PERCEIVED NURSE - RESIDENT COMMUNICATION IN PATIENT CARE AND ASSOCIATED FACTORS IN TIKUR ANBESSA SPECIALIZED HOSPITAL ADDIS ABABA ETHIOPIA: CROSS-SECTIONAL STUDY

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Perceived Nurse -Resident Communication in Patient Care, Associated Factors and effect on patient outcome in Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia: Cross-Sectional Study

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Declaration

I, the undersigned, agree to accept all responsibilities for the scientific and ethical conduct of the research project. I was providing a timely progress report to my advisor and seeking the necessary advice and approval from my primary advisors. I was communicating timely to my advisor all stakeholders involved in the study, including any funding source for this research.

Name of the student:

Signature:

Date:

Approval of the primary Advisor

Name of the primary advisor:

Signature:

Date:

Acronym

AAU: Addis Ababa University

ECCM: Emergency and critical care medicine

ED: Emergency Department

ETB: Ethiopian Birr

GP: General Practitioner

ICU: Intensive Care Unit

ISMP: Institute for Safe Medication Practice

IP: Interprofessional

LTC: Long-term Care

NRC: Nurse resident communication

NPC: Nurse Physician Communication

NPs: Nurse Practitioners

SPSS: Statistical Program for Social Sciences

TASH: Tikur Anbessa Specialized Hospital

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Abstract

Background

Effective communication between nursing staff and physicians/residents is essential in providing safe and effective care. Even if high-quality patient care is the goal of medicine and nursing, patients are dying and experiencing preventable complications because of poor nurse-physician communication.

Objective

The main objective of this study was to assess the perception towards NRC communication, barriers and effect on patients' outcomes in the adult Emergency Department, at TASH.

Methods

A Quantitative cross-sectional study design was conducted. A total of 95 participants were included in the study. Stratified random sampling was employed. Data was inserted in Excel and analysed using the SPSS version 26. Descriptive statistics were carried out using frequency tables and summary measures. Multivariable logistic regression analysis was assessed to identify the true effect of the selected predictor variables on the dependent variables for controlling the possible cofounders. statical significance was declared to P value less than 0.05.

Results

The overall good perceived result showed that the level of NRC in patient care was 46.3 % which is less than 50%. From these 56.8% of residents and 43.18% of nurses perceived there is good nurse-resident communication. Perceived effect of NRC on patient outcome, 68.4 % of them agree affected patient outcome. In the multivariable analysis, there were no significant association factors independently with the level of nurse–resident communication in patient care and perceived effect on patient outcome.

Conclusion

The study found that the perceived level of communication between nurses and residents was generally low and satisfaction was less than 50%. Work-related factors were identified as the most prevalent factors influencing nurse-resident communication, but the study did not find any significant association between these factors and NRC.

Keywords: Nurse resident communication, cross-sectional, perceived factors

1. Introduction

The relationship between nurses and physicians has a long history, from a time when physicians were dominant over subservient nurses to now where there is more collaboration between the two professions. More collegial or collaborative interaction between nurses and physicians is becoming the norm. Collaborative relationships are characterized by equal trust, respect, and autonomy over patient care. [1(p2)] NPC is a collaborative procedure where Nurses and Physicians exchange and deliberate on accurate, timely, and frequent information related to the patient's care to effectively provide treatment and solve healthcare issues.[2]

Effective teamwork is crucial for organizational success because it can help maximize the strengths of individual team members, and also promote collaboration and collective problem-solving. Team formation is a critical aspect of this process because it determines the composition of the team, including the diversity of its members and the roles they play in achieving the team's goals.[3].Interprofessional (IP) communication describes the sharing of information between members of different health professionals to affect patient care positively.[4] Communication plays a vital role in healthcare settings, particularly in areas like triage, evaluation and testing, handoff, and admission. These four routines are widely recognized as essential for facilitating effective communication among healthcare professionals. Numerous studies have highlighted that breakdowns in communication during any of these stages can lead to negative outcomes for patients.[5] By studying these breakdowns and finding ways to prevent them, healthcare organizations can work to improve the overall quality of care .[6]

In the process of providing care, communication obstacles pose significant challenges for doctors and nurses. Language obstacles, cultural differences, gender, developmental stage, knowledge gaps, emotional distance, and health status are a few of the variables that obstruct communication. Previous research has identified various obstacles existing at different levels, including the clinical environment, interpersonal relationships, and individuals. These barriers have been linked to communication gaps between nurses and physicians, which are considered the primary cause of adverse medical events. Hospital-acquired infections, extended hospital stays, errors in the administration of medication, avoidable medical expenses, and other unfavourable outcomes that

could compromise the standard of patient care are among these occurrences. Conversely, it has been observed that effective NPC is associated with improved patient outcomes. This includes reductions in hospital-acquired infections, shorter hospitalizations, decreased readmission rates, lower hospital mortality rates, and fewer errors in medication administration.[7 3 4 8]

Statements of the problem

Poor collaboration and communication may also contribute to increased healthcare costs, longer hospital stays, and decreased patient satisfaction. Efforts to improve collaboration and communication among healthcare professionals have been shown to result in better patient outcomes, lower healthcare costs, and reduced professional burnout. This can be achieved through strategies such as team-building exercises, interdisciplinary training, and improved communication systems and protocols. Healthcare systems need to prioritize these efforts to provide the highest quality of care for patients and ensure a positive working environment for healthcare professionals.

Rational of the study

This study aims to examine factors and understand the challenges that may hinder communication between nurses and residents and how these challenges impact the quality of patient care. By investigating the perception of nurses and residents towards these barriers, this study can identify potential areas for improvement to enhance nurse-resident communication and hopes to promote better working relationships between healthcare professionals, resulting in more effective and efficient healthcare services with reduced mortality, morbidity, and long hospital stays. The study findings will be beneficial for healthcare institutions as they can use this information to enhance the care of patients. By improving nurse-resident communication, healthcare institutions can attract more patients who are looking for high-quality care. This study could inform policy and practice to support effective communication among healthcare providers in Ethiopia. As a result, healthcare institutions can attract more clients and retain healthcare professionals in their facilities, contributing to a more cost-effective delivery of services.

Literature review

Nurses and physicians worldwide have experienced complicated working relationships in patient care. Additionally, researchers have found that work dynamics between nurses and physicians can range from collegial, cooperative, and student-teacher relationships to friendly strangers and even hostile relationships. This is noticed in multiple healthcare facilities. However, in resource-limited regions such as sub-Saharan Africa and Asian countries, the scenario is much more challenging due to the absence of conducive clinical environments [9] [10].

Questionnaire-based Study in Iran's perception of nurses towards nurse-physician communication cross-sectional study, including frustration with interaction, mutual understanding, openness and relevance and interaction to assessed NPC with 18 items and openness and relevance and interaction dimensions were considered prime points of focus for interactions results showed all dimensions of nurse-physician communication were rated lower [11]. A mixed methods study done in the USA's roles of gender in nurse resident communication in the ED showed that perceived interprofessional gender bias negatively impacts personal well-being and workplace satisfaction, particularly among female residents.[12] The research study done in Malaysia by Amudha P, and Hamidah H in 2018 related barrier factors as viewed by nurses identified are grouped into nurses' work readiness and doctors' attributes[13].

