



School of Medicine Undergraduate Study Program

Assessment of satisfaction, perceived effectiveness and associated factors of interprofessional communication between doctors and nurses in St. Paul's Hospital Millennium Medical College, Internal Medicine Wards, 2025

Investigator: Elham Awel (Medical Intern)

A Research Report submitted to the School of Medicine, St. Paul's Hospital Millennium Medical College in Partial Fulfillment of the Requirements for the Degree of Medical doctor.

April, 2026

Addis Ababa, Ethiopia

St. Paul's Hospital Millennium Medical College

Undergraduate Study Program

School of Medicine

**Assessment of satisfaction, perceived effectiveness and associated factors of
interprofessional communication between doctors and nurses in St. Paul's
Hospital Millennium Medical College, Internal Medicine Wards**

Investigator: Elham Awel (Medical Intern)

Advisors: Mr. Ermiyas Mulu, MPH, MHPE, BSc

Assistant Professor of Public Health

Dr. Derese Gizaw, MD, Family Medicine

Assistant Professor of Family medicine

**A Research Report submitted to the School of Medicine, St. Paul's Hospital
Millennium Medical College in Partial Fulfillment of the Requirements for
the Degree of Medical doctor**

April, 2026

Addis Ababa, Ethiopia

St. Paul's Hospital Millennium Medical College

Undergraduate Study Program

School of Medicine

Name of investigator	Elham Awel (Medical Intern)
Full title of the research project	Assessment of satisfaction and perceived effectiveness of interprofessional communication between doctors and nurses in the St. Paul's Hospital Millennium Medical College, Internal Medicine Wards
Duration of the project	8 months
Study Area	St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia
Total Cost of the project	4988 ETB
Source(s) of Funding	St. Paul's Hospital Millennium Medical College
Address of investigator	Cell phone: +251923113456
	Email: ellawelmefam5@gmail.com
Name of Advisor(s)	1. Mr. Ermiyas Mulu (MPH, MHPE, BSc)
	2. Dr. Derese Gizaw (MD, Family Medicine)

Acknowledgment

I would like to express my sincere gratitude to all those who have supported and guided me throughout the development of this research proposal.

I am grateful to St. Paul's Hospital Millennium Medical College (SPHMMC), School of Public Health for providing the educational opportunity, the chance to conduct research and the necessary resources and facilities for the preparation of this proposal.

Special thanks to Mr. Ermiyas Mulu and Dr. Derese Gizaw for their invaluable advice and encouragement, which have been instrumental in shaping the direction of this study.

Additionally, I extend my appreciation to my colleagues and friends who have provided feedback and insights that have enriched this work.

Abstract

Background: Effective nurse-physician communication is essential for safe, high-quality healthcare, influencing patient outcomes, satisfaction, and efficiency. Globally, communication breakdowns are a leading cause of medical errors, contributing to >70% of sentinel events and hundreds of thousands of deaths annually. Barriers include hierarchical structures, differing communication styles, workload, cultural and language differences, and organizational gaps. In sub-Saharan Africa, including Ethiopia, evidence consistently indicates suboptimal nurse-physician communication, indicating an urgent public health challenge.

Objective: The aim of this study is to assess the satisfaction and perceived effectiveness of interprofessional communication between doctors and nurses in St. Paul's Hospital Millennium Medical College Internal Medicine wards and to identify factors affecting them.

Method: A cross-sectional survey was conducted among 245 healthcare professionals, including physicians and nurses (Sept 20, 2025–Dec 10, 2025). Data were collected using structured questionnaires measuring satisfaction, perceived effectiveness, individual behaviors, and organizational support. Descriptive statistics and chi-square tests were used to analyze factors associated with satisfaction.

Result: Overall, 68.2% of respondents were satisfied with interprofessional communication (mean = 3.38/5). Perceived effectiveness was moderate, with strengths in receiving accurate patient information and role clarity, but weaknesses in timely response and coordination. Female sex was associated with lower satisfaction (AOR = 0.31, 95% CI: 0.17–0.56). Shorter ward experience (1–2 years) was linked with lower satisfaction (AOR = 0.40, 95% CI: 0.16–0.98). Low individual/behavioral factors (AOR = 0.21, 95% CI: 0.10–0.46) were significantly also associated with reduced satisfaction.

Conclusion: Interprofessional communication between doctors and nurses in SPHMMC's Internal Medicine wards showed moderate satisfaction but limited effectiveness in coordination and feedback. Higher satisfaction was linked to positive behaviors, strong organizational support and more ward experience, highlighting key factors that influence teamwork and patient care.

Keywords: Interprofessional communication, satisfaction, perceived effectiveness, Nurse-physician collaboration

Table of Contents

Tables and Figures	7
Abbreviations and acronyms.....	8
1. Introduction.....	9
1.1. Background	9
1.2. Statement of the problem	10
1.3. Significance of the study	11
2. Literature review	13
2.1 Interprofessional Communication and Its Effectiveness.....	13
2.2 Satisfaction in Communication and Effectiveness.....	14
2.3 Factors associated with satisfaction and Effective Communication	16
3. Objective	18
4. Methods.....	19
4.1. Study area and period.....	19
4.2. Study design	19
4.3. Source population.....	19
4.4. Study population	20
4.5. Selection criteria.....	20
4.6. Study variable.....	20
4.7. Operational definition	21
4.8. Sample size determination	22
4.9. Sampling method and procedure.....	23
4.10. Data collection procedures and instruments.....	24
4.11. Data quality control.....	25
5. Results.....	28
6. Discussion	37
7. Strength and limitation of the study.....	42
8. Conclusion and recommendation.....	43
9. References.....	45
10. Annexes.....	i

Tables and Figures

List of tables

Table 1 The number of healthcare providers working in SPHMMC medical wards based on profession category	19
Table 2 The number of selected healthcare providers working in SPHMMC medical wards based on profession category obtained from Internal Medicine Department	24
Table 3 Sociodemographic characteristics of the participants,2025 Error! Bookmark not defined.	
Table 4 Professional Characteristics of Respondents,2025	Error! Bookmark not defined.
Table 5 Assessment of Satisfaction in Patient-care-related Communication among Professionals	30
Table 6 Assessment of Perceived Effectiveness in Patient-care-related Communication among Professionals	31
Table 7 Individuals behaviors Affecting Interprofessional Communication.....	32
Table 8 Organizational Support for Interprofessional Communication	34
Table 9 Factors associated with Satisfaction in Patient-care-related Communication among Professionals	36

List of figures

Figure 1 Conceptual framework describing the independent variables for perceived effectiveness and level of communication satisfaction between physicians and nurses	17
--	----

