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# Factors Affecting Team Collaboration among Ward Nurses: A Prospective Cohort Survey

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## Abstract

Interdisciplinary collaboration is being increasingly recognized for its potential to enhance patient care, necessitating a deeper understanding of the factors that influence team dynamics among ward nurses. This prospective cohort study aimed to identify key factors affecting team collaboration among ward nurses in the Kanto region of Japan, focusing on elements such as independence, opportunities to engage abilities, and positive ward atmosphere. These factors were chosen based on their potential to enhance communication and cohesion within teams, which are essential components for effective interdisciplinary collaboration. The study involved 840 nurses from six university and public hospitals, with data collected at baseline and six-month follow-up. Using a validated tool with a Cronbach's $\alpha$ of 0.88, the mean team collaboration score was found to be 70.5 ± 8.5. Multiple regression analysis showed that higher collaboration scores were linked to greater independence in duties ($\beta = 0.187$, $p = 0.001$), opportunities to engage abilities ($\beta = 0.122$, $p = 0.001$), and a positive ward atmosphere ($\beta = 0.094$, $p = 0.01$), explaining 22% of the variance (adjusted $R^2 = 0.227$). Based on these findings, policymakers should focus on creating supportive work environments that enhance nurses' autonomy and opportunities for professional growth, which are critical for improving interdisciplinary collaboration and, ultimately, patient care outcomes.

## Keywords

Multidisciplinary Health Teams, Nurse Managers, Physician-Nurse Relation, Information Dissemination

## 1. Introduction

There is emerging evidence in the literature that collaboration with other nurses

in the ward improves the quality of care and optimizes results in practice [1] [2]. However, research regarding nurse collaboration in Japan is scarce. According to the World Health Organization's (WHO) Multi-professional Patient Safety Curriculum Guide [3], effective team collaboration in healthcare delivery can immediately and positively impact patient safety. As patient care is the most important aspect of nursing, teamwork and collaboration are critical to this role.

To foster team collaboration in patient care, nurses must fulfill diverse roles that require them to have a high level of collaboration awareness and ability [4] [5]. Because nurses are considered intermediaries between various specialized physicians [6], team collaboration is an important skill that every nurse should develop. Additionally, effective team collaboration enables nurses to work with associated health experts, such as dieticians, physiotherapists, mental health workers, and medical specialists [5]-[9].

## 2. Background

Raat *et al.* [8] demonstrated that incorporating multidisciplinary team management into diagnosis and treatment programs led to a significant decline in hospitalization and death rates. Patient care teams are formed within hospital organizations for specific reasons. These teams vary depending on the conditions and challenges being addressed, including palliative care [10], intensive care [2], swallowing [11], and heart failure [8]. However, various factors impede teamwork among ward nurses in medical settings [12]. Research has revealed significant challenges in communication, information dissemination, and physician collaboration [13].

Patient safety is jeopardized when healthcare personnel fail to communicate effectively for various reasons, including lack of crucial information, misinterpretation of information, confusing orders over the phone, and missed status changes [14]. Medical errors, particularly those resulting from a failure to communicate, are a widespread concern in healthcare settings. Medical errors can occur when team collaboration is lacking or ineffective. These errors can result in severe complications or even patient death.

However, factors such as effective communication and professional competence are predictors of effective interdisciplinary collaboration [4]. As effective clinical practice necessitates reiterating vital information, effective communication and professional competence enhance the effectiveness of interdisciplinary collaboration among ward nurses. Professional competencies are dependent on fundamental factors such as routine communication among multidisciplinary specialists and cross-disciplinary involvement [2] [15].

Some studies have found that interdisciplinary collaboration improves patient care in various contexts, while others claim that there is insufficient data to reach firm conclusions [16] [17]. Minamizono *et al.* [18] reported that communication between

physicians and nurses influenced professional competency and interdisciplinary teamwork. However, interdisciplinary collaboration is sometimes difficult

and necessitates innovative professional techniques [19], which can be leveraged in ward nurses' team collaborations. Physicians only issued instructions to nurses they believed were reliable and competent and did not exchange information with nurses they believed were unreliable [5] [17]. Whereas, nurses could not share information with physicians they found difficult to communicate with, although they believed it was vital. Hence, patients suffered complications, resulting in lengthy hospitalization. Ward nurses' team collaborations can bridge this gap in patient care, thereby improving health outcomes.