NPC is an important area of study in patient care, particularly in sub-Saharan Africa. However, there is little information on this topic in the region. Previous African studies have mainly focused on cross-sectional quantitative methods and provided limited insights into NPC. To gain a comprehensive understanding of NPC, it is crucial to employ mixed methods study designs. [14],[15]. By combining quantitative and qualitative approaches, researchers can assess and explain the interactional and relational characteristics of NPC in patient care. Additionally, qualitative methods can help delve deeper into the experiences, perceptions, and challenges faced by patients and healthcare providers in managing NPC.

The 2017 study conducted by Elham Y. El-Hanafy in Egypt on the professional relationship between nurse and doctor was perceived by both. It included interpersonal relationships, work stress, job performance, administrative policies and norms. The study on nurses' role perception showed that doctors are more satisfied with their relationship than nurses. While most doctors understand and

appreciate the role of the nurse[16]. The same study was also conducted in Alexandria, Egypt, in 2011 by Azza T. T. Elithy. Physicians were found to generally have higher 23 perception averages than nurses in areas such as coordination and collaboration, nurse-physician relationships, work environment, and conflict. On the other hand, nurses scored higher perceptual mean scores than doctors in these areas. This suggests that there may be different perceptions and experiences between doctors and nurses regarding these aspects. However, it is important to note that individual perspectives may vary and this study represents a general trend observed among participants[17].

Another study conducted in Rwanda: A questionnaire survey by Mukeshimana, This study found that doctors' lack of respect for nurses, insulting nurses in front of patients, and doctors' delay in calling nurses in emergencies were the main factors cited by respondents as causes of their disputes[18]. The study was conducted by Roseline I Ogbimi in Nigeria in 2006. It highlights several factors that affect the nurse-doctor working relationships, including poor social interaction, low number of staff, disregard for others' professions, and hospital management and policies. Additionally, the study found that in general, nurses had a more positive opinion of doctors' work compared to doctors' opinions about nurses' work. It's interesting to see how these factors can impact professional dynamics within healthcare settings. [19].

A Mixed-methods Study result highlights the impact of gender on interprofessional interactions between resident physicians and nurses. It suggests that gender bias contributes to dissatisfaction in the workplace and that this has a greater impact on female nurses and residents. The statement suggests that female residents report experiencing gender bias more frequently, which could negatively impact their residency training and well-being. In the investigation conducted in southern Nigeria, the majority of doctors and nurses in Nigeria perceived their working relationship as cordial, but some problems remain. The review found that there were more female nurses than physicians, which could affect the perspective of gender roles in the interplay between doctors and nurses.

Previous research on nurse-physician collaboration in Ethiopia has primarily focused on specific regions such as Hawassa, Jimma, Dire Dawa, Harar, Gonder, and Felege Hiwot referral hospitals. However, there hasn't been enough research performed, in the central part of Ethiopia, particularly in hospitals like TASH in Addis Ababa. This paper seeks to assess the degree of nurse and resident communications in patient care at TASH, Addis Ababa. It utilizes a quantitative cross-sectional

investigation design, involving nurses and residents working at the hospital. The study also objectives to identify associated determinants that may impact nurse-physician collaboration.

A cross-sectional study was carried out in a hospital in northwest Ethiopia and its conclusions. Revealed that a significant proportion of nurses (41%) and physicians (40%) rated their current collaboration as "poor." What is worrying is that only a small percentage of nurses (3%) and doctors did not rate their collaboration as excellent. These results suggest that both nurses and physicians are dissatisfied with their teamwork and level of collaboration. Understanding the factors contributing to this dissatisfaction is crucial, as effective nurse-physician collaboration is essential for providing optimal patient care. Further research and interventions may be necessary to improve communication and teamwork between nurses and physicians in Ethiopia, including efforts in hospitals like TASH in Addis Ababa[20], [21], [14].

Research conducted in Ethiopia at the Hawassa Teaching and Referral Hospital revealed that when it comes to personal factors affecting nurse-physician communication, both nurses and physicians believe that having poor interpersonal communication skills is the biggest obstacle. Poor interpersonal communication skills are harmful to professional communication, according to about 79 (69.3%) nurses and 31 (86.1%) doctors. Negligence on the part of 80 (70.2%) nurses and a negative attitude toward work by 28 (77.8%) doctors were also identified as contributing factors. [5] Over 79 (69.3%) nurses and 31 (86.1%) physicians agreed that poor interpersonal communication skills are detrimental to professional communication. Another factor perceived by 80 (70.2%) nurses was negligence in their duties and doctors' poor attitude towards work 28 (77.8%). physicians' perceived poor nurse-physician communication includes factors related to the work environment. In public hospitals in Jimma Zone, southwestern Ethiopia, average nurse-physician communication scores for perceived respect were 50.88% and satisfaction 48.52% for perceived openness and sharing of patient information. These results reflect the importance of communication between nurses and physicians in promoting collegiality and promoting the growth of both professions[20] [21].

Separate research conducted in public hospitals in Harar and Dire Dawa found the overall quality of NPC to be inadequate. Several variables were found to be possible predictors of a decline in the perceived levels of NPC satisfaction in patient care. These factors included increasing age, being unmarried, being in the medical profession, receiving a lower monthly salary, and higher scores in reports on work attitudes and organizational factors. The nurses felt that by being professional and

respectful of nurses, doctors could enhance communication between medical professionals and other medical professionals.[22]

Patient outcomes are significantly impacted by effective nurse-physician communication in a number of ways. Hawassa Referral Hospital research indicates that 104 nurses (91.2%) and all physicians (100.0%) think it can reduce hospital stays for patients. Of the 143 responders (95.3%), 34 physicians (94.4%) and 109 nurses (95.6%) thought it may increase patient satisfaction. Of the total responders, 14% thought that effective nurse-physician communication had no influence on nosocomial infections, while 18 (15.8%) nurses and 3 (8.3%) physicians thought the opposite.[20]

The available research on workplace environments is limited, but a critical analysis of the literature identified 31 significant studies. Among them, it was found that emergency departments (EDs) are often considered highly stressful settings due to the rising number and severity of presentations, leading to demanding workloads. Additionally, factors such as a diverse mix of staff skills, burnout, challenges in recruitment and retention, reduced morale and job satisfaction, individual personality traits, aggression and violence, interpersonal conflicts, insufficient recognition of quality work, and feelings of disempowerment could all have an impact on both staff and patients. These factors influence the perception of the environment, safety, and the risk of adverse events.[23]

