of Punjab, Pakistan. 170 head nurses were selected by proportionate stratified random sampling technique. Self-administered Relational Coordination Scale, Utrecht Work Engagement Scale, and Proactive Work Behavior Scale were used to collect data. The results indicated statistically significant relational coordination among healthcare professionals. However, head nurses and charge nurses tend to have higher relational coordination scores than nurse administrators and physicians. The results also showed a significant correlation between the RC of head nurses with selected groups and their work engagement and proactive work behavior. The study highlighted that, when there is strong relational coordination among the multidisciplinary team, employees feel connected exhibit engagement with work, and act proactively to achieve organizational goals.

Key terms: Relational coordination, work engagement, proactive work behavior.

1. Introduction

Relational coordination (RC) is a concept that has gained recognition in the fields of organizational management and healthcare in recent years. It refers to the quality of communication and relations among individuals within a team or organization and how these interactions impact the overall performance and outcomes [1]. In an era characterized by complex and interconnected work environments, relational coordination has emerged as a crucial factor in achieving both efficiency and effectiveness [2]. Healthcare organizations are very complex and dynamic systems. These organizations comprise groups of people divided by specialization, training, and status who work as a team. The purpose of the healthcare organization is to improve patient care, work efficiency, and cost-effectiveness [3]. When it comes to providing high-quality hospital care, collaborative teamwork plays a crucial role. Poor relational coordination often leads to communication breakdowns, which can result in conflicts and misunderstandings. Additionally, it has been linked to ineffective problem-solving processes, increased error rates, and higher financial costs due to inefficiencies and errors [4]. Similarly, work engagement (WE) is of utmost significance in the field of nursing [5]. As engaged nurses believe that the job, they are doing is essential (i.e., valuable), they do their job better and encounter more pleasant feelings and reactions in the workplace (i.e., happiness, pleasure), as a result, demonstrating high levels of organizational dedication and retention [6]. Healthcare organizations expect their employees to actively participate in their tasks and exhibit proactive work behavior (PWB) [7]. "Proactive work behavior is a higher-order category of motivated behaviors that refers to self-initiated, anticipatory activity that tries to modify and enhance one's condition or atmosphere. It comprises of taking charge, initiating voice, innovation, and problem prevention" [8, 9]. The published literature reveals that interpersonal relationship and communication amongst work groups varies; sometimes it is problematic and might influence work engagement and PWB of the team of health care professionals. A handful of literature is available on the topic in Pakistan. Therefore, this study emphasizes on establishing the level of relational coordination among head nurses, charge nurses, nursing administrators, and physicians and the relationship of RC with WE and, PWB of head nurses employed across the particular hospitals in Punjab.

2. Material and methods:

Study design: A descriptive correlational research design was employed.

Study Settings: This study was carried out in the Department of Nursing at the University of Health Sciences Lahore with the collaboration of the following 4 tertiary care hospitals in Punjab:

S.no	Hospital name	Number of head nurses
01	Jinnah Hospital Lahore	150
02	Nishtar Medical University Hospital Multan	52
03	Allied Hospital Faisalabad	120
04	Benazir Bhutto Hospital Rawalpindi	44
	Total population	N = 366

Study Subjects: The study subjects comprised of head nurses who were working for > 1 year in selected hospitals of Punjab. The sample of **n = 170** was selected by using a proportionate stratified random sampling.

Number of participants in each stratum obtain is given below:

S.no	Hospital name	Number of head nurses
01	Jinnah Hospital Lahore	70
02	Nishtar Medical University Hospital Multan	24
03	Allied Hospital Faisalabad	56
04	Benazir Bhutto Hospital Rawalpindi	20
	Total sample	n = 170

Data Collection Tools:

Demographic Profile: A description of demographic information of participants for hospital name, age, qualification level, and years of work experience as a head nurse was included.