As interdisciplinary healthcare becomes increasingly popular, a better understanding of its efficacy and how ward nurses fit into its mechanisms is required [16].

Although existing scales measured collaboration among nurses [20] [21], they did not include items on collaboration with physicians. Therefore, we developed the Ward Nurse Team Collaboration (WNTC) scale to specifically assess nurse-physician collaboration. In a previous phase of this research, two longitudinal surveys were conducted to develop the WNTC scale, ensuring its reliability and validity. Therefore, despite the availability of other established instruments, the WNTC scale was used to better align with the specific aims of this study.

This study aimed to determine the factors influencing ward nurses' team collaboration and multidisciplinary information sharing to improve ward collaboration scores, using the WNTC scale. We hypothesized that nurses' collaboration awareness and competence will improve ward collaboration scores.

## 3. Materials and Methods

### 3.1. Research Design

This prospective cohort study recruited nurses from six facilities drawn from the 32 university and public hospitals with ≥400 beds that acknowledged practicing ward nurse team collaboration, in the Kanto region of Japan in 2018. A follow-up survey was conducted six months after baseline data collection.

The study used a longitudinal design to identify the factors influencing ward nurse team collaboration over time. At baseline, various personal and work environment factors, including assertiveness, resilience, work-life balance, and socio-demographic information, were recorded. These factors were presumed causes that could influence the WNTC scores.

The follow-up survey, conducted six months later, aimed to measure the presumed effects, specifically the changes in WNTC scores. By comparing the baseline and follow-up data, we could assess how initial factors influenced ward nurse collaboration over time.

### 3.2. Theoretical Framework

This study was informed by the social exchange theory (SET), which posits that relationships and interactions in the workplace are based on exchanges involving costs and benefits. According to SET, effective collaboration and communication

among team members are influenced by the perceived rewards and costs of these interactions. The WNTC framework was developed to capture these dynamics in the context of nursing teams, emphasizing the influence of mutual support, effective communication, and perceived autonomy in collaboration.

The application of SET in this study aligns with previous research in nursing, where SET has been used to examine organizational relationships [22]. For instance, studies have shown that strong nurse-physician and nurse-supervisor relationships contribute to a healthy, satisfying, and productive work environment, reflected in increased nurse retention. Perceived positive exchange relationships have been linked to higher organizational commitment, a key predictor of turnover intention.

### 3.3. Sample Size Determination

The sample size of 3,000 was determined based on the general heuristic of requiring 5 - 10 participants per questionnaire item for factor analysis and regression modeling, considering the approximately 120-item questionnaire and anticipating a response rate of approximately 60 - 70%. We also aimed to conduct a census of ward nurses across the participating facilities to ensure comprehensive representation.

### 3.4. Participants and Setting

Participants were included if they were full-time nursing staff working in different wards of the six health facilities and were willing to participate in the study. Exclusion criteria were being ward nurse administrators (because of their distinct roles and duties), part-time nurses (those not in regular employment in Japan and not involved as part of the ward team), and those who did not provide informed consent.

### 3.5. Research Instrument Development

The study employed a questionnaire that included a previously validated structured research tool (*i.e.*, the WNTC scale) to assess the willingness to communicate among nurses. The questionnaire also included items on personal factors, work environment factors, assertiveness, resilience, and work-life balance.

### 3.6. Data Collection Procedure

Data were collected at baseline using the abovementioned questionnaire. A follow-up survey with the same questionnaire was conducted six months later to validate the factors influencing ward nurse team collaboration. Respondents who had changed wards because of shuffling before the follow-up survey were excluded.

### 3.7. Measures

The WNTC scale comprises 17 items and four subscales:

- communication in the ward (6 items),

- collaboration with doctors (3 items),
- support between team members (4 items),
- ethical behavior in the team (3 items).