2. Conceptual Framework

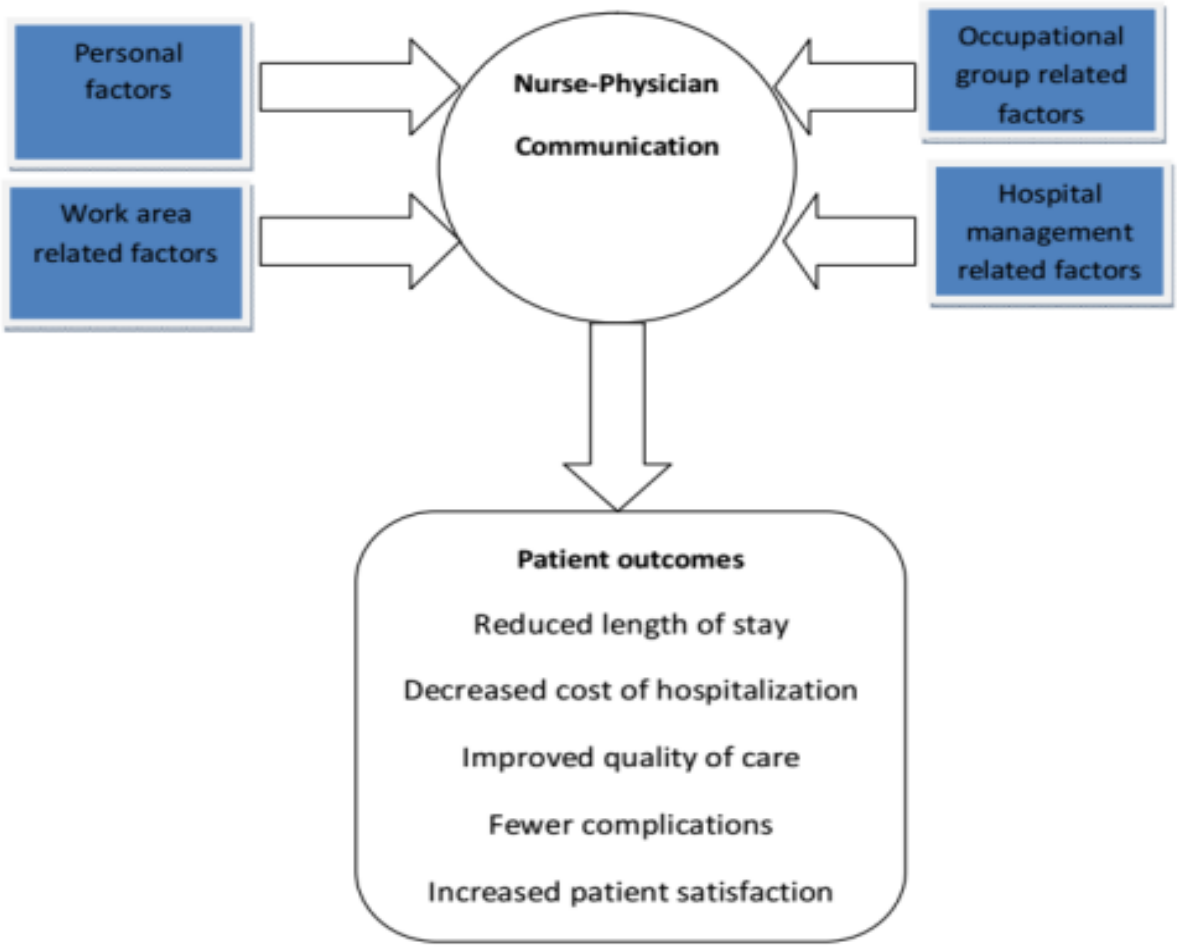

Figure 1: Conceptual framework: Adapted from King's open system framework .[20]

3. Objective

3.1. General Objective

To assess nurses' and residents' perceptions of NRC, factors associated with nurse-resident communication and their effect on patient outcomes.

3.2. Specific Objective

To identify barriers to nurse-resident communication as perceived by nurses and residents.

To assess the level of nurse-resident communication in patient care.

To assess the perceived effect barriers to nurse-resident communication on patients' outcomes.

4. Methodology

4.1. Study Setting

TASH is located in the city of Addis Ababa, the capital of Ethiopia, which is located in the central part of Ethiopia at 9° 1′ 48″ North and 38° 44′ 24″ East and has a total population of 5,227,794 inhabitants, with geographical coverage of 540 km2(25). TASH is the teaching hospital of Addis Ababa University and has a total of 600 doctors.

An institution-based cross-sectional study was conducted in TASH in ED, located in Addis Ababa, the capital city of Ethiopia. TASH 1 is one of the teaching and speciality hospitals in the central part of the country, providing specialized clinical services to the people in the catchment area and to those referred from all parts of the country.

The study was undertaken from September 10, 2023, to September 30, 2023. The ED working area under the government of the ECCM department has triage, front, waiting, red, yellow, green and orange areas. 64 ECCM residents and 50 nurses are working in the ED. The study was conducted from September 10, 2023 –September 30, 2023.

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4.2. Study Design

A Quantitative Cross-sectional research design was used.

4.3. Source population

All residents and nurses working in TASH.

4.4. Study population

All nurses & and residents working in adult emergency departments at TASH.

4.5. Sample population

Residents and nurses working in the adult emergency department, TASH at the time of data collection and fulfilling inclusion criteria.

4.6. Inclusion and Exclusion Criteria

4.6.1. Inclusion Criteria

Nurses who worked in the adult emergency department, TASH during the study period, working with residents were included.

Residents who were working in adult emergency departments, TASH during the study period, working with were included.

4.6.2. Exclusion Criteria

Interns, detachment residents from other departments and consultants.

4.7. Sample Size and Sampling Procedure

After employing a method called purposive sampling. principal investigator selects participants that are important for research. The list provided by the nurse coordinator and ECCM department served as the sampling frame. All eligible nurses and residents working in the institution and ED were included [integrated, implemented] in the study, resulting in a total of 114 participants. To ensure a 95% confidence level with a 5% margin of error, and considering that a prior study undertaken at Hawassa Teaching and Referral Hospital reported a poor degree of 32% in patient care perception, a sample size was determined [20]. single population proportion was used to calculate the sample size

$n= z\alpha/22 *P(1-P)/d2$

n= Sample Size, P= Proportion=0.32, d=Margin of error=0.05,

n=1.962*0.32(1-0.32)/0.052, n=334

Since the sampling frame is <10000, i.e., 114, we use the adjustment formula n adj.= n/((1+(n/N)) where n adj.= Adjusted sample size n calculated sample size N= Study population, with 10% non-response rate

n adj.= 334/ (1+(334/114)) =85 = 85/ (1-0.1) =95

Table 1: Number of residents in level of education and number of nurses on level of education in TASH,2023

	Year 1	Year 2	Year 3
Number of Residents	19	25	20
		BSc nurses	MSc nurses
Number of Nurses		45	5

4.8. Study Instruments

A self-administered structured questionnaire was instituted to understand the perception. Development of the items of the questionnaire is accomplished by adapting from the literature review[24],[25].

4.9. Data Collection Procedures

Data collection involved the use of English questionnaires, which were adapted from various literature and pre-tested for a study conducted in Hawassa, Harar, and Jimma in Ethiopia. The questionnaires were evolved by reviewing published literature, specifically focusing on factors related to the communication level between nurse residents. The questionnaire included sociodemographic information about nurses and residents (such as age, gender, professional category, work experience and others), as well as the estimation of the communication level between nurses and residents (by 19 items), perceived impact on patients' outcomes (with 6 items), and factors influencing nurse resident communication (such as personal, work-related, individual characteristics, and organizational factors) with a total of 22 items.

Data was collected by online Google form. Informed consent, attained before nurses and residents' data collection. Data were not collected from those nurses and residents who were not cooperative to give consent. The respondents were encouraged to answer the questions within the time they devoted as much as possible. All the collected data was organized and analysed by the principal investigator. Study participants' identification will not be disclosed to the third party and will remain confidential.