Abbreviations and acronyms

AOR – Adjusted Odds Ratio

C-HIP – Communication-Human Information Processing

CI – Confidence Interval

CST – Communication Satisfaction Tool

EBP – Evidence-Based Practice

EMR – Electronic Medical Record

ETB – Ethiopian Birr

GC – Gregorian Calendar

ICU – Intensive Care Unit

IPCP – Interprofessional Collaborative Practice

IPE – Interprofessional Education

IRB – Institutional Review Board

JCAHO – Joint Commission on Accreditation of Healthcare Organizations

LMICs – Low- and Middle-Income Countries

MD – Doctor of Medicine

MDGs – Millennium Development Goals

MPH – Master of Public Health

MHPE – Master of Health Professions Education

NPC – Nurse-Physician Communication

SBAR – Situation, Background, Assessment, Recommendation

SPHMMC – St Paul’s Hospital Millennium Medical College

SMS – Short Message Service

SPSS – Statistical Package for the Social Sciences

US – United States

USA – United States of America

USD – United States Dollar

WHO – World Health Organization

1. Introduction

1.1. Background

Effective communication is a fundamental and critical component of high-quality, safe, and efficient healthcare delivery, impacting patient outcomes, satisfaction, and resource utilization. In the healthcare context, inter-professional communication is defined as a process by which healthcare professionals interact to share, discuss, and arrive at common understanding of the patient related information's to provide safe, high-quality, and comprehensive care (1).

Communication failures can emerge from junior team members being reluctant to communicate openly with senior team members because of a fear of either appearing incompetent, or being rejected. Inadequate interprofessional communication in health settings will increase problems in providing quality care. These characteristics not only raise the risk of medical errors, but the degree of open communication on the ward may also have an impact on how well patient care responsibilities are understood (2).

Various channels of communication are utilized, including essential face-to-face interactions, formal written communication, and a growing reliance on digital platforms such as electronic medical records (EMR), email, telephone calls (2).

interprofessional communication is subject to the effects of differences in training and reporting expectations . A structured communication tool would be beneficial to effectively communicate the patient information, reduce the adverse events, promote patient safety, improve the quality of care, and increase health care provider satisfaction(3)

Models and tools for healthcare communication are crucial for standardizing interprofessional communication and improving patient safety, particularly given the dynamic and complex nature of healthcare settings . One particular framework is SBAR (Situation, Background, Assessment, Recommendation) which can be used in virtually any clinical domain. SBAR is defined as ,Situation: what is the situation; why are you calling the physician? Background: what is the

background information? Assessment: what is your assessment of the problem? Recommendation: how should the problem be corrected? SBAR is a reliable and validated communication tool which has shown a reduction in adverse events in a hospital setting, improvement in communication among health care providers, and promotion of patient safety (3).

Communication satisfaction is defined as the subjective positive evaluation of communication encounters, encompassing how clarity, respect, and responsiveness is perceived in the exchange doctors and nurses have (6).

The perceived effectiveness of communication signifies the degree to which doctors and nurses believe their communication successfully achieves its intended purpose in patient care (7).

1.2. Statement of the problem

Failure in collaboration and communication between healthcare professionals have a negative impact on the provision of healthcare and on patient outcomes. The consequences reach far beyond stress and frustration levels experienced by professionals; they can result in adverse events such as medication errors and malpractice(5).

Communication problems have been linked to 15% of medical errors, with error rates as high as 1.7 per patient per day in departments such as intensive care unit. Poor collaborative communication between nurses and physicians has as much as a 1.8 fold increase in risk adjusted mortality and significant increases in the length of ICU stay (5).

Poor communication between healthcare workers is identified by a WHO survey as one factor for medical errors. The A more recent report highlights miscommunication as a leading factor for an estimated 210,000-440,000 US patient deaths in 2013 (8).

Poor communication also carries legal and economic consequences. In the US, it contributes to 30% of the approximately 23,000 malpractice cases annually, costing about \$1.6 billion USD (9). Along with medical errors, many lawsuits arise from mishandling situations, miscommunications, or being insensitive in dealing with patients and families. Inefficiency costs over \$12.4 billion for U.S. hospitals alone (9).

This issue is even more serious in low and middle income countries, where healthcare systems often struggle with resource limitation, high patient loads, and health professional shortages. In such settings, hierarchical professional relationships, differences in educational background, and lack of trainings may further worsened effective interaction between doctors and nurses (6).

The level of NPC was found to be poor for 53.2% of professionals in Eastern Ethiopia (6). In Hawassa, nearly one-third of all respondents (32.0%) perceived overall NPC as poor, with a large proportion of nurses (38.6%) rating it as "poor" compared to physicians (44.4% rating it as "good") (11). In Wolaita Sodo, Southern Ethiopia, less than half (45.8%) of healthcare professionals demonstrated good organizational communication skills (5).

Frequently encountered communication barriers include different training in communication styles (nurses are trained to be broad and narrative in their description of clinical situations, while physicians are taught to be concise). Other barriers include knowledge deficit, physician's authoritarian attitude or lack of openness, illegible physician handwriting, workload, staff shortage, disruptive behaviors, cultural and language barriers and even traditional gender roles sometimes influence communication styles and perceived authority (7,10).

Although several local studies have been conducted in Ethiopia, there is no specific assessment from St. Paul's Hospital Millennium Medical College (SPHMMC) that simultaneously measures satisfaction and perceived effectiveness of patient-care related communication from both doctors and nurses. Thus, this study aims to assess the level of satisfaction and perceived effectiveness of interprofessional communication between doctors and nurses in the internal medicine wards of St. Paul's Hospital Millennium Medical College.

1.3. Significance of the study

As a major teaching and referral Hospital, SPHMMC's internal medicine wards manage large number of patients with complex, multi-disciplinary care which creates an environment for the consequence of communication quality to be magnified. By systematically assessing satisfaction and perceived effectiveness of communication, this study will generate relevant local evidence and directly addresses an essential but often under-measured determinant of healthcare quality.

The findings of this study will be directly useful for various stakeholders:

- For SPHMMC Internal Medicine department, the results of this study will provide context specific solutions instead of importing generic evidence from other studies. Using the findings they can design trainings, adjust their staffing and other organizational factors to improve doctor-nurse communication.
- Researchers and academic institutions can use the result of the study as a baseline data for future research and also for redesigning curriculums on interprofessional communication.
- Associations (Ethiopian Nurses Association, Ethiopian Medical Association) can use the results of the study as evidence to advocate for the improvement of the working environment of doctors and nurses.

Furthermore, the study aligns with Ethiopian government's focus on improving health services to achieve Millennium Development Goals (MDGs) and reduce disease burdens for which strong inter-professional communication among healthcare providers is fundamental.