Relational Coordination Scale (RCS): It was created by Gittel et al., 2000 [10] and employed to assess how well individuals communicate and interact with one another in functional groups of workers regarding to a specific work process. The RCS is a 7-item instrument out of which three items measure the level of relationships among groups of workers: shared knowledge, shared goals, and mutual respect whereas four items measure the quality of communication based on frequency, accuracy, timeliness, and problem-solving. A five-point Likert scale was used. The item stem was rated ranging from (1) Strongly Disagree, to (5) Strongly Agree.

Utrecht Work Engagement Scale (UWES-9): It was established by Schaufeli and Bakker, in 2003 [11] for multidisciplinary professionals. It comprises of 9 items divided into 3 subscales including vigor (3 items), dedication (3 items), and absorption (3 items). It is a five-point Likert scale. The item stem was rated ranging from (1 = Never to 5 = always) based on how frequently the individual felt the way that was described.

Proactive Work Behavior Scale (PWBS): It was designed by Parker and Collins, 2010 [12]. The scale focuses on initiating internal change in an organization. It consists of 4 subscales including taking charge, individual innovation, problem prevention, and voice. It is a five-point Likert scale. The item stem was rated ranging from (1 = Very infrequently to 5 = Very frequently) in response to the stem.

Pilot testing

Reliability: Pilot testing was carried out to examine the instrument's reliability. In this pilot testing, data was gathered from 17 head nurses (10 %) of the sample by requesting them to fill out the questionnaires. A statistical test of Cronbach's alpha was implied to check the reliability of all tools.

- For Relational Coordination Scale: Cronbach's alpha ($\alpha = 0.82$)
- For Work Engagement scale: Cronbach's alpha ($\alpha = 0.86$)
- For Proactive Work Behavior scale: ($\alpha = 0.84$)

Validity: The validity of questionnaires has been checked through the Content validity index (CVI). The supervisor, co-supervisor, physician, head nurse, nurse administrator (Nursing Superintendent), and an English teacher were requested to review the questionnaire for face and content validity. The acceptable CVI value for at least six experts is **0.83** or higher [13, 14].

- For the Relational Coordination Scale: CVI was **0.93**
- For the Work Engagement scale: CVI was **1**
- For the Proactive Work Behavior scale: CVI was **0.97**

The calculated content validity index (CVI) of all scales suggested that the tools are valid to use in the current study.

Data collection method: After approval from the synopsis review, ethical review committee, and advance studies & research board of the University of Health Sciences, administrative permission from the selected hospitals of Punjab for data collection was taken. The participants were explained the study's purpose. Consent was taken in an informed and voluntary manner. The participants of the study were assured that their information would be kept anonymous. Questionnaires were distributed to the participants. The participants filled out the self-administered structured questionnaires.

Statistical analysis: All collected information was analyzed by using Statistical Package for Social Sciences (SPSS IBM 25 version). Data was presented by using descriptive statistics in the form of frequencies, percentages for demographic characteristics of the study participants, and levels of relational coordination, work engagement & proactive work behavior. The Pearson correlation test was employed to analyze the relationships among quantitative variables (RC, WE, and PWB). Statistical significance was considered with the power of the study corresponding to 90% and the level of significance equivalent to 5%.

Ethical consideration: Ethical approval for research was obtained from the ethical review committees and advanced studies & research board (ASRB) of the University of Health Sciences Lahore. Administrative permission from all four hospitals administration was drawn by the researcher. Informed written consent of the participants was taken, and the aim and possible benefits of the study were explained to participants. Respondents were also ensured the anonymity and confidentiality of information. The participants were authorized to withdraw at any time from the study or deny participating