4.10. Quality control

To ensure the trustworthiness and dependability of the data collected in this research; various steps were taken to maintain quality control throughout the entire process. These measures were implemented at different stages including pre-testing, data collection and monitoring. Before collecting the actual data, a pretest was conducted with eight nurses and residents who did not participate in the main study. The pre-test aimed to assess the clarity, comprehensibility and relevance of the tool. Feedback was collected and weak points were identified, which led to necessary adjustments to the structure and content of the tool. These adjustments aimed to improve the overall quality and suitability of the tool for the study. Once the questionnaires were received, they were checked and verified daily by the principal investigators. Immediate actions were taken if any missing and incomplete values were identified. This was done to enhance the credibility and reliability of the research findings.

4.11. Data Processing and Analysis

Data were coded in Excel, cleaned and thoroughly checked for missing values before exporting to SPSS version 26 for further analysis. Descriptive statistics such as proportions, totals, percentages, and means with standard deviations were used to describe the data. The results were then presented using frequency tables, figures and summary measurements. To assess the overall perception, a set of 19 questions regarding nurse-resident communication and 6 questions regarding the perceived effect on patient outcome were used. The responses for the result (independent) variables were aggregated by taking the sum, and the total average was calculated. This mean value was then used to categorize and recode the responses into "good" and "poor" based on whether they were above or equal and lower than the mean, respectively. Similarly, for personal behaviours, working attitude-related factors, and organizational-related factors, the Likert scale responses for their respective components were recoded as 0 and 1. The recorded scores for each member were then summed up, and an overall mean was calculated. At last, these scores were classified as "disagree" or "agree" based on whether they were above or equal and lower than the mean, respectively.

After establishing the reliability and internal consistency of the tool. Additionally, questions on participants' characteristics and factors related to nurse-physician communication, are based on a

comprehensive review of relevant literature. Through exploratory factor analysis of the 22-item scale, we identified three factors associated with NRC. These factors were named 1) organizational factors (consisting of 5 items) with a reliability coefficient (α) of 0.747, 2) work attitude-related individual factors (consisting of 10 items) with α = 0.909, and 3) personal behaviour-related individual factors (consisting of 7 items) with α = 0.838.

The reliability coefficients (Cronbach's alpha) for the caregiver communication tool and its factors were 0.71 and 0.917, respectively. To analyze the association between each independent variable and outcome variables, bivariable analyzes were performed using binary logistic regression analysis. P values ≤ 0.25 in the bivariable analysis were included in the final multivariable analysis model to account for potential confounding factors selected by a backward stepwise technique. Model fit was assessed using Hosmer-Lemeshow goodness-of-fit tests. The strength of association between outcome and independent variables was determined using odds ratios with a 95% confidence interval. A p-value of less than 0.05 is declared statically significant

4.12. Operational definition

A resident doctor: is a medical university graduate and doctor in training who's taking part in a graduate medical education program and focused on providing comprehensive training within a chosen specialty.

ECCM resident: medical school graduate and doctor who was working as a general practitioner and starting to take ECCM speciality.

Nurse Resident communication (NRC): is a professional interaction between nurses and residents, where they cooperate, make joint decisions regarding health matters, and develop a collective patient care strategy, with their actual teamwork and performance being evaluated.

4.13. Study Variables

4.13.1. Dependent variables (Outcome variable)

Perception towards nurse resident communication and perception towards effect on patient outcome.

4.13.2. Independent variables

Socio-demographic factors (sex, age, educational status, monthly income.), factors affect communication (personal behaviour related, work-related and organizational related).

4.14. Ethical Consideration

The study was conducted after ethical clearance was obtained from the ECCM department research committee. Then, data was collected after getting an official letter. The questionnaire included written consent from study participants that was obtained before the data collection. Each respondent was informed about the study's objective. Confidentiality was assured for the information provided by using an individual coding system, and questionnaires did not have any personal identifiers.

5. Results

Description of the study participants

A total of 95 respondents out of which 44 (45.4%) nurses and 51 (54.6%) residents participated in the study at TASH in the ED, making a 100% response rate. The majority of the respondents were males 55(56.7%) of which 35 (63.64%) were male residents.

A larger proportion of the respondents 76(80%) were in the age group 26-35 years followed by 14(14.7%) from 18-25 years of age. More than half of the respondents 51 (53.7%) were single and 44(46.3%) were married of which 26 (59.1%) were residents.

Concerning the service year of the respondents, nearly one-half 44 (46.32%) of respondents have served for two or five years, of which 36(81.8%) represent residents. A significant number of respondents 29 (30.5%) served for less than 2 years majority 18(62.1%) are nurses.

The majority 35(74.5%) of respondents were staff nurses, 5(10.6%) are advanced practice nurses and 4(8.5%) nurse managers (head nurses). Regarding educational status, 38 (80.9%) of respondents were BSc nurses, 6(12.8%) were MSc nurses. There was a comparable number of responses from residents 18(35.3%) were year 1 and year 2 remaining15(29.4%) were year 3 residents. Which majority of respondents were sponsored by MOH 42(79.2%).

Table 2: Socio-Demographic Characteristics of the Nurses and Residents Working in Adult ED, TASH, September 2023

Characteristics	**Categories**	**Frequency(N)/ (%)**
Profession	Nurses	44(46.3%)
	Residents	51(53.7%)
Sex	Female	40(42.1%)
	Male	55(57.9%)
Age	18-25	14(14.7%)
	26-35	76(80%)
	36-45	5(5.3%)
Marital status	Single	51(53.7%)
	Married	44(46.3%)
Level of education	Nurses BSc	38(86.4%)
	Nurse MSc	6(13.6%)
	Residents Year 1	18(35.3%)
	Residents Year 2	18(35.3%)
	Residents Year 3	15(29.4%)
Sponsor of residency	MOH	42(82.4%)
	Others	9(17.6%)
Title of nurses	Staff nurses	35(79.5%)
	Head nurses	4(9.2%)
	Advanced practice nurses	5(11.3%)
Work of experience	<2 years	29(30.5%)
	2-5 years	44(46.3%)
	6-10 years	20(21.1%)
	11-15 years	2 (2.1%)
Monthly Salary	5000-7500	28(29.5%)
	7500-10000	14(14.7%)
	10000-12500	52(54.7%)
	12500-15000	1(1.1%)

Factors affecting the level of nurse resident communication in-patient care

The study identified several factors that could impact nurse-resident communication in patient care. The commonest reported reasons included personal individual factors such as staff shortage (81.85%), lack of shared vision (71.74%), and unclear roles and responsibilities (66.69%). Additionally, organizational-related factors such as the absence of a communication forum between nurses and residents (71.74%), disorganized hospital management system (69.72%), and government policy (62.65%) were found to be influential. Personal behaviour-related factors like poor interpersonal communication (72.75%), limited social interaction outside of work (58.61%), and noncompliance with advice (57.60%) were also reported as reasons affecting the effectiveness of nurse resident communication in patient care.