2. Literature review

2.1 Interprofessional Communication and Its Effectiveness

Communication on patient care often referred to as interprofessional communication or nurse-physician communication is a process by which healthcare professionals interact to share, discuss, and arrive at common understanding of the patient related information's to provide safe, high-quality, and comprehensive care (1). Communication includes any verbal and/or non-verbal interactions among healthcare professionals to provide patient care (6,11). This encompasses either direct communications through face-face or telecommunications, or indirect communications such as written papers and letters, electronic health records and emails (2,12). Effective communication is crucial for appropriate patient management and a prerequisite for patient safety and better patient outcome (2,4).

Even though the classical communication models such as Shannon and Weaver's models were known in healthcare, recent research suggests beyond a linear communication models to stress the dynamically interactive and dimensional communication in health care (5). **SBAR** (situation, background, assessment, recommendation) is widely recognized standardized communication tool used to structure information exchange concisely and quickly among healthcare professionals so that it can bridge the classical communication model gaps (13).

SBAR is critical in healthcare communication for several reasons. It addresses communication failures which are a major cause of preventable patient harms. With over 70% of sentinel events reported to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) attributed to such failures with approximately 75% of patients dying. It can be used in virtually any clinical domain, and has been widely applied in obstetrics, rapid response teams, ambulatory care, the ICU, cardiac arrests, and other areas (3,14).

SBAR is very effective in bridging this difference in communication styles. SBAR stands for: (i) **Situation** (what is going on with the patient?); (ii) **Background** (what is the clinical background, or context?); (iii) **Assessment** (what do I think the problem is?); and (iv) **Recommendation** (what would I do to correct it?). This model promotes shared decision making through reinforcing nurses' provision of evidence-based suggestions, fostering collegial practice, and assisting with the team's

consensus of action. Furthermore, because the communicator must give an assessment and proposed solutions, SBAR encourages critical thinking (3).

In Africa, the structured tool SBAR has been reported to improve communication in neonatology in south Africa (15). While prior studies have explored satisfaction or effectiveness using this model, it is not well studied in communication gaps between doctors and nurses and among themselves specially in low resources countries like in our setup (16).

2.2 Satisfaction in Communication and Effectiveness

Satisfaction of healthcare providers is defined as positive healthcare professionals experience in their work environment, which can be significantly influenced by communication efficacy . Indicators of satisfaction in healthcare communication include clarity, timeliness, respect, and responsiveness (2,17).

Effective communication in healthcare is fundamentally about achieving a shared understanding of a situation. It encompasses both the informational and emotional aspects of the staff and patients (1). One study showed nurses who have effective communication skills being nearly five times more likely to implement evidence-based practice (18).

Although these studies point to the importance of communication for professional satisfaction and the quality of care, they vary in the ways that satisfaction and effectiveness are operationalized. Some stress interpersonal respect; others concentrate on sharing information and others again on the patient's outcome. This variation further complicates cross-setting comparisons and highlights the necessity for context specific analysis. In addition, much of the literature uses cross-sectional data, which are useful for associations but uninformative about causal processes. It is therefore a matter of some controversy whether good communication is the direct cause of good practice or whether that good practice is instead a product of the better-resourced communities on which good communication is expected to act (17,18).

In Africa, interprofessional collaboration, particularly between nurses and physicians, has been described as ineffective and caused by factors including insufficient professional support, poor interpersonal communication, and a general lack of attention to interprofessional collaborations (19).

In Ethiopia, broader studies indicate nearly half (43.3%) of nurses and physicians in northwest Ethiopia had ineffective interprofessional collaborations, with Dessie city public hospitals measuring 44.2% which is lower than rates in Mekele and Jimma. In Jimma Zone, southwest Ethiopia (2014), the mean scores for perceived nurse-physician communication were 50.88% for professional respect and satisfaction and 48.52% for openness and sharing of patient information. Nurses generally perceived the communication level as lower than physicians (22,23). The pooled proportion of interprofessional collaboration is 52.73%, which is lower than figures reported in Egypt (70%), China (77.4%), and the USA (70%) (24). Only about 45.8% of healthcare in Wolaita Sodo healthcare facilities reported good organizational communication skills (5). Nurse-physician communication in Harari Regional state and Dire Dawa city administration public hospitals was 53.2%, with barriers including unfavorable management decisions, information gaps, and uncooperativeness (7).

Thus, there is growing evidence of a common theme to the findings that have emerged, showing that interprofessional communication in Ethiopia tends to be poor, with levels of satisfaction and other indicators of effective communication in the range of 40–55% (6,11). Nurses report significantly lower satisfaction than physicians as a matter of course, indicating barriers to effective communication are hierarchical in nature and influenced by disparities in decision-making authority (5,6,15). Consistent findings across African settings indicate structural facilitators including weak managerial commitment, a failure to establish protocols for communication, and entrenched power differentials. Nevertheless, there is variation across studies in sampling frames and measures, making it hard to determine exact prevalence or fully disentangle structural from interpersonal etiologies (28).

This evidence is thus not a major piece of the jigsaw, but rather an indicator of both what is known and unknown. What is evident is that problems of communication are obstacles to success and enjoyment in a wide variety of settings. Further research to measure satisfaction and perceived effectiveness, by profession, and directly associated with identified facilitators and barriers within the same ward setting is needed. Filling this gap is especially important for SPHMMC internal medicine wards, as concurrent measurement of these dimensions will help us understand whether dissatisfaction is more related to information flow, relationship dynamics, or systemic organizational encumbrances.

2.3 Factors associated with satisfaction and Effective Communication

Across literatures, three factors affecting quality of interprofessional communication between doctors and nurses emerge: structural, cultural, and informational factors.

Structural obstacles identified include understaffing and high workloads, and poor organizational support. In one study, 54% of nurses described staff shortage as a major source of double shifts, missed rounds, and frustration on the part of consultants (7). Large patient workload also leads to a relationship becoming conducive to “getting work done” rather than being truly collaborative (23). Factors like a supportive working environment, salary, continuous professional development, and effective conflict management are crucial for collaboration. Studies in Ethiopia also showed stressful hospital environment, shortages of staff, lack of medical equipment, differing treatment approaches, and absence of a forum for collaboration negatively impact collaboration (24).