3. Results:

Items	Frequency (n = 170)	Percentage
Age: (years)		
< 30 years	0	0 %
30 - 35 years	5	2.9 %
36 - 40 years	17	10.0 %
> 40 years	148	87.1 %
Hospital name:		
Jinnah hospital Lahore	70	41.2 %
Nishtar Medical University Hospital Multan	24	14.1 %
Allied Hospital Faisalabad	56	32.9 %
Benazir Bhutto Hospital Rawalpindi	20	11.8 %
Qualification:		
Nursing diploma	148	87.0 %
BScN	21	12.4 %
MSN	1	0.6 %
Experience as head nurse:		
< 10 years	20	11.8%
10 - 15 years	12	7.0 %
> 15 years	138	81.2%

Table 4.1: Demographic profile of study participants (n = 170)

Table 4.1 reveals that the majority of the participants (87.1 %) were in the age group > 40 years and most of them (87.0 %) had nursing diploma level qualification with majority of head nurses 81.2% had working experience > 15 years.

Level of relational coordination:

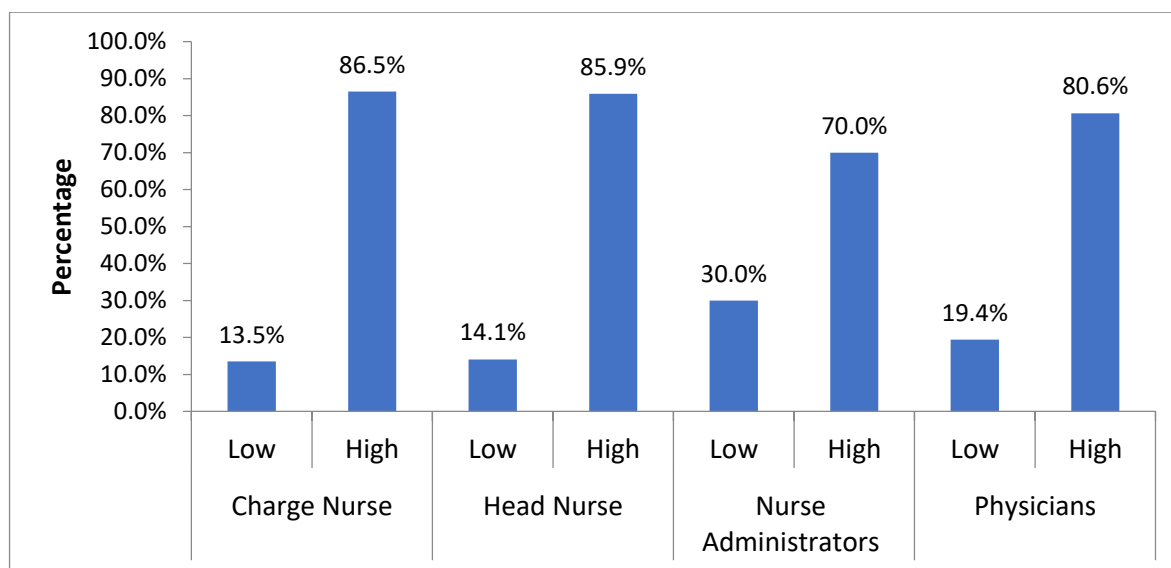


Figure 4.1: Relational coordination levels of head nurses with charge nurses, other head nurses, nurse administrators, and physicians

Figure 4.1 depicted the majority 86.5% of the total participating head nurses perceived high relational coordination with charge nurses as they scored 87% on the relational coordination scale. Likewise, the majority 85.9% of head nurses showed high relational coordination with other head nurses as they got 86% on the relational coordination scale. majority 70.0% of head

nurses demonstrated high relational coordination with nurse administrators getting a score of 70%. In interactions with physicians, 80.6% of head nurses showed high relational coordination with Physicians as they got 78 % scores. Overall, our study found high relational coordination of head nurses with all selected work groups.