Responses were provided on a six-point scale (1 to 6 points), with the total score ranging from 17 to 102. A higher total score indicated higher ward team collaboration. This scale had a Cronbach's $\alpha$ of 0.88.

### 3.8. Statistical Analysis

The WNTC total score and subscale scores were checked for ceiling and floor effects using mean and standard deviation values, confirming that there was no bias in the data. Student's t-test and one-way analysis of variance (Bonferroni correction) were used to test for statistically significant differences. Correlation coefficients with the total WNTC score were calculated using Pearson's product-moment correlation for continuous variables (assertiveness, resilience, work-life balance, visual analog scale) and Spearman's rank correlation for ordinal variables (e.g., perception of work climate), with the significance level set to $p < 0.05$.

Multiple regression analysis was performed using the WNTC total score from the follow-up survey as the outcome variable and variables with a correlation coefficient absolute value of ≥0.2 and a significance of <0.2 in the bivariate analysis as explanatory variables. We checked for items with a correlation coefficient of ≥0.9 to eliminate the influence of multicollinearity between explanatory variables. Statistical analyses were performed using IBM SPSS Statistics version 25.0.

### 3.9. Ethical Considerations

Ethical approval was obtained from the International University of Health and Welfare Ethics Review Committee (June 14, 2018; approval no. 18-Ig-42). Participants were provided with a document explaining the study's objective, method, and ethical considerations. They were informed that participation was voluntary, could be withdrawn at any time without disadvantages, and that it was acceptable to return a blank form. A checkbox indicating consent to participate in the study was included at the top of the survey form. Respondents were included in the study only if they marked "I want to participate." Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

## 4. Results

### 4.1. A Baseline Survey

A total of 3303 questionnaires were distributed, and 2486 (75.2%) responses were retrieved. Of these, 2115 (64.0%) had valid responses. The study cohort was established with 2040 eligible respondents who had complete data for the WNTC scale.

However, follow-up was successful for only 975 participants, of which 135 were excluded (78 had a ward transfer, 18 assistant nurses, 11 non-full-time employees, and 28 ward nurse administrators who reported having changed their affiliated wards because of personnel shuffling since the baseline survey) (Figure 1).

To assess potential attrition bias, we conducted statistical comparisons between participants who completed both baseline and follow-up surveys (n = 840) and those who dropped out (n = 1200). No significant differences were found in baseline WNTC scores, age, gender, or years of experience, suggesting that the final sample remained representative of the initial cohort.

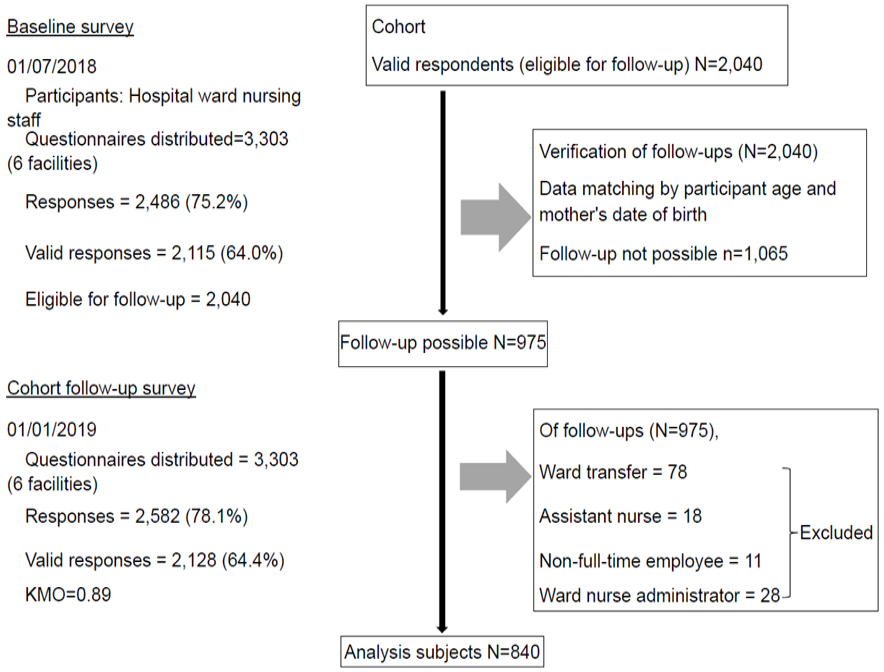


Figure 1. Flowchart of participant selection.