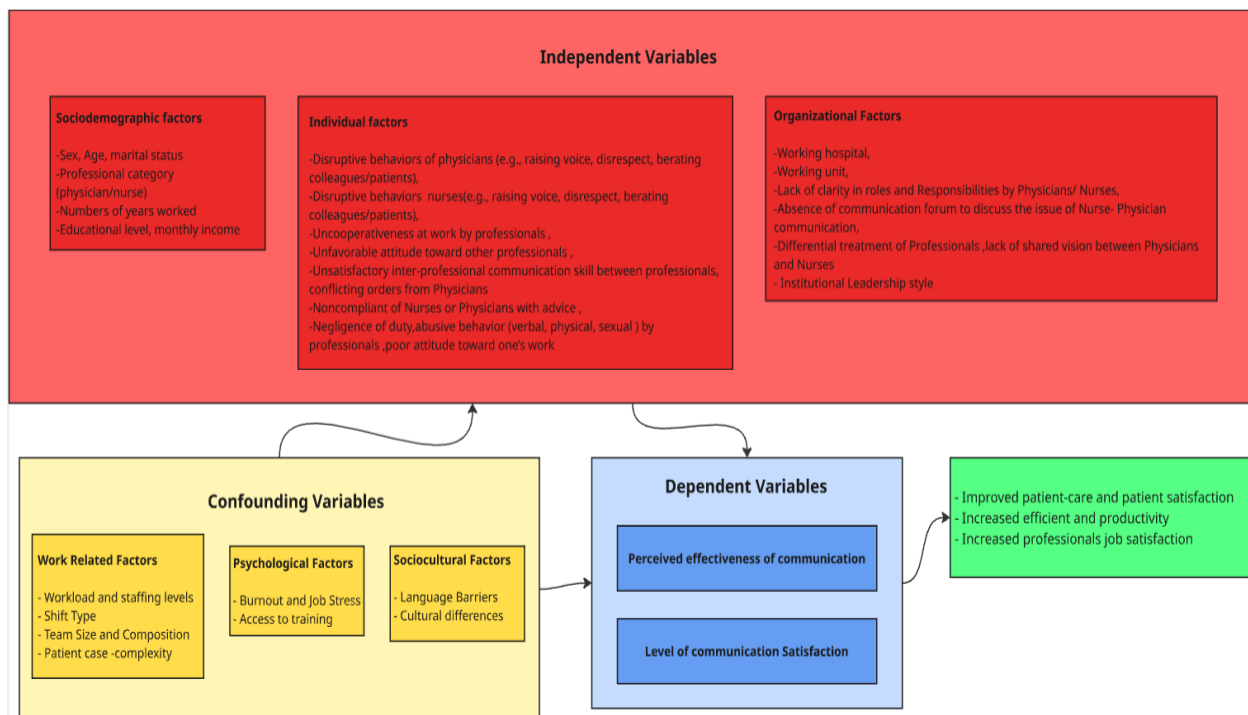
The cultural factor, although decreasing now, is marked by traditional hierarchies and power imbalances, where physicians have historically held a dominant role, viewing nursing as subservient (7). This translates to different perception of roles, responsibilities and quality of teamwork, with nurses often being less satisfied and feeling less appreciated than physicians and describe being treated as task implementers (19). Physician dominated organizational structures makes it difficult for nurses to "speak up", especially for junior nurses (13). The traditional nurse-physician relationship has often been seen as a man-woman relationship, with gender-related power issues still causing problems (25). While gender gaps are improving, men (more present in medicine) tend to prefer precise, quick, fact-based communication, whereas women (more present in nursing) prefer in-depth discussions to understand reasoning, which can contribute to communication failures (7). In Ethiopia, lack of professionalism, lack of mutual trust and respect, unequal power dynamics, misunderstanding of professional roles as well as varying views on teamwork and failure to adhere to professional duties are the identified cultural barriers (24)

The informational factors contributing to communication failure include poor quality of medical records. Poor quality medical records include incomplete or delayed medical records, ineligible physician handwriting. While Electronic Medical Records (EMRs) are intended to improve healthcare delivery, they can also contribute to poor communication, with instances of "chart wars"

and "resident abuse" reported (23). Communication through EMR has often been described as passive, one-directional, fragmented and incomplete reducing face-to-face interaction and physicians may assume that updating the EMR is sufficient communication, leading to lapses and errors (13). Poor quality of medical records in terms of consistency and timeliness, and a lack of a standardized electronic medical record (EMR) system in public health facilities, are challenges identified in Ethiopia

Furthermore, insufficient nursing skills and knowledge, limited access to information, heavy workloads, and a lack of supportive peers also hinder effective evidence-based practice (EBP) adoption, which can impact collaboration .

Figure 1 Conceptual framework describing the independent variables for perceived effectiveness and level of communication satisfaction between physicians and nurses (26)



3. Objective

3.1. General objective

To evaluate the satisfaction and perceived effectiveness of interprofessional communication between doctors and nurses in the internal medicine wards at SPHMMC.

3.2. Specific objective

- To measure the overall level of satisfaction with interprofessional communication between doctors and nurses in the internal medicine wards at SPHMMC.
- To assess the perceived effectiveness of interprofessional communication between doctors and nurses in the internal medicine wards at SPHMMC.
- To identify the factors associated with the satisfaction and perceived effectiveness of interprofessional communication between doctors and nurses in the internal medicine wards at SPHMMC.

4. Methods

4.1. Study area and period

The study took place in the internal medicine department (medical) wards of St. Paul's Hospital Millennium Medical College (SPHMMC), Gullele Sub-City, Addis Ababa, Ethiopia. St. Paul's hospital was established in 1968 Gregorian Calendar (GC) by the late Emperor Haile Selassie and reorganized as St Paul's Hospital Millennium Medical College through a decree of the Council of Ministers in 2010 GC, though the medical school opened in 2007 GC. It is governed by a board, under the Federal Ministry of Health. It has more than 2800 clinical, academic and administrative support staff that provide medical specialty services to patients referred from all over the country, teaching medicine, public health and nursing students and doing basic and applied researches. SPHMMC serves over 1,200 emergency and outpatient clients daily and has an inpatient capacity of more than 700 beds. The medical wards are currently divided into Cardiac-endocrine, Neuro-gastrointestinal, Renal, Hematology, pulmonology and Transition wards with a capacity of 18, 21, 18, 6, 13, 21 beds, respectively (25,26).

The study was conducted from September 20, 2025 - February 2, 2026, during which data collection, analysis, and interpretation was conducted to fulfill the objectives of the research.

4.2. Study design

The study design is an institution based cross-sectional study.

4.3. Source population

All doctors (medical interns, residents and seniors) and nurses working in the internal medicine (medical) ward of SPHMMC during the study period.

Table 1 The number of healthcare providers working in SPHMMC medical wards based on profession category

HEALTHCARE PROVIDERS WORKING IN SPHMMC MEDICAL WARDS

SENIORS	75
RESIDENTS	112

INTERNS	95
NURSES	70

4.4. Study population

The study population are doctors (medical interns, residents and seniors) and nurse who fulfill the inclusion criteria.