Table 3: Factors affect the level of nurse resident communication

Factors affect the level of nurse resident communication		**Profession**	
		Nurses N (%)	**Resident N (%)**
Personal behaviour-related factors			
Poor interpersonal communication	Disagree	14	9
	Agree	30	42
Poor Social interaction outside work	Disagree	21	16
	Agree	23	35
Non-compliance with advice	Disagree	20	18
	Agree	24	33
Gender difference	Disagree	37	41
	Agree	7	10
Perception of being not respected	Disagree	22	19
	Agree	22	32
Personal traits/disruptive behaviour/	Disagree	22	19
	Agree	22	32
Attitude towards others	Disagree	25	18
	Agree	19	33

Work attitude-related factors			
Staff shortage	Disagree	6	8
	Agree	38	43
Abuse (verbal, physical and sexual).	Disagree	28	33
	Agree	16	18
Attitude towards one's work	Disagree	24	14
	Agree	20	37
Conflict	Disagree	25	21
	Agree	19	30
Information Gap	Disagree	13	12
	Agree	31	39
Uncooperativeness at work	Disagree	21	7
	Agree	23	44
Unresponsiveness to call for duty	Disagree	23	11
	Agree	21	40
Negligence of duty	Disagree	22	10
	Agree	22	41
Lack of shared vision	Disagree	17	7
	Agree	27	44
Lack of clarity in responsibilities and roles	Disagree	19	10
	Agree	25	41
Organizational related factors			
Unfavourable management decision	Disagree	11	15
	Agree	33	36
Type of professional training received	Disagree	15	18
	Agree	29	33
Government policy	Disagree	13	20
	Agree	31	31
Power difference	Disagree	21	30
	Agree	23	21
Absence of a communication forum to discuss	Disagree	10	14
	Agree	34	37

Perceived Effect of nurse-resident Communication on Patient Outcome

Overall, 93(97.9%) of the total respondents, 42(95.5%) nurses and all 51 (100.0%) residents perceive that effective nurse-resident communication can improve patient care quality.

In addition, 89 (93.7%) respondents, 39(88.6%) nurses and 50(98%) residents perceive that effective nurse-physician communication can reduce patient length of stay.

Moreover, 93(97.9%) respondents, 42(95.5%) nurses and 51(100 %) residents had a perception that effective nurse-resident communication can increase patient satisfaction.

Of the total respondents, 88(92.6%) and 83(87.4%) perceived that effective nurse-resident communication affects reducing complications related to diseases and nosocomial infections.

Table 4:Perceived Effect of nurse-resident Communication on Patient Outcome

Patient outcome		**Nurses (N/%)**	**Resident (N/%)**
Reduce patient length of stay	can't say		1/1.1
	No	5/11.4	
	Yes	39/88.6	50/98
Decrease patient cost of hospitalization	can't say		
	No	7/15.9	
	Yes	37/84.1	50/98
Improve patient care quality	can't say	1/2.3	
	No	1/2.3	
	Yes	42/95.5	51/100
Reduce complications related to the disease	No	6/13.6	1/ 2
	Yes	38/86.4	50/98
Reduce nosocomial infections	can't say	3/6.8	
	No	6/13.6	3/5.9
	Yes	35/79.5	48/94.1
Increase patient satisfaction	No	2/4.5	
	Yes	42/95.5	51/100
Increase the satisfaction of caregivers	can't say	1/1.1%	
	No	2/4.5	2/3.9
	Yes	41/93.2	49/96.1
Promote evidence-based practice	can't say	1/2.3	1/2.3
	No	4/9.1	3/5.9
	Yes	39/88.6	47/92.2

Level of Nurse Resident Communication in Patient Care

The mean (± SD) score for the level of NRC in patient care was 53.39 (SD= ±4.87). The level of good perception of NRC in patient care was found 46.3 %. From these 56.8% of residents and 43.18% of nurses perceived there is good nurse-resident communication. Below figure 2 explains the good and poor level of NRC in percent.

Table 5: Measuring Items for Level of Communication Between Nurses and Residents in Patient Care in TASH, 2023

Items for Measuring NRC	Never N (%)	Rarely N (%)	Sometimes N (%)	Usually, N (%)	Always N (%)
I ask for frequent clarification in understanding what Nurses/ Residents say	13/13.7	25/26.3	39/41.1	11/11.6	7/7.4
In the event of a change in the treatment plan for the patient, nurses and residents have a mutual understanding of it	7/7.4	26/27.4	35/36.8	17/17.9	10/10.5
I discuss the mechanisms to maintain patient safety with Nurses/ residents	30/31.6	27/28.4	20/21.1	12/12.6	6/6.3
Patient discharge confirmed by the signature of both Nurses and Residents	50/52.6	25/26.3	11/11.6	6/6.3	3/3.2
I have the same understanding of patient care as Nurses/ Residents	11/11.6	32/33.7	33/34.7	13/13.7	6/6.3
I take into account Nurses/ Residents schedules when making plans to treat a patient together	14/14.7	33/34.7	33/34.7	11/11.6	4/4.2
We openly exchange information about matters related to work in patient Care	8/8.4	30/31.6	38/40	12/12.6	7/7.4
We listen to each Other during communication in patient care	6/6.3	17/17.9	36/37.9	25/26.3	11/11.6
I receive correct information from Nurses/ Residents on patient care	8/8.4	25/26.3	35/36.8	20/21.1	7/7.4
I consider Nurses'/Residents' views when making decisions about patient care	10/10.5	24/25.3	40/42.1	16/16.8	5/5.3

I Feel angry after the Nurse and Resident's interaction	4/4.2	12/12.6	38/40	30/31.6	11/11.6
I Feel frustrated after the Nurse and resident's interaction	7/7.4	16/16.8	43/45.3	21/22.1	8/8.4
I Feel understood after the Nurse and resident's interaction	7/7.4	28/29.5	40/42.1	11/11.6	9/9.5
I Feel respected after Nurse -Resident's interaction	6/6.3	33/34.7	28/29.5	16/16.8	12/12.6
I Feel pleased after the Nurse–Resident interaction	21/22.1	20/21.1	33/34.7	15/15.8	6/6.3
I Feel satisfied after Nurse–Resident's interaction	10/10.5	34/35.8	29/30.5	14/14.7	8/8.4
We have equal understanding during interaction for the patient care	7/7.4	28/29.5	35/36.8	17/17.9	8/8.4
Talking between me and Nurses/ Residents is Joyful /Thankful	18/18.9	26/27.4	34/35.8	11/11.6	6/6.3
Residents/Nurses consider Nurses/Residents information about the patient as Relevant	7/7.4	10/10.5	29/30.5	29/30.5	20/21.1