## 4.2. Participant Attributes

The final analyses included 840 participants: 808 nurses (96.1%) and 32 midwives (3.9%). Of these, 74 (8.8%) were male and 766 (91.2%) female, with a mean age of 32.6 ± 9.7 years (Table 1). The mean WNTC score was 68.1 ± 10.1 at baseline and 70.5 ± 8.5 at follow-up.

Regarding educational attainment:

- 440 (52.4%) attended nursing vocational school
- 183 (21.8%) attended nursing junior college
- 158 (18.8%) attended nursing college

Most participants (66.5%) had no partner, 70.5% had no experience raising a child, and 69.5% did not live with a child. Participants with a partner had significantly higher WNTC scores compared to those without a partner ($p < 0.05$). No significant differences in WNTC scores were observed based on educational attainment or profession.

Table 1. Participant attributes and ward nurse team collaboration. (N = 840)

| | Response | N | | Ward Nurse Team Collaboration Total Score | | |
|---|---|---|---|---|---|---|
| | | (n) | (%) | Mean | SD | |
| **Ward Nurse Team Collaboration** | | **840** | **(100.0)** | **70.5** | **8.5** | |
| Gender | Male | 74 | (0.1) | 70.2 | 10.7 | |
| | Female | 766 | (91.2) | 70.6 | 8.7 | |
| Age | ≤24 | 241 | (28.7) | 70.3 | 9.2 | |
| | 25 to 29 | 170 | (20.2) | 69.6 | 8.7 | |
| | 30 to 34 | 109 | (13.0) | 70.7 | 8.6 | |
| | 35 to 39 | 92 | (11.0) | 68.7 | 8.5 | |
| | 40 to 44 | 106 | (12.6) | 70.8 | 8.8 | |
| | 45 to 49 | 76 | (9.0) | 73.0 | 8.0 | |
| | 50 to 54 | 29 | (3.5) | 73.8 | 10.0 | |
| | 55+ | 17 | (2.0) | 75.7 | 8.2 | |
| Educational attainment | Nursing vocational school | 440 | (52.4) | 70.6 | 9.0 | |
| | Nursing junior college | 183 | (21.8) | 70.3 | 9.0 | |
| | Five-year integrated course | 40 | (4.8) | 71.5 | 5.7 | |
| | Nursing college | 158 | (18.8 | 70.0 | 9.0 | |
| | Nursing graduate school | 7 | (0.8) | 72.1 | 9.7 | |
| | No response | 12 | (1.4) | - | - | |
| Profession | Nurse | 808 | (96.1) | 70.6 | 8.9 | |
| | Midwife | 32 | (3.9) | 68.7 | 8.5 | |
| Years of clinical experience | 1 | 145 | (17.3) | 69.9 | 9.1 | |
| | 2 to 3 | 131 | (15.6) | 70.2 | 9.5 | |
| | 4 to 5 | 90 | (10.7) | 68.2 | 9.3 | |
| | 6 to 7 | 68 | (8.1) | 70.2 | 7.7 | |
| | 8 to 9 | 53 | (6.3) | 71.5 | 6.3 | |
| | 10 to 15 | 130 | (15.5) | 69.9 | 9.6 | |
| | 16 to 20 | 77 | (9.2) | 71.7 | 8.1 | |
| | 21 or more | 125 | (14.9) | 73.0 | 8.5 | |
| | No response | 21 | (2.5) | - | - | |
| Have a partner | Yes | 282 | (33.5) | 71.7 | 8.3 | ** |
| | No | 551 | (66.5) | 69.9 | 9.1 | |
| Have experience raising a child | Yes | 248 | (29.5) | 71.2 | 8.5 | † |
| | No | 581 | (70.5) | 70.3 | 9.3 | |
| Live with a child | Yes | 237 | (28.2) | 71.2 | 8.7 | † |
| | No | 584 | (69.5) | 70.2 | 9.0 | |
| | No response | 19 | (2.3) | - | - | |

Note. Two-group comparisons were performed using t-test, and comparisons of three or more groups were performed using one-way analysis of variance (multiple comparisons: Bonferroni). *p < 0.05, **p < 0.01, †: p < 0.2.