4.5. Selection criteria

4.5.1. Inclusion criteria

- ❖ Doctors and nurses working in the medical ward during the study period.
- ❖ Doctors or nurses willing to participate in the study

4.5.2. Exclusion criteria

- ❖ Doctors or nurses on leave during study period
- ❖ Doctors or nurses working in non-clinical role in Internal Medicine department

4.6. Study variable

4.6.1. Dependent variables

- Perceived effectiveness of communication
- Communication Satisfaction

4.6.2. Independent variables

A. Socio-demographic Factors

- Sex, Age, marital status, professional category (physician/nurse), numbers of years worked, educational level, monthly income.

B. Individual-based Factors

- Personal Behavior–related Factors
 - Disruptive behaviors of physicians or nurses (e.g., raising voice, disrespect, berating colleagues/patients), uncooperativeness at work by professionals,

unfavorable attitude toward other professionals, unsatisfactory inter-professional communication skill between professionals, conflicting orders from Physicians

- Work Attitude–related Factors
 - Noncompliant nurses or physicians, negligence of duty, abusive behavior (verbal, physical, sexual) by professionals, poor attitude toward one's work.

C. Organizational Factors

- Working hospital, working unit, lack of clarity in roles and Responsibilities by Physicians/ Nurses, absence of communication forum to discuss the issue of Nurse-Physician communication, differential treatment of Professionals, lack of shared vision between Physicians and Nurses

4.7. Operational definition

- ❖ **Satisfaction in patient-care–related communication** is the degree to which doctors and nurses feel positively about their communication with colleagues. It is measured using an 8-item Likert scale (1 = never to 5 = always) (7,38). The items are assessed among doctors, and nurses with total scores ranging from 8 to 40. This total score is divided by the total number of questions to get the final score ranging from 1-5, where score of 3 or less indicates **low satisfaction** and score above 3 **indicates high satisfaction**.
- ❖ **Perceived effectiveness of communication** is the extent to which communication contributes to accurate information exchange, clarification of roles, timely responses, decision-making, coordination of patient care, and improved patient outcomes. It is measured using a 12-item Likert scale (1 = never to 5 = always) among doctors and nurses (6,38). Total scores range from 12 to 60. This total score is divided by the total number of questions to get the final score ranging from 1-5, where score of 3 or less indicates **low perceived effectiveness** and score above 3 indicates **high perceived effectiveness**
- ❖ **Individual factors** include behaviours, attitudes, and communication skills of healthcare professionals that may hinder communication (6,15). Measured on a 9-item Likert scale (1 = strongly disagree to 5 = strongly agree), total scores range from 9 to 45. This total score

is divided by the total number of questions to get the final score ranging from 1-5, where score of 3 or less indicates **low** negative individual influences on communication and score above 3 indicates **high** negative individual influences on communication.

- ❖ **Organizational factors** are the structural and institutional characteristics that support or impede communication (39). measured on a 10-item Likert scale (1 = strongly disagree to 5 = strongly agree), total scores ranging from 10 to 50. This total score is divided by the total number of questions to get the final score ranging from 1-5, where score of 3 or less indicates **low** organizational support for effective communication and score above 3 indicates **high** organizational support for effective communication.

4.8. Sample size determination

The sample size of this study was determined using a single population proportion formula, considering the following assumptions: With a 95% level of confidence, a 5% margin of error, p-value of 0.5 and a 25% non-response rate. A proportion of 50% ($p = 0.5$) was used based on a previous study conducted in SPHMMC, reflecting the expected prevalence of the outcome in a similar setting (13).

$$n_0 = \frac{Z_{\alpha/2}^2 p(1 - p)}{d^2}$$

Where: n_0 = is the minimum sample size

z = is the desired level of statistical significance (95 %) ($Z = 1.96$)

p = is the proportion of health care professionals satisfied with their communication

d = degree of accuracy required (5%) ($d = 0.05$)

$$n_0 = \frac{(1.96)^2 * 0.5(1 - 0.5)}{(0.05)^2}$$

$$n_0 = 384.16 \approx \mathbf{384}$$

- Adjusting for finite population with the reduction formula

$$n = n0/(1+(n0/N)) = 384/ (1+ (384/352)) = 183.65 \approx 184$$

Based on the above formula, the sample size is 184.

- Adjusting for 25% non- response rate, the final sample size will be

$$N = (1 / (1 - 0.25.)) * 184 = \mathbf{254}$$

- ✓ Out of the 254 health professionals sampled, 245 participated in the study, yielding a response rate of 96.5%.

4.9. Sampling method and procedure

Considering that the reference population is heterogeneous in terms of training level and educational background, a stratified random sampling method is used to group the reference population into four strata based on educational background: senior, resident, medical intern, nurse. The study population size for each stratum is obtained from Internal Medicine Department and those who are eligible based on the inclusion and exclusion criteria are selected. The sample size was allocated proportionally to each stratum. From each stratum a simple random sampling method was used to select individuals, ensuring each professional group is adequately represented in the sample.

The specific number of health care providers selected from each profession category will be calculated as

$$o N_s = (M * 245) / \text{Total clinical staff number}$$

$$o N_s = (M * 245) / 352$$

Where:

- M is the number of health care providers in a specific profession category (Senior, Resident, Nurse, Intern)
- N_s – is the proportion of the total sample size that belongs to a specific health profession category

Table 2 The number of selected healthcare providers working in SPHMMC medical wards based on profession category obtained from Internal Medicine Department

Selected number of health care providers working in SPHMMC medical wards	
Seniors	52
Residents	78
Interns	66
Nurses	49

4.10. Data collection procedures and instruments

The data used in this research were primary data that were obtained from interns, nurses, residents, and seniors working at SPHMMC Internal Medicine wards. The self-administered structured questionnaire was the main instrument for data collection.

The questionnaire was developed by the investigator after reviewing similar literature and adopting standardized tools used in these studies (6,16). Necessary modifications were made to align it with the study objectives and local context.

The questionnaire consisted of five sections: (1) participant characteristics, (2) satisfaction with patient-care-related communication, (3) perceived effectiveness of communication, (4) individual behavioral factors, and (5) organizational factors. Each section used structured items on a 5-point Likert scale to assess relevant aspects of interprofessional communication.

Items were originally measured using a five-point Likert scale. For the purpose of analysis and ease of interpretation, responses were collapsed into three categories: dissatisfied, partially satisfied, and satisfied.”

The questionnaire was prepared in English and was administered in an online data collection format using a tool called Google Form to ensure accessibility, reduce errors, and allow efficient data management. A mandatory written consent form was included with the questionnaire.