Level of work engagement of head nurses:

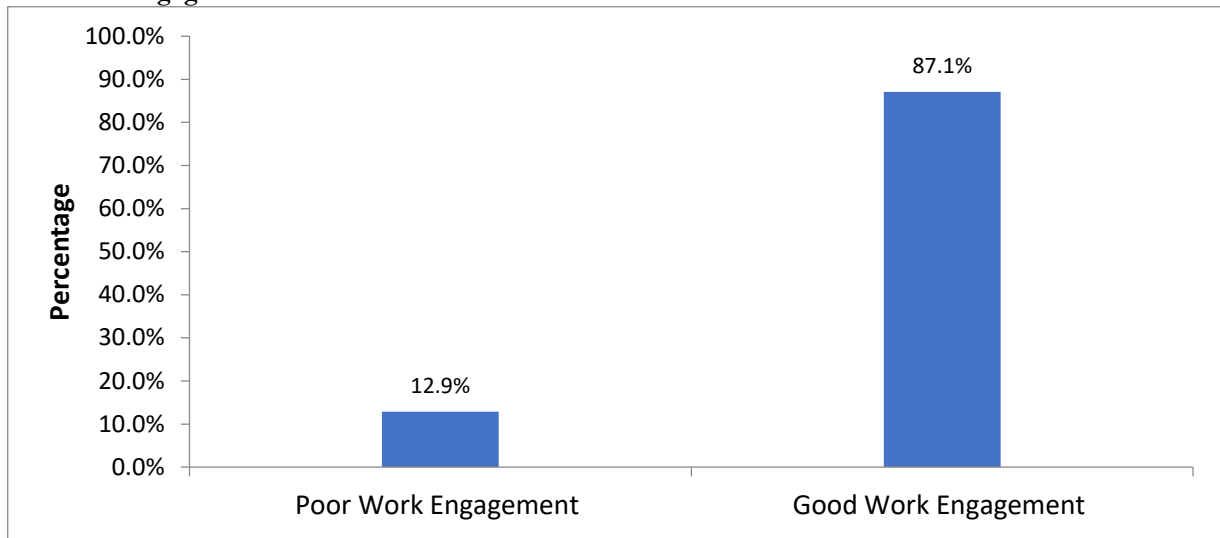


Figure 4.2: Distribution of participants according to Work engagement level

Figure 4.2 reveals that the majority of the study participants 87.1% expressed good work engagement as they scored 88% on the Utrecht work engagement scale whereas the remaining 12.9% reported poor work engagement, as per scoring criteria for the Utrecht work engagement scale. The findings of the current study showed good work engagement of the participating head nurses of selected hospitals.

Level of Proactive Work Behavior of head nurses:

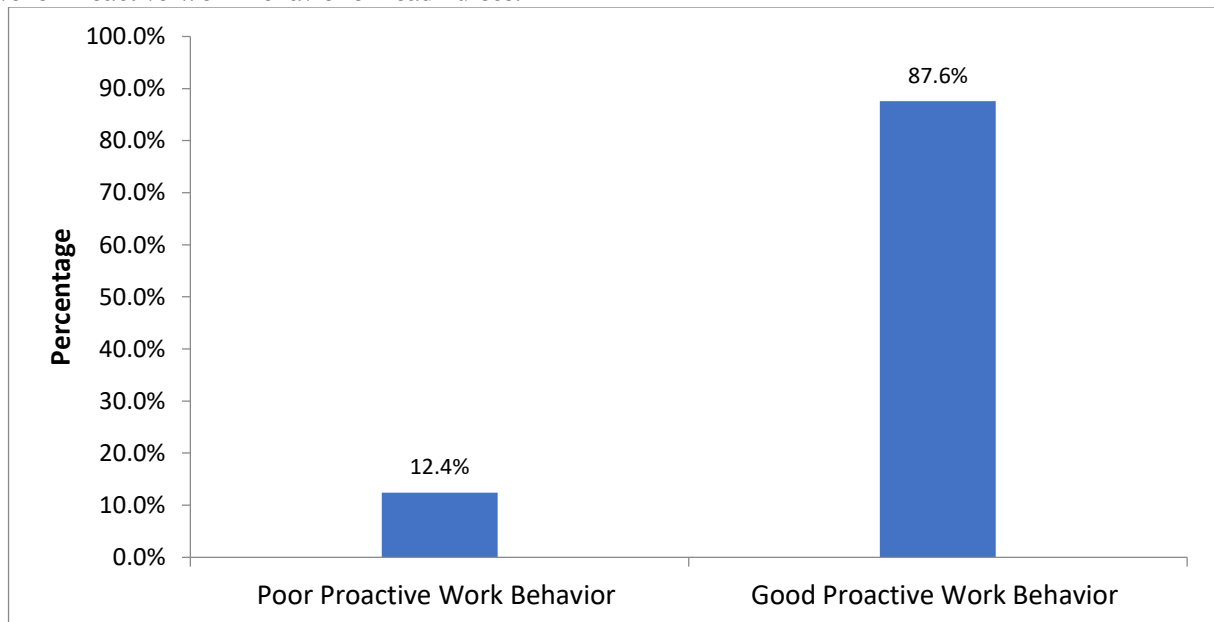


Figure 4.3: Distribution of participants according to PWB level

Figure 4.3 depicts most of the head nurses 87.6% had good proactive work behavior as they scored 90% on the proactive work behavior scale while the remaining 12.4% showed poor proactive work behavior. Our study discovered good proactive work behavior among the participating head nurses of selected hospitals.

Correlation of Relational Coordination with Work Engagement, and Proactive Work Behavior of Head Nurses:

Table 4.2: Correlation of Relational Coordination of Head Nurses with WE and PWB

Group	Relational Coordination	Work Engagement	Proactive Work Behavior
	Correlation Coefficient	0.305	0.365

Head nurses with Charge Nurse	p-value	0.000*	0.000*
Head nurses with other Head Nurses	Correlation Coefficient	0.234	0.320
	p-value	0.002*	0.000*
Head nurses with Nurse Administrators	Correlation Coefficient	0.433	0.326
	p-value	0.000*	0.000*
Head nurses with Physicians	Correlation Coefficient	0.475	0.398
	p-value	0.000*	0.000*

* Significant

Table 4.2 reveals a significant positive correlation between head nurses' relational coordination with all groups and their WE and PWB as indicated by significant p-values. The overall results indicate positive and significant correlations between the relational coordination of head nurses and their colleagues in charge nurse roles, other head nurse positions, nurse administrators, and physicians. These results suggest that higher relational coordination is linked with enhanced engagement in work and proactive work behavior among head nurses.

4. Discussion:

Demographic Profile: The result of the current study disclosed that most of the head nurses (87.1%) working in all four tertiary care hospitals of Punjab were more than 40 years of age. Congruent with our findings, the same age range has also been reported in a study stating that the maximum number of head nurses was 30-59 years of age [15]. The age of head nurses may be more than 40 years because nursing is a profession that requires a substantial amount of education and experience for promotion. Many head nurses have worked for many years as charge nurses to gain the necessary experience to take on leadership roles. The delay in the process of promotion and the lack of a career ladder is the reason that most of the head nurses are middle-aged [16]. Moreover, the findings of the current study also reported that diploma holders made up the majority of head nurses, comprising 87.1% of the total participants. Our findings are congruent with research conducted in Lahore which indicated that 85% of head nurses were diploma holders [17]. In contrast, a survey conducted in Finland found more than half (50%) of the participating nurse managers were bachelor-level registered nurses (RNs) and 10% had a master's degree in the medical field or science of nursing [18]. This discrepancy may be due to the delayed start of baccalaureate nursing degree programs (BScN, 4 years, and post-RN, 2 years) as these programs were first introduced in Punjab, Pakistan, in 2002 and 2007 respectively. However, nursing diplomas and post-basic specialization diplomas have been available for quite a long time [19]. Furthermore, current study findings also reported that the majority of head nurses had over 15 years of professional work experience. The comparable findings were obtained in a study conducted in Egypt that discovered 10-29 years of professional work practice. Similarly, more than 10 years of work experience was reported in another study conducted at Yogyakarta State University of Indonesia [20, 21]. The results of the recent study are also parallel to a study conducted in Pakistan, revealing that the majority of head nurses had more than 10 years of leadership experience [17].