### 4.3. Work Environment Factors and WNTC Scores

Most participants (72.6%) worked a two-shift schedule, and 52.6% had 3 - 5 night shifts per month (Table 2).

Regarding ward assignment:

- 325 (38.7%) were assigned to their desired ward and were satisfied
- 200 (23.8%) were assigned to an undesired ward but were satisfied
- 12.6% expressed dissatisfaction with their ward assignment

The majority practiced a mixed nursing style (32.0%), followed by primary nursing (31.7%). Most participants (76%) reported an absence of nurse practitioners in their wards.

Assistant nurse administrators scored the highest WNTC scores (71.6), while nurses scored the lowest (63.8). Most respondents (95.8%) consulted other professionals about workplace concerns.

**Table 2.** Work environment factors and ward nurse team collaboration. (N = 840)

| Variable | Category | N (%) | Mean Score | SD |
|---|---|---|---|---|
| Affiliated Ward | Emergency Ward | 45 (5.4%) | 69.8 | 9.8 |
| | Any ICU | 117 (13.9%) | 69.2 | 8.6 |
| | Internal Medicine | 179 (21.3%) | 70.2 | 8.2 |
| | Surgical | 225 (28.1%) | 72.0** | 8.6 |
| | Other (e.g., Psychiatric, Pediatric) | 130 (15.5%) | 68.1 | 8.6 |
| Work Schedule | No night shift | 77 (9.2%) | 71.8 | 8.1 |
| | Two-shift schedule | 610 (72.6%) | 70.3 | 9.1 |
| | Three-shift schedule | 146 (17.4%) | 70.7 | 8.4 |
| Hours of Overtime Per Month | No Overtime | 38 (4.5%) | 70.1 | 6.5 |
| | 1 to 10 Hours | 536 (63.8%) | 70.5 | 8.9 |
| | 11+ Hours | 309 (36.8%) | 70.2 | 8.7 |
| Nursing Style | Primary Nursing | 266 (31.7%) | 70.1 | 9.3 |
| | Mixed | 269 (32.0%) | 70.6 | 8.8 |
| | Modular Nursing | 17 (2.0%) | 73.8 | 7.8 |
| Assigned to desired ward | Yes, and satisfied | 359 (42.7%) | 71.7** | 8.0 |
| | Yes, but dissatisfied | 160 (19.0%) | 67.5 | 9.9 |
| | No, and dissatisfied | 106 (12.6%) | 69.0 | 9.1 |
| | No, but satisfied | 200 (23.8%) | 71.5** | 8.6 |

Note. Two-group comparisons were performed using the t-test, and comparisons between three or more groups were performed using one-way analysis of variance (ANOVA) with Bonferroni correction. *p < 0.05, **p < 0.01, †: p < 0.2. ICU, Intensive care unit.

### 4.4. Multivariate Analysis

Table 3 shows the outcomes of multivariate analysis of factors affecting ward nurse team collaboration. The 31 explanatory variables obtained through bivariate analyses were used as input variables for multiple regression analysis.

There were:

- 21 variables with $p \leq 0.05$
- 10 variables with correlation coefficient $r \geq 0.2$

Gender, years of nursing experience, and ward experience were also included.

The adjusted coefficient of determination ($R^2$) was 0.227, representing 22% of the variance.