The data collection procedures were as follows:

- The data collector introduced the study purpose to participants in the ward before the distribution of the online questionnaire link.
- The link was shared directly to the eligible participants via SMS, email, WhatsApp, and Telegram, ensuring all eligible participants in the ward were reached.
- The participants completed the questionnaire during their free time within a pre-specified data collection period.
- To minimize non-response, reminders were sent 2–3 times weekly during participants' free time by the data collectors.
- The investigator closely followed and monitored daily data collection, troubleshoot issues related to the Google Form, and checked that the collected data were consistent and accurate.

Before the data collection, the data collectors received training on data collection to increase consistency and accuracy. The training was held in person for each data collector.

.

4.11. Data quality control

To ensure that the data obtained were of high quality, the investigator first reviewed the questionnaire form for appropriateness, such as typing errors, missing questions, and improper translations. The data entry was done by trained personnel, with pretesting of the data collection tool, and mistakes were checked before analysis. A pretest of the questionnaire was conducted on 5% of the sample size at St. Paul's Hospital Millennium Medical College in the General Surgery Department, which was not included in the main study. The data in the pretest were re-extracted post-pretesting the tool to ensure consistency. Throughout data collection, regular supervision and

verification took place to avoid inconsistencies and bias and to ensure that all necessary data were covered.

4.12. Data processing and analysis

All of the data collected were checked for completeness, cleaned, and entered into a data analysis software such as SPSS version 27. Descriptive statistical methods, such as frequency and percentage, were used to summarize the socio-demographic characteristics of participants and variables related to satisfaction and perceived effectiveness of nurse–physician communication.

Inferential analysis was conducted to explore factors associated with satisfaction and perceived effectiveness of communication. Associations between categorical variables were tested using chi-square.

Bivariate analysis was first performed to examine the effect of each independent variable on the outcomes (satisfaction and effectiveness). Variables with p-value <0.25 and clinical significance from the literature were used in the multivariable model. A multivariable logistic regression was then conducted to identify independent predictors, with results presented as adjusted odds ratios (AOR) and 95% confidence intervals. A p-value <0.05 was considered statistically significant

4.13. Ethical consideration

Approval from SPHMMC Public Health Department and the Institutional Review Board was received for this study before data collection. Informed consent was obtained from all participants after a clear explanation of the purpose of the study, procedures, and their right to withdraw at any time. All data were anonymized and personal identifiers were removed, ensuring that patient confidentiality and privacy were kept to the highest standards. Voluntary participation was practiced and no incentives were provided.

4.14. Dissemination of study result

Results of this study will be disseminated using a variety of channels to target both academic and clinical audiences. The results will be disseminated to the Department of Internal Medicine at

SPHMMC for guiding clinical practice and quality improvement based on the evidence. Moreover, the study will be submitted for publication in a medical journal to add evidence on satisfaction and perceived effectiveness of patient-related communication among doctors and nurses in low-resource settings. Key findings may also be disseminated at national and regional medical conferences, workshops and seminars.

5. Results

5.1 Socio-demographic and professional characteristics of the respondents

The demographic characteristics of the patients who participated in the study were as follows: a total of 245 health professionals participated in the study. The majority of responders (71.0%) were under 35, with a higher percentage of men (53.9%). Physicians made up the majority of the study group (80.0%), and over half of the participants were single (52.2%).

Concerning educational level, 80.0% of participants were doctors (including interns, residents, and specialists), while 20.0% were nurses holding BSc or MSc degrees. Most pr

Characteristic	Category	count	Percentage
Age (years)	<25	86	35.1%
	26–35	88	35.9%
	≥36	71	28.9%
Sex	Male	132	53.9%
	Female	113	46.1%
Marital status	Single	128	52.2%
	Married	98	40.0%
	Divorced/Widow	19	7.8%
Profession	Physician	196	80.0%
	Nurse	49	20.0%
Highest qualification	BSc/MSc Nurse	49	20.0%
	Intern	66	26.94%
	Resident Doctor/Specialist Doctor	130	53.1
Years in practice	<1 year	4	1.6%
	1–6 years	182	74.3%
	>6 years	59	24.1%
Years on ward/service	<1 year	103	42.0%
	1–5 years	106	42.3%
	>5 years	36	14.7%
Working shift	Day/Evening	157	64.1%
	Night/Rotating	88	35.9%
Work pattern last month	Full-time	207	84.5%
	Part-time/Locum	38	15.5%
Average weekly hours	≤72 hrs	174	71.0%

Characteristic	Category	count	Percentage
	>72 hrs	71 (29.0)	29.0%
Received formal team communication training (e.g., SBAR)	Yes	46 (18.8)	18.8%
	No	199 (81.2)	81.2%

5.2 Assessment of Satisfaction in Patient-care-related Communication among Professionals

Satisfaction with interprofessional communication was measured by combining eight related survey items into a composite score, reflecting participants' overall perception of communication quality, respect, understanding, information relevance, and positive interactions with nurses and physicians. Each item was rated on a five-point Likert scale (1 = Never, 5 = Always), and the overall satisfaction score was calculated as the mean of the eight items:

$$\text{Overall satisfaction score} = \frac{\text{Sum of 8 satisfaction items}}{8}$$

Among the 245 participants, the composite satisfaction score ranged from 1.57 to 5.00, with a mean of 3.38 (SD = 0.78), indicating a moderate to strong level of satisfaction. Using 60% of the maximum possible score (3) as the cutoff, 68.2% (n = 167, 62.7%–73.3%) of participants were categorized as satisfied, while 31.8% (n = 78, 95% CI: 26.7%–37.3%) were dissatisfied..

Approximately one-third of respondents reported mostly feeling understood after nurse-physician interactions (31.8%, n=78), while 15.5% (n=38) reported always feeling understood. Nearly two-thirds reported feeling respected sometimes or mostly (66.9%,n=164), and 27.3% (n=67) reported mostly feeling respected. Regarding confidence in communication, 34.7% (n=85) of participants reported always feeling that their input was valued, while 29.8% (n=73) reported mostly. Overall, more than half of respondents described nurse physician interactions as mostly or always positive and enjoyable (54.7%, n=134)

Table 4 Assessment of Satisfaction in Patient-care-related Communication among Professionals

Item	Dissatisfied n (%)	Partially satisfied (%)	Satisfied n (%)
Feeling understood	72 (29.4)	57 (23.3)	116 (47.3)
Feeling respected	76 (31.0)	97 (39.6)	72 (29.3)
Feeling pleased after interaction	46 (18.8)	106 (43.3)	93 (38.0)
Trust in received information	74 (30.2)	111 (45.3)	60 (24.5)
Input is valued	15 (6.1)	72 (29.4)	158 (64.5)
Comfort in asking questions	26 (10.6)	123 (50.2)	96 (39.2)
Information considered vital	35 (14.3)	115 (46.9)	95 (38.8)
Interactions positive/enjoyable	34 (13.9)	77 (31.4)	134 (54.7)

5.4 Assessment of Perceived Effectiveness in Patient-care-related Communication among Professionals

Among the 245 participants, the composite perceived effectiveness score ranged from 1.80 to 4.60, with a mean of 3.13 (SD = 0.63), indicating a moderate perception of effectiveness overall..