Level of Relational Coordination: Findings of the current research indicated the highest level of relational coordination between the head nurses and charge nurses, reaching 87%. This can be attributed to the fact that head nurses are responsible for managing the nursing staff, assigning patient care duties, and ensuring that their ward is running smoothly. Thus, head nurses need to have an excellent working connection with charge nurses to ensure the smooth functioning of the department. Current study findings also showed that the relational coordination among head nurses was high reaching 86%. This can be attributed to the fact that head nurses share similar roles and responsibilities, which require them to work together to ensure the smooth functioning of the hospital. Moreover, the coordination between head nurses and physicians also showed a relatively high level of the relational coordination scale. This is because the physicians and head nurses work together to provide quality patient care. Effective communication and collaboration among head nurses and physicians are essential to ensure that patients receive the best possible care. Additionally, the least prominent coordination was identified in the relationship between head nurses and nurse administrators which was 70%. Although it was considered as high according to the cut of value of the relational coordination scale was > 60 % but was less than other groups under study. This may be because the questionnaire used in the current study focused on relational coordination regarding patient care. Nurse administrators are responsible for managing all nursing departments in a hospital, which requires them to focus on administrative tasks rather than patient care. However, it is still important for head nurses to have a good working relationship with nurse administrators to ensure the smooth running of hospitals. Similar findings were presented in correlation research that explored the relational coordination of various levels of nurses in Saudi Arabia [22]. Furthermore, A study conducted in Peshawar, Pakistan looked at the amount of relational coordination among healthcare practitioners and revealed relational coordination between nurses and technicians, nurses and doctors was relatively strong, whereas poor RC linkages were discovered between administrators and nurses [23]. Moreover, in contrast, a study conducted at Assuit Hospital in Egypt examined the relational coordination of head nurses, specifically emphasizing interactions with fellow head nurses, nurse administrators, and physicians. Notably, the study excluded charge nurses from its scope. The findings revealed the most robust interpersonal relationships existing between head nurses and their peers, followed closely by interactions with nurse administrators. However, no statistically significant difference was observed in the measured interpersonal relationships between head nurses and physicians [20].

Level of Work Engagement of Head Nurses: Head nurses' work engagement is a crucial component of healthcare management since it affects not only their job satisfaction but also the productivity and well-being of their teams as a whole. The results of the present investigation indicated that a significant proportion of the participants in the study (87.1%) expressed good work engagement, while the remaining 12.9% reported poor work engagement. This suggests that head nurses experience

a heightened sense of ease when interacting with charge nurses, physicians, nursing administrators, and their peers. These findings of the study suggest that the hospitals included in the study cultivate an environment and culture that facilitate the continuous development of skills for head nurses, enabling them to effectively fulfill their roles through motivation. Ultimately, suggesting that the strong support received from both top management and their team contributes significantly to the observed levels of work engagement. The outcomes of the present study are consistent with the research conducted at Mansoura University Hospital in Egypt indicating that head nurses exhibited a high level of WE. This alignment in results suggests a similar trend, highlighting that nurses in public hospitals are more inclined to undertake additional responsibilities [24]. Similar findings were revealed in a research investigation carried out in Korea that presented a higher level of job engagement in nurses [25]. In contrast to the findings of the present study, a cross-sectional study conducted in Gaza (Palestine) revealed moderate levels of work engagement among the participants. This disparity in results suggests variations in factors influencing WE across different settings and populations [26].