Factors positively associated with higher WNTC scores:

- Perceived independence in performing duties ($\beta = 0.187$, $p = 0.001$)
- Perceived opportunities to engage abilities ($\beta = 0.122$, $p = 0.001$)

・Perception that some people create a positive ward atmosphere ($\beta = 0.094$, p = 0.01)

・SWBL ($\beta = 0.108$, p = 0.001)

Factors negatively associated with WNTC scores:

・Disrespect for physicians in the ward ($\beta = -0.118$, p = 0.001)

・Working in a pediatric ward ($\beta = -0.117$, p = 0.001)

・Indirect non-assertive self-expression prioritizing others ($\beta = -0.098$, p = 0.01)

・Disrespect for nurse administrators ($\beta = -0.086$, p = 0.01)

**Table 3.** Factors affecting ward nurse team collaboration.

| Explanatory Variables | $\beta$ | p-Value | |
|---|---|---|---|
| I am independent in performing my duties† | 0.187 | 0.000 | ** |
| There are opportunities to engage my abilities at this hospital† | 0.122 | 0.004 | ** |
| I do not respect the physicians in the ward‡ | −0.118 | 0.003 | ** |
| Pediatric ward affiliation§ | −0.117 | 0.002 | ** |
| SWLB¶ | 0.108 | 0.013 | * |
| Assertiveness (non-assertive self-expression)¶ | −0.098 | 0.016 | * |
| There are people who create a positive atmosphere in the ward‡ | 0.094 | 0.020 | * |
| I do not respect the nurse administrators (or managers) in the ward‡ | −0.086 | 0.035 | * |
| Assigned as desired, but dissatisfied# | -0.082 | 0.035 | * |
| $R^2$ | 0.476 | | |
| Adjusted $R^2$ | 0.227 | | |

**p < 0.01, *p < 0.05; †: Likert continuous variable (1 to 6); ‡: VAS continuous variable (1: completely disagree to 100: completely agree); §: Ward assignment dichotomous variable (1: pediatric ward, 0: any other ward); ¶: 6-point scale (1: not at all true to 6: very true); #: Dummy variable (0: Yes, and I'm satisfied; 1: Yes, but I'm dissatisfied; 0: No, and I'm dissatisfied; 0: No, but I'm satisfied.

## 5. Discussion

Participants' WNTC scores indicated collaboration within the ward. This aligns with prior studies [5] [17] showing nurses engage in interprofessional collaboration, suggesting they prioritize collaboration. Collaboration within the ward is critically important as it leads to setting shared goals [23] [24] and early discharge [25]. The authors' clinical experience also suggests that collaboration, including information sharing, improves when working with respected physicians. As multiple studies report improved patient outcomes [1] [2] [26], there is a consensus that interprofessional collaboration improves care delivery in most settings.

In contrast, inadequate collaboration with physicians impedes task performance and negatively affects team cohesion. As revealed in this study, a lack of respect for physicians can be a cause of poor collaboration. When participants felt unable to respect physicians, a significant negative correlation was observed with ward nursing team cohesion. Participants who felt unable to respect ward physicians perceived their team cohesion as inadequate. In a study by the authors ex-

amining multidisciplinary actions (particularly information sharing and collaboration) during norovirus outbreaks, distrust toward attending physicians was shown to lead to hesitation in reporting patient deterioration, which was deemed unacceptable [24]. Reports also exist of nurses practicing team-based care finding collaboration with physicians difficult [27] [28].

Furthermore, participants who felt they could not respect their ward nursing managers also perceived ward team collaboration as inadequate. Previous research targeting ward nursing managers revealed that team-building with staff promotes positive staff emotions, and those who feel they have the manager's approval exhibit higher role performance ability and career advancement motivation [29]. These findings suggest that relationships among ward physicians, managers, and staff are critical factors influencing ward team collaboration.

Affiliation with a pediatric ward showed a negative association with ward team collaboration. The negative association between pediatric ward affiliation and collaboration may reflect unique challenges inherent to pediatric nursing. While no prior studies were identified directly examining the relationship between pediatric ward nurses and team collaboration, nurses working in pediatric settings frequently report stress from time constraints limiting developmentally appropriate care [30] [31] and frustration from collaborating with colleagues lacking experience or interest in pediatric care [32]-[34].

Furthermore, environmental stressors related to ward infrastructure have been shown to increase the mental burden on pediatric nurses [32] [33]. These unique challenges may make building effective team collaboration difficult. Since the study facility was not a specialized children's hospital, environmental and staffing support in the pediatric ward may have been insufficient, potentially further complicating collaboration.