Perceived effectiveness of interprofessional communication showed mixed findings. A large majority of respondents reported always or mostly receiving accurate and complete patient-care information (81.7%, n=200) and clarifying roles and responsibilities through communication

(89.4%, n=219). Additionally, 80.8% (n=198) reported always or mostly feeling confident that shared information was acted upon correctly.

In contrast, several effectiveness components were reported less favorably. More than half of respondents reported that nurses or physicians rarely or sometimes responded appropriately and in a timely manner (84.5%), and 50.2% reported sometimes clearly understanding the information provided.

Table 5 Assessment of Perceived Effectiveness in Patient-care-related Communication among Professionals

Item	Disagree (%)	Partially agree (%)	agree (%)
Receive accurate and complete patient-care information	15 (6.1)	30 (12.2)	200 (81.7)
Confident that shared information is acted upon correctly	1 (0.4)	46 (18.8)	198 (80.8)
Clarify responsibilities and roles	0 (0.0)	26 (10.6)	219 (89.4)
Nurses/Physicians respond appropriately and timely	125 (51.0)	82 (33.5)	38 (15.5)
Clearly understand information provided	95 (38.7)	123 (50.2)	27 (11.0)
Able to provide feedback and ensure understanding	87 (35.5)	127 (51.8)	31 (12.7)
Openly exchange information about work	146 (59.6)	62 (25.3)	37 (15.1)
Actively listen during patient-care discussions	127 (51.8)	76 (31.0)	42 (17.2)
Communication improves patient outcomes	104 (42.4)	79 (32.2)	62 (25.3)

Item	Disagree (%) n	Partially agree (%) n	agree (%) n
Communication helps coordinate patient care	168 (68.6)	56 (22.9)	21 (8.5)
Communication helps make timely decisions	88 (35.9)	111 (45.3)	46 (18.7)

5.5 Individuals behaviors Affecting Interprofessional Communication

Several barriers to effective interprofessional communication were reported. About one-third (33.4%, n=82) agreed that some physicians display disruptive behaviors, while over half (55.5%, n=136) agreed that some professionals have unsatisfactory communication skills. Conflicting physician orders were reported by 58.8% (n=144), and unfavorable attitudes toward colleagues were noted by 62.3% (n=155). Noncompliance with professional advice was acknowledged by 65.7% (n=161), and abusive behaviors were reported by 75.9% (n=186). Poor attitudes toward work and uncooperativeness at work were observed by 37.9% (n=93) and 47.1% (n=115) of respondents, respectively.

Table 6 Individuals behaviors Affecting Interprofessional Communication

Item	Disagree (%) n	Partially agree (%) n	agree (%) n
Some physicians display disruptive behaviors	36 (14.7)	127 (51.8)	82 (33.4)
Some professionals have unsatisfactory inter-professional communication skills	50 (20.4)	59 (24.1)	136 (55.5)
Physicians sometimes give conflicting orders	74 (30.2)	27 (11.0)	144 (58.8)

Item	Disagree n (%)	Partially agree n (%)	agree n (%)
Some professionals display unfavorable attitudes toward colleagues	37 (15.4)	53 (22.2)	155 (62.3)
Some nurses or physicians do not comply with professional advice	6 (2.4)	78 (31.8)	161 (65.7)
Abusive behavior (verbal, physical, or sexual) occurs among professionals	12 (4.9)	47 (19.2)	186 (75.9)
Some professionals display a poor attitude toward their work	53 (21.7)	99 (40.4)	93 (37.9)
Professionals sometimes show uncooperativeness at work	58 (23.7)	71 (29.1)	115 (47.1)

5.6 Organizational Support for Interprofessional Communication

Organizational support for interprofessional communication was perceived as limited. Half of the respondents reported that nurses' and physicians' contributions were sometimes recognized and appreciated (50.6%, n=124), while only 18.4% (n=45) reported always. Regarding the work environment, 32.2% (n=79) reported that the ward sometimes supported effective communication, whereas 26.9% (n=66) reported never.

In contrast, role clarity and shared goals were reported more positively. 58.8% of respondents reported that roles and responsibilities were mostly or always clearly defined, and 70.2% reported that physicians and nurses mostly or always shared a common vision for patient care. However, perceptions of management fairness and conflict resolution were poor, as 71.5% reported being never or rarely treated fairly by management, and 61.2% reported that conflicts were never or rarely addressed constructively

Table 7 Organizational Support for Interprofessional Communication

Item	Disagree n (%)	Partially agree n (%)	Agree n (%)
Nurses' and physicians' contributions are recognized and appreciated	49 (19.2)	124 (50.6)	72 (29.4)
The ward environment supports effective communication	104 (42.4)	79 (32.2)	62 (25.3)
There are enough staff members to provide safe and effective patient care	100 (40.8)	98 (40.0)	47 (19.2)
Adequate resources are available to support teamwork and communication	140 (57.2)	75 (30.6)	30 (12.3)
There are regular forums to discuss communication issues	160 (64.3)	45 (18.4)	40 (16.3)
Roles and responsibilities of physicians and nurses are clearly defined	33 (13.5)	68 (27.8)	144 (58.8)
All professionals are treated fairly and equally by management	175 (71.5)	45 (18.4)	25 (10.2)
Physicians and nurses share a common vision for patient care	23 (9.4)	50 (20.4)	172 (70.2)
The hospital enforces a zero-tolerance policy for abuse, disrespect, harassment	150 (60.5)	54 (22.0)	41 (16.7)
Conflicts among nurses and physicians are addressed constructively	150 (61.2)	53 (21.6)	42 (17.1)

5.7 . Factors associated with Satisfaction in Patient-care-related Communication among Professionals

In the bivariate analysis, 8 predictor variables were used, and those with a P-value of less than 0.25 were entered into the multivariate logistic regression model. The outcome variable was significantly associated with four variables. The variables that had a significant association with a satisfaction interprofessional communication among doctors and nurses were sex, years of experience on the ward, organizational support and individual/behavioural factors.