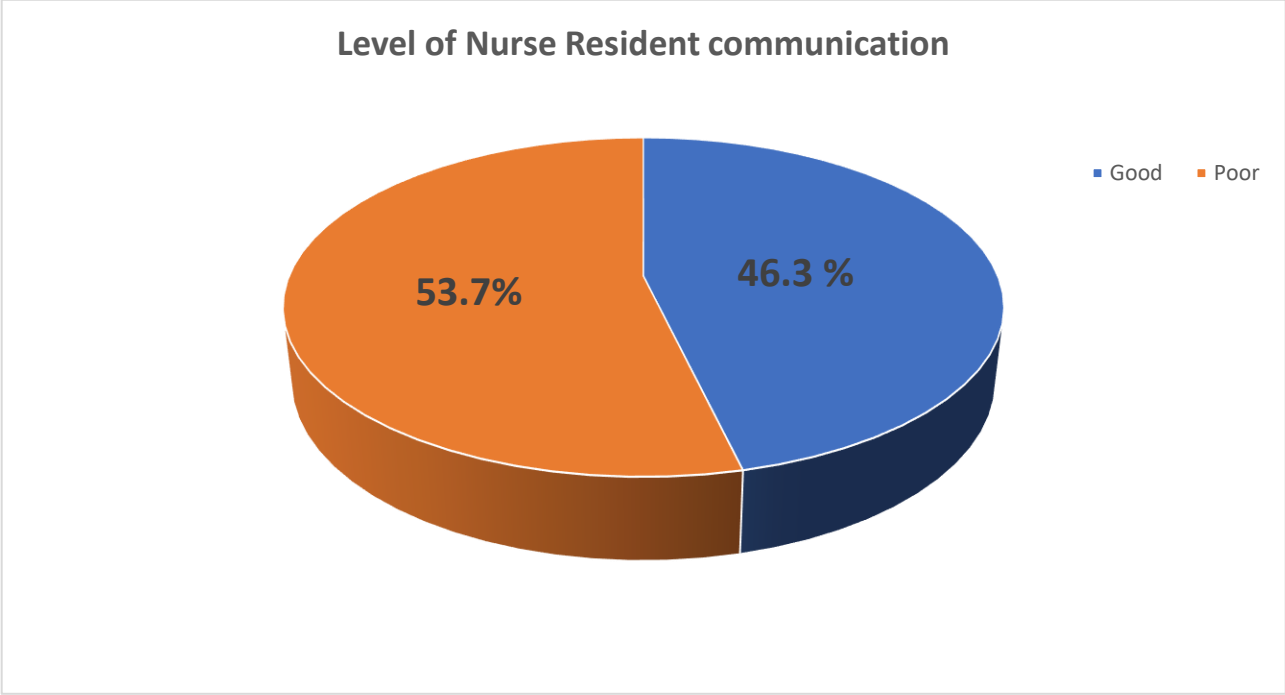

Figure 2: Magnitude of the level of nurse-resident communication between nurses and residents working in the adult Emergency Department, TASH

Factors associated with the level of nurse resident communication in patient care

The final analysis model for multiple variables was conducted following a preliminary analysis that explored the relationship between various factors such as age, marital status, professional categories, work experience, monthly salary, personal behaviour, organizational factors, and work attitude regarding the poor level of nurse resident communication. The outcome of this analysis is presented in Table 5, which includes both the crude odds ratios (COR) and adjusted odds ratios (AOR) with 95% confidence intervals. Among the mentioned independent variables, only three characteristics (age, monthly salary, and work-related factors) were further examined in the multivariable analysis, as they had a p-value of less than 0.25 in the binary regression. However, the adjusted analysis did not reveal any significant association between these variables and the perception of nurse-resident communication.

Factors associated with perceived effect on patient outcome

The final multivariable analysis model incorporated various factors such as participants' age, marital status, professional category, work experience, monthly salary, personal behaviour, organizational-related factors, and work attitude-related factors. Bivariable regression was initially conducted to examine the association between these factors and perceived effects on patient outcomes. The results, including both crude odds ratios and adjusted odds ratios with 95% confidence intervals, are presented in Table **6.** Among the independent variables mentioned above, only four characteristics (professional category, work experience, monthly salary, and personal-related and work-related factors) were included in the multivariable analysis due to their p-value being less than 0.25 in the binary regression. The purpose of this analysis was to determine their association with the perception of nurse-resident communication after adjusting for other factors. However, no significant association was found in the adjusted analysis.

Table 6: Factors Associated with Nurse Resident Communication

Characteristics		Perception			
		Poor	Good	COR 95%CI	AOR 95%CI
Profession	Nurse	25	19	1	
	Resident	26	25	1.265(0.562-2.846)	
Gender	Female	21	19	1	
	Male	30	25	0.921(0.407-2.084)	
Age	18-25	10	4	1	1
	26-35	38	38	2.500(0.721-8.671) *	3.538(0.606-8.866)
	36-45	3	2	1.667(0.198-14.054)	4.468(0.257-13.847)
Current marital status	Single	31	20	1	1
	Married	20	24	1.860(0.821-4.212) *	1.423(0.533-3.802)
Year of service	<2 years	17	12	1	
	2-5 years	23	21	1.293(0.502-3.333)	
	5-10 years	9	11	0.349(1.731-0.548)	
Level of education	BSc	22	16	1	
	MSc	3	3	1.375(0.245-7.717)	
Monthly salary	5000-7500	18	10	1	
	75000-10000	6	10	3.00(0.840-10.721)	
	10000-125000	25	23	1.656(0.635-4.317)	
	12500-15000	2	1	0.900(0.072-11.206)	
Title of nurses	Staff Nurse	20	15	1	
	Advanced	3	2	0.889(0.132-6.005)	
	Head nurse	2	2	0.333(0.168-10.579)	
Level of residency	Year 1	9	9	1	
	Year 2	9	9	1.0(0.271-3.694)	
	Year 3	8	7	0.875(0.222-3.451)	
Personal related	Disagree	20	21	1	
	Agree	31	23	1.415(0.626-3.201)	
Work attitude related	Disagree	20	19	1	
	Agree	31	25	0.849(0.374-1.927)	
Organizational related	Disagree	25	16	1	1
	Agree	26	28	0.594(0.261-1.355) *	0.549,1.458(0.425-

Notes: *p-value<0.25 in bivariable analysis

Table 7: Factors Associated with perceived effect nurse resident communication on patient outcome

Characteristics		Perception		COR, 95% CI	AOR,95%CI
		Poor	Good		
Profession	Nurse	25	19	1	1
	Resident	40	11	0.362(0.14-0.886) *	0.516(0.027-9.937)
Gender	Female	25	15	1	
	Male	40	15	0.65(0.261_1.496)	
Age	18-25	10	4	1	
	26-35	52	24	1.154(0.328-4.053)	
	36-45	3	2	1.667(0.198-14.054)	
Current marital status	Single	36	15	1	
	Married	29	15	1.241(0.522-2.954)	
Year of service	<2 years	20	9	1	1
	2-5 years	33	11	0.741(0.261-2.099) *	1.029(0.264-4.008)
	5-10 years	10	10	2.222(0.684-7.216) *	0.847(0.102-7.063)
Level of education	BSc	21	17	1	
	MSc	4	2	0.681(0.101-3.789)	
Monthly salary	5000-7500	16	12	1	1
	75000-	9	7	1.037(0.300-3.581) *	0.876(0.115-2.887)
	10000-	38	10	0.351(0.126-0.975) *	0.522(0.027-1.298)
	12500-	2	1	0.752(0.667-0.054)	1.104(0.032-8.646)
Title of nurses	Staff Nurse	19	16	1	
	Head nurse	3	2	2.526(0.239-26.726)	
	Advanced	3	1	2.00(0.112-35.807)	
Level of residency	Year 1	14	4	1	
	Year 2	13	5	1.346(0.296-6.131)	
	Year 3	13	2	0.538(0.084-3.451)	
Personal behaviour	Disagree	25	16	1	
	Agree	40	14	0.547(0.228-1.311)	
Work attitude related	Disagree	21	18	1	1
	Agree	44	12	0.318(0.130-0.780) *	0.456(0.141-1.472)
Organizational related	Disagree	24	17	1	1
	Agree	41	13	0.448(0.186-1.080) *	0.531(0.197-1.433)

Notes: *p-value<0.25 in bivariable analysis

6. Discussion

The purpose of this research was to evaluate the communication between nurses and residents, as it is crucial for establishing a safe and fulfilling work environment that delivers high-quality care. The findings elucidated that the general perception of nurse-resident communication in patient care was rated at 46.3%. Among these respondents, 56.8% of residents and 43.18% of nurses perceived the communication to be effective. Moreover, 68.4% of participants agreed that nurse-resident communication had an impact on patient outcomes.[26]

A study undertaken by Jimma and Harer revealed that the overall communication levels were below 50%, with specific scores of 49.7% and 46.85% respectively. It was observed that nurses had a lower perceived extent of nurse-physician collaboration compared to physicians. This finding was facilitated by research conducted in Hawassa, where physicians reported higher satisfaction with their relationship with nurses [27],[24]. Conversely, a study done in Gonder and Felege Hiwot Hospital indicated that nurses showed less satisfaction with the current nurse-physician collaboration.[28] In contrast to physicians, nurses displayed more positive attitudes towards collaboration, as noted in the research conducted in Saudi Arabia, where nurses perceived the overall communication to be unsatisfactory.,[29] However, a study carried out in Mekelle city, Tigray demonstrated that nurse-physician communication was rated as good, with an overall communication score of 51.3%. [30].