Previous studies among healthcare workers in the United States have reported that organizations actively promoting work-life balance (WLB) tend to have better teamwork and patient safety environments [35] [36]. Personal and family time has also been shown to enhance teamwork [37]. Consistent with these findings, our study demonstrated that individuals with higher self-regulated WLB perceived better ward team collaboration. These results suggest that WLB is an essential component of effective collaboration and that nurses need self-regulation skills to achieve it. Creating a ward culture that supports diverse work styles and allows individuals to assert their values regarding work-life balance may therefore be beneficial.

A positive work environment can promote interprofessional collaboration among healthcare providers involved in patient care, potentially improving job satisfaction and patient safety outcomes [38]. Furthermore, research reports the importance of "positive management" in nursing for building proactive teams characterized by high staff autonomy and a favorable ward atmosphere [39].

In this study, perceived autonomy in performing duties and perceived opportunities to utilize one's abilities were both positively associated with ward team collaboration. These findings align with previous research showing that lack of

autonomy is linked to poorer interpersonal relationships [40] [41] and that collaborative experiences enhance confidence and effective goal-directed actions [7]. Demonstrating competence and having opportunities for ability engagement may therefore strengthen nurses' sense of contribution to the team, ultimately improving collaboration.

A study by Higashi *et al.* [42] identified insufficient communication, lack of leadership skills, and insufficient expertise as reasons nurses cannot demonstrate their abilities. While this study approaches the topic from the opposite direction, the results are consistent, suggesting that demonstrating competence influences ward team collaboration. This aligns with Social Exchange Theory (SET), as autonomy may be perceived as a form of organizational trust, encouraging reciprocal engagement and communication.

These findings highlight the critical role of mutual respect in interdisciplinary and intraprofessional relationships. When respect is lacking, communication may be hindered, trust eroded, and team cohesion compromised—dynamics that reflect the cost-benefit considerations central to SET.

Nurse managers and educators play a crucial role in promoting collaboration and providing continuing education on nursing teamwork skills and competencies. Managerial educational support helps nurses develop their own opinions and sense of purpose, recognize they are working autonomously, and feel their contributions to the team enhance collaboration [20]. Furthermore, developing interprofessional education and strengthening collaboration between nursing and medical engineering are urgent priorities [43].

This study also revealed that assertiveness influences ward team collaboration, suggesting the need for assertiveness training implementation within hospital organizations. Assertiveness training is essential for preventing turnover and burnout. Assertiveness remained a significant predictor in the multivariate analysis, indicating that communication style plays an independent role in shaping team collaboration.

Participants who answered "I was assigned as desired but am dissatisfied" also felt ward team collaboration was insufficient. The dissatisfaction arising despite being assigned to their desired ward is thought to stem from a gap between reality and the ideal of "being able to do meaningful work and achieve personal growth." In other words, the gap between ideal and reality was the root cause of dissatisfaction.

This study has notable limitations. First, the low follow-up rate may affect the generalizability of the results. Second, nursing managers were excluded because their roles inherently involve team collaboration; thus, the results are limited to nurses not involved in management duties. Third, the study focused solely on hospitals with 400 or more beds, making the results non-generalizable to smaller facilities. Given the current prevalence of interdisciplinary care and its demonstrated effectiveness in improving service delivery, future research should deepen understanding of its efficacy and the factors predicting collaboration, encompass-

ing all hospital sizes. Studies including smaller hospitals and nurse managers are needed to gain a more comprehensive perspective.

Although the representativeness of the final sample was supported, future studies should continue to monitor and report attrition patterns carefully to ensure the robustness and generalizability of longitudinal findings.

## 6. Conclusion

This study conducted a longitudinal survey of full-time nurses and identified the following factors influencing collaboration within ward nursing teams: perceived "autonomy," "opportunities to demonstrate competence," "SWLB" the perception of being "assigned as desired but dissatisfied," and "assignment to a pediatric ward." Furthermore, indirect and non-assertive self-expression also influenced collaboration within ward nursing teams. These findings can assist nursing managers in ensuring team members' confidence and autonomy, thereby optimizing service delivery.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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