Level of Proactive Work Behavior of Head Nurses: PWB is generally considered a valuable trait for effective leadership in nursing. Proactive head nurses anticipate the needs of their nursing staff, multidisciplinary team, and the patients they serve. They stay ahead of potential issues and take preventive measures to ensure smooth operations. According to the findings of the current study, 87.6% of head nurses demonstrated good proactive work behavior on the proactive work behavior scale, while the remaining 12.4% demonstrated poor proactive work behavior. It indicated a higher level of PWB among head nurses employed in selected hospitals. The results obtained from the current study are in line with those of a study conducted in university-affiliated hospitals in the People's Republic of China, which found that head nurses perceived proactive work behavior at a moderate level. Additionally, the study uncovered a statistically significant positive correlation between WE and PWB [27]. This indicates that when head nurses become more involved in their work, their proactive behavior also increases accordingly. This positive correlation suggests that factors contributing to higher work engagement, such as job satisfaction, motivation, and a sense of purpose, may play a role in fostering a proactive approach among head nurses. Moreover, Comparable results are also noted in another cross-sectional study conducted in four university-affiliated general hospitals in Myanmar. This research reported that the participating nurses perceived a moderate level of PWB [28].

Correlation of Relational Coordination with Work Engagement, and Proactive Work Behavior of Head Nurses: The importance of relational coordination in healthcare has been well-documented in the literature. The results of the recent research supported the hypothesis and demonstrated a notable and positive correlation between the relational coordination of head nurses with various groups, revealing significant p-values. Specifically, the results of the current study highlighted a positive and statistically significant correlation between the relational coordination of head nurses and their counterparts in charge nurse roles, other head nurse positions, nurse administrators, and physicians and their WE and PWB. The findings of the current study are aligned with the results of a correlational study conducted in Egypt that explored "head nurses' interpersonal relations and their impact on WE and PWB." This earlier research revealed a positive correlation between interpersonal relations and both WE and PWB [20]. Furthermore, the findings of the present study are also congruent with a research investigation carried out at the University of North Carolina found a substantial correlation between relational coordination and increased engagement of work [29]. Similarly, another descriptive correlational study was conducted at Menoufia University, discovered that there was a high statistical association between relational coordination and proactive behavior [30]. There were no studies that produced contrary findings. However, the literature indicates that team members who display poor relational coordination with their team also have poor employee outcomes, such as low engagement in work and poor proactive work behavior, which leads to job displeasure, burnout, exhaustion, and turnover [31]. Head nurses who establish good relational coordination with their colleagues are more probably to exhibit WE and PWB. This is because work engagement is contagious, as coworkers, leaders, and other team members all exhibit high levels of enthusiasm, dedication, and absorption. Furthermore, relational coordination within work units promotes individual proactive behavior by forming an atmosphere in which the supposed risks of proactivity are minimized.

5. Conclusions

In conclusion, the results of the current study highlighted the correlation between RC, WE, and PWB among head nurses and other groups in the hospital setting. The findings suggest that head nurses have varying levels of relational coordination with the healthcare team with the most prominent coordination between head nurses and charge nurses. Effective communication and collaboration between head nurses and other groups are essential to ensure the smooth functioning of the nursing unit and the provision of quality patient care. The role of head nurses in tertiary care hospitals is dynamic and continually adapting to support patients' intricate care requirements within the ongoing multidisciplinary healthcare system's reforms and constraints. Findings from the current study highlight the importance of providing adequate support and opportunities to all team members to enable their effective contribution to the multi-professional team. Overall, the study emphasizes the integral role of relational coordination on WE and PWB, thereby enhancing collaborative dynamics and the overall performance of healthcare teams in addressing the diverse and evolving needs of patients in public sector hospitals in Pakistan.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the ethical review committees of the University of Health Sciences Lahore, Pakistan on 24th July 2023 vide ERC approval number UHS/REG-23/ERC/3782.

Informed Consent Statement: Informed consent was obtained from all the participants involved in the study.

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Conflicts of Interest: Authors declare no conflict of interest.

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