Regarding the influence of the NRC on patient outcomes, approximately 68.4% of surveyed individuals agreed that the NRC affected patient outcomes. Among the nurses, a significant portion (57.82%) expressed a positive perception of patients overall, while a majority of the residents (78.4%) also had a positive perception. Similarly, a study done at Hawassa and an investigation done in the USA indicated that Nurse-Physician Collaboration (NPC) has significant implications for patient safety, while in Jordan, levels of physician-nurse collaboration were observed to have a positive impact on patient well-being and culture levels. This highlights that collaboration fosters a positive work environment, better patient outcomes, reduced medical errors, and overall positive teamwork[20],[31], [32].

In this study, the communication level of nurse residents in patient care at level was investigated. The results indicated that there was no significant association between nurses and residents. This finding is supported by previous studies done in Tigray, where no significant association was found (p-value=0.13), and Nigeria, where no significant difference was

observed between doctors (92.5%) and nurses (82.9%) who perceived the nurse-resident communication at level 2 to be cordial (p-value=0.16), and Jimma, where no significant association was found (p-value=0.45). However, these results contradict the findings from studies conducted in Harar, which showed that nurses were more than twice as likely as physicians to have a good level of nurse-patient communication in patient care [Adjusted Odds Ratio (AOR)=2.36, 95% Confidence Interval (CI)= (1.23, 4.54)].

Furthermore, a study in Egypt found a significant difference (p-value = 0.002), indicating that communication between nurses and residents during patient care was higher among nurses compared to physicians. Similarly, in a study conducted in Gaza, Palestine, nurses scored higher and displayed a better predisposition for collaboration than physicians, although the correlation was not significant ($p<0.001$)[33] [27] [24]. Previous studies at the University of West Indies demonstrated that physicians generally had a higher level of communication compared to nurses. However, the difference observed was not statistically significant. This lack of significance could be attributed to the greater autonomy enjoyed by physicians in their practice.[34].

The gender of participants did not show a significant relationship with NRC in patient care or its influence on patient outcomes, according to this study. This study's findings were supported by similar studies conducted in Harar, Saudi Arabia, and Japan, where the P values were greater than 0.05 (AOR: 1.06 (0.68–1.65)). However, a separate study conducted in Jimma found that female participants perceived better nurse-physician communication in terms of openness and sharing of patient information compared to males ($p = 0.017$). Another study conducted in the USA, exploring the role of gender in nurse-resident interaction, discovered a negative effect on female nurses and residents, with a significant association ($p < 0.001$) [24] [35] [27] [36].

The relation between the age of members and their perception of NPC and its influence on patient results was not found to be significant in this study. This is consistent with a study done in Iran (11), which also found no variance in the perceived extent of NPC across different age groups. However, studies undertaken in Harer and Jimma ($p = 0.001$) and northeastern Japan (based on physician perception) indicated that as the age of nurses and physicians increases, the degree of NPC and collaboration decreases. [11] In contrast, a study done in the Gaza Strip in Palestine showed a relationship between increased age and Nurse-physician collaboration, with a p-value of 0. 045. The difference noticed may be due to several factors. First, the majority of participants in the current study belonged to younger age groups. Additionally, differences in

study settings and area, sample size, and professional groups of participants may have also contributed to the variations in findings [35], [34].

In this research, no significant association was found between the marital status of the patient and NRC in patient care. This aligns with the findings of previous studies conducted in Jimma and Saudi Arabia, which also indicated no significant difference in nurses' perceptions based on marital status (p-value = 0.084). However, a higher occurrence of NPC (Negative Patient Care) was observed among individuals who had been married before, compared to those who were single or unmarried, as identified in the Harar, Ethiopia study. This could be due to the greater demands and desires experienced by younger individuals, such as financial and emotional needs, as well as their involvement in various social activities, potentially affecting communication among healthcare professionals during patient care. [29].

In this study, no relationship was found between the level of communication between nurses and residents in patient care and monthly salary and length of work experience. Similarly, a study conducted in Egypt also showed that work experience and experience in the emergency department did not have a significant positive correlation with overall attitudes towards collaboration, with a p-value of 0.972. This finding contradicts previous studies, which indicated that higher monthly income had an important influence on the degree of nurse-resident communication in patient care, as observed in Harar, Jimma, the USA, and northeastern Japan among doctors. This discrepancy might be because most members in the current study had similar monthly salaries across the groups. Additionally, differences in study settings, sample sizes, and professional groups of participants could also contribute to this disparity.

The main factors that were found to be influential in the study conducted by Yatasa et al were related to work, organization, and personal aspects. This is in contrast to the previous study by Hailu et al and others, where the most common factors were found to be organizational, work attitude, and personal behaviour. However, when analyzing the association of these factors with NRC (presumably a measure or outcome), no significant association was observed in this particular study. This finding aligns with a similar study conducted in Nigeria, where no significant association was found except for organizational factors with a p-value less than 0.001. Interestingly, these results contradict studies conducted in Harar which suggested that participants with higher scores on organizational factors were 42% less likely to have a good level of NPC (possibly related to nurse-patient communication) compared to these participants.

inpatient care had lower values [AOR=0.58, 95% CI (0.36, 0.92)]. Similarly, participants with higher scores on work attitude-related factors were 38% less likely to have good levels of NPC than participants with lower scores [AOR=0.62, 95% CI (0.39, 0, 98)], as shown in the table Studies conducted in Jimma[25] Mekelle [27] Tigray [24] and the Republic of Korea. In these studies, organization-related factors showed a significant association at 38%[37],[38].

In this study, the overall association between perceived effect in patient outcome with independent factors including profession(nurse/resident), work of experience, personal, work-related and organizational related factors. the study result showed no association between them Inconsistent with the study done in Hawassa, Ethiopia Correlations that are statistically significant were observed between different variables of the three categories of factors that affect nurse-resident communication and patient outcomes that are negatively directed [25].

In this study, there was no significant association between independent and outcome variables. The possible explanation, it was done in one institution with one department others were done and more hospitals involved different departments including outpatient departments, level of education including diploma nurses and specialist doctors unlike this paper involves only residents, sex category more female nurses and more male physicians in most studies but comparable numbers in this study. The overall difference in category factors and sample size with studies done in Hawassa, Jimma, Harar and Saudi Arabia. One of the biases to be considered in the study was the focus given only to one department and between nurses and residents which might have a sense of representativeness of other departments and other staff members Despite recognizing the importance of interprofessional communication skills, residents indicated that they lacked formal training in this area, suggesting that current post-graduate training in this area is inadequate.

7. Limitation

There were no previous studies done between nurses and residents to compare with this study.

A small number of sample size

The study site is limited to one institution and one department.

The research methodology employed was solely focused on quantitative analysis. However, there are other aspects related to the level of NRC in patient care that were not investigated in the quantitative study and require further exploration.

8. Conclusion

The study revealed that the general perception of NRC in patient care was below 50%, with a specific percentage of 46.3%. Additionally, the communication extent of nurses was found to be lower compared to the residents' assessment. The study further indicated that none of the identified factors were significantly associated with nurse-resident communication. Both nurses and residents acknowledged the positive impact of effective nurse-physician communication on patient outcomes. However, these factors did not show a significant association with the perceived influence on patient outcomes.

9. Recommendations

The research findings indicated that it is important for nurses and residents to evaluate the way they communicate with each other in their healthcare facilities. Furthermore, based on the study results, the following suggestions were proposed for each respective group. For nurses and residents, it is recommended that they engage in discussions about their communication practices while providing patient care. They should strive to communicate openly and respectfully, while also sharing pertinent patient information, as part of their professional duties.

For hospital management, it is advised to schedule regular forums specifically designed for nurses and residents to address communication issues and concerns. Regarding the curriculum of nursing and medical schools, it is crucial to provide support for the development of communication skills training programs for nurse-resident (nurse-physician) interactions. Additionally, efforts should be made to better organize healthcare student teams, which would facilitate effective communication between them.

Researchers are advised to consider involving a larger sample size, as well as including various departments and hospitals in their studies. Furthermore, it is recommended to incorporate qualitative research methods to enhance the overall methodology.

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11. Annexes

Annexe 1: Information Sheet and Consent form for nurses and residents

Addis Ababa University, School of Medicine, Emergency and Critical Care Medicine This is a questionnaire prepared to collect data on perceived barriers to ward nurse-resident communication at TASH. Good morning/good afternoon

I am here today to collect data on nurse-resident communication at TASH. The study is being conducted by Dr Abiy Ayalew from the Addis Ababa University Emergency and Critical Care Medicine, post-graduate program. The objective of this study is to examine perceived barriers towards nurse-resident communication at TASH. You are being asked to take part in this study and to respond genuinely. This interview focuses on how you perceive factors that affect nurse-resident communication and the effect of nurse-physician communication on patient outcomes. Your cooperation and willingness are greatly helpful in identifying problems related to nurse-physician communication. Your name will not be written in this form and will never be used in connection with any information.

You tell us & that this interview may take a maximum of 15 to 20 minutes to complete. There is no possible risk associated with participating in this study except the time spent for completing the questionnaire. All information given by you will be kept strictly confidential. Your participation is voluntary and you are not obligated to answer any question you do not wish to answer. If you feel discomfort with the question, it is your right to drop it at any time you want. If you have questions regarding this study or would like to be informed of the results after its completion, please feel free to contact the principal investigator. Address of the principal investigator:

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Annexe 2: Questionnaire for Nurses/residents

Addis Ababa University, School of Medicine, Emergency and Critical Care Medicine. A study to assess Perceptions of nurses and residents towards nurse-resident communication and its impact on patient outcome. This questionnaire has 4 parts:

Part 1: Nurses'/residents personal information;

Part 2: Nurses'/residents' perception of factors affecting nurse-resident communication;

Part 3: Nurses' Perception Toward the Impact of Effective nurse-resident Communication on Patient Outcomes and

Part 4: level of measuring items nurse resident communication

Please read each item carefully and give your honest response to each item. If you overlook any item without a response, it will affect the study. So, please check that you have given a response to all items. I thank you for your genuine responses and cooperation.

Part 1: Nurses'/Resident characteristics (personal information)

Instruction**:** Please circle the number in front of the option you choose

Profession	Nurse Resident
Sex	Female Male
Age in years	18-2 26-35 36-45>46
Marital status	Single Married Divorced Widowed
Level of education	Nurses BSc MSc Residents Year 1 Year2 Year 3
Title of nurses	Staff Nurse Specialized training nurses Head nurse
Sponsor of residency	MOH Universities Others
Salary category	5000-7500

	75000-10000 10000-125000 12500-15000 >15000
Work experience	<2 years 2-5 years 6-10 years 11-15 years >16 years

Part 2: Nurses'/Residents perception of factors affecting nurse-resident communication

Instruction: There are statements about overall factors affecting nurse-resident communication, and each statement has five alternatives with a five-point scale. Read each item carefully and select:1= If you strongly disagree about the factor.,2= If you disagree about the factor.,3= If you neither agree nor disagree (undecided) about the factor.,4= If you agree about the factor,5= If you strongly agree about the factor.

What are the personal factors affecting nurse-physician communication?	Strongly disagree	Disagree	Undecided	Agree	Strongly disagree
Poor interpersonal communication Skills Poor Social interaction outside work. Gender difference. Perception of being not respected. Personality traits (Inappropriate or disruptive behaviour). Attitude towards others Non-compliance with advice					

What are the work-related factors affecting nurse-resident communication?					
Staff shortage. Abuse (verbal, physical and sexual). Poor attitude to work. Conflict. Information gap. Unresponsiveness to call for duty. Uncooperativeness at work. Negligence of duty Attitude towards one work Lack of clarity in roles and responsibilities					

what are the occupational group and hospital management-related factors that affect nurse residents' communication?					
Disregard for profession. Unfavourable management decision. Type of professional training received. Government policy. Power difference.					

Part 3: Nurses' and residents' perception toward the impact of effective nurse-resident communication on patient outcome

Do you think effective nurse-resident communication can reduce patient length of stay?	Yes No Can't say
Do you think effective nurse-resident communication can decrease the patient's cost of hospitalization?	Yes No Can't say
Do you think effective nurse-resident communication can improve patient care quality?	Yes No Can't say
Do you think effective nurse-resident communication can reduce complications related to the disease?	Yes No Can't say
Do you think effective nurse-resident communication can reduce nosocomial infections?	Yes No Can't say
Do you think effective nurse-resident communication can increase patient satisfaction?	Yes No Can't say

Part 4: level of measuring items for nurse resident communication

Items for Measuring NPC	**Never**	**Rarely**	**Some times**	**Usual ly,**	**Alway s**
I ask for frequent clarification to understand what Nurses/ residents say In the event of a change in the treatment plan for the patient, nurses and residents have a mutual understanding of it. I discuss the mechanisms to maintain patient safety with Nurses/ residents Patient discharge confirmed by the signature of both Nurses and residents I have the same understanding of patient care as Nurses/ residents I take into account Nurses/residents' schedules when making plans to treat a patient together We openly exchange information about matters related to work in patient care We listen to each Other during communication in patient care I receive correct information from Nurses/ residents on patient care I consider Nurses/residents' views when making decisions about patient care I Feel angry after the Nurse and resident's interaction I Feel frustrated after the Nurse and resident's interaction I Feel understood after the Nurse and resident's interaction I Feel respected after Nurse -resident interaction I Feel pleased after the Nurse–resident interaction I Feel satisfied after the Nurse–resident's interaction We have equal understanding during interaction for the patient care Talking between me and Nurses/ residents is Joyful (thankful) Residents /Nurses consider Nurses/resident information about the patient as relevant					