Participants with low individual/behavioral factor scores were significantly less likely to be satisfied compared to those with high scores (AOR = 0.21, 95% CI: 0.10-0.46, $p=0.081$). Female participants were also less likely to be satisfied than male participants (AOR = 0.31, 95% CI: 0.17-0.56, $p < 0.001$). Organizational support showed a marginal association, where lower organizational support was associated with reduced satisfaction (AOR = 0.51, 95% CI: 0.26-1.02, $p = 0.058$).

Respondents with high individual/behavioral factor scores (AOR = 0.211; 95% CI: 0.096-0.463) ($P<0.001$), male sex (AOR = 2.487; 95% CI: 1.038-5.959) ($P=0.041$), and high organizational factor scores (AOR = 0.513; 95% CI: 0.257-1.022) ($P=0.058$) were significantly associated with satisfaction with interprofessional communication.

Regarding ward experience, professionals with 1–2 years of service on the ward (AOR = 0.40; 95% CI: 0.16-0.98) ($P=0.045$) were less likely to report satisfaction compared to those with more than five years of experience), indicating that familiarity with the ward environment and team dynamics enhances satisfaction.

Table 8 Factors associated with Satisfaction in Patient-care-related Communication among Professionals

Variable	Satisfied (%)	n	Dissatisfied (%)	n	COR (95% CI)	AOR (95% CI)
Sex						
Male	95 (72.0%)		37 (28.0%)		1.56 (0.99-2.47)	2.49(1.04-5.96)
Female	52 (46.0%)		61 (54.0%)		1.00	1.00
Organizational factor (mean)						
Low (<3)	88 (51.8%)		82 (48.2%)		0.29(0.16-0.55)	0.51(0.26-1.02)
High (>3)	59 (78.7%)		16 (21.3%)		1.00	1.00
Individual/Behavioral factor (mean)						
Low (<3)	90 (50.8%)		87 (49.2%)		0.20 (0.10-0.41)	0.21(0.10-0.46)
High (>3)	57 (83.8%)		11 (16.2%)		1.00	1.00
Years on ward/service						
<1 year	60 (58.3%)		43 (41.7%)		0.54(0.24-1.24)	0.54(0.27-1.02)
1–2 years	33 (50.8%)		32 (49.2%)		0.40(0.17-0.96)	0.40(0.16-0.98)
3–5 years	28 (68.3%)		13 (31.7%)		0.83(0.31-2.22)	0.83(0.33-2.07)
>5 years	26 (72.2%)		10 (27.8%)		1.00	1.00

NB: Variables with $P \leq 0.25$ in the bivariate analysis were included in the multivariable logistic regression model; 1.00 = Reference category; AOR = Adjusted Odds Ratio; COR = Crude Odds Ratio; CI = 95% Confidence Interval.

6. Discussion

This study assessed satisfaction and perceived effectiveness of interprofessional communication between doctors and nurses working in the Internal Medicine wards of St. Paul's Hospital Millennium Medical College. The findings provide important evidence on how communication is experienced in a comprehensive teaching hospital setting in Ethiopia and address the documented gap regarding the concurrent assessment of satisfaction, effectiveness, and associated individual and organizational factors within the same clinical environment.

Overall, the study indicated that more than two-thirds of participants were satisfied with interprofessional communication, with an average satisfaction score of 3.38. This level of satisfaction is higher compared to satisfaction level reported in several Ethiopian studies, which typically range between 40% and 55% (7). Similar lower satisfaction levels were reported in Jimma Zone, Harari Regional State, Dire Dawa, and Dessie public hospitals, particularly among nurses (7,16). The relatively higher satisfaction in this study may be due to the academic and tertiary care level of SPHMMC, where advanced specialized medical departments, structured ward rounds, and repetitive interaction between professionals are more common than in primary or general hospitals.

Despite this relatively high overall satisfaction level, the presence of dissatisfaction among nearly one-third of respondents is clinically significant. In Internal Medicine wards, where rapid decision making and coordinated care are essential, even moderate dissatisfaction can jeopardize teamwork and patient safety. The frequent selection of “sometimes” more than “mostly” or “always” across satisfaction indicators suggests that positive communication experiences are inconsistent and situational rather than systematically embedded into routine practice. This finding is consistent with prior evidence from Ethiopia and Africa studies, which indicates that communication quality often depends on individual relationships and workload pressures rather than standardized institutional practices (7,19,28).

Importantly, multivariable analysis in the present study identified key predictors of satisfaction. Low individual/behavioral factor scores were strongly associated with reduced satisfaction, indicating that clinicians who perceive fewer behavioral barriers such as disruptive

conduct, uncooperativeness, and poor communication skills are far more satisfied. Female participants were less likely to be satisfied than males, suggesting potential gender differences in communication experiences, which has been observed in study conducted across North eastern Ethiopia exploring professional interactions and communication dynamics(29).

Lower organizational support was marginally associated with reduced satisfaction, reflecting the importance of institutional culture and management practices in shaping communication perceptions. Additionally, professionals with 1-2 years of ward experience were less likely to report satisfaction compared to those with more than five years of experience, implying that familiarity with team dynamics, clinical routines, and established communication norms may enhance satisfaction, a pattern noted in other healthcare work environments where experience predicts better integration into team culture and communication practices.

These multivariable findings align with research from northwest Ethiopia showing that dissatisfaction with organizational support and interpersonal support were independently associated with ineffective interprofessional collaboration. However, systematic reviews across public hospitals in Eastern Ethiopia indicate that the strength of the association can vary across different settings and study designs. The discrepancies between strength of association may be explained by difference in measurement of communication outcomes, institutional contexts, staff mixes, and cultural norms in professional interactions(30,7).

Key relational aspects of communication, including feeling understood, respected, and trusted, were reported at moderate levels. While a majority of respondents reported feeling respected and understood at least sometimes, fewer experienced these elements consistently. This aligns with previous literatures showing that hierarchical professional cultures and power differentials continue to shape nurse physician interactions, often resulting in nurses perceiving their contributions as undervalued (5,15). Such dynamics are well documented in Ethiopian healthcare settings, where physicians traditionally hold dominant decision making authority, limiting nurses' confidence in speaking up even when patient safety is at risk (17).

In contrast, studies from the United States report more balanced levels of satisfaction between nurses and physicians, with nurses frequently describing interprofessional communication as collegial and participatory rather than hierarchical. Studies from U.S. academic and community hospitals indicates that nurse satisfaction with interprofessional communication is comparable to

that of physicians, largely due to strong organizational structures, well defined scopes of practice and strong institutional emphasis on teamwork and psychological safety. The discrepancy between these findings and the present study can be explained by contextual differences in health system organization, professional autonomy, and workplace culture (31).

The assessment of perceived effectiveness of interprofessional communication revealed mixed findings. While most respondents reported mostly receiving accurate and complete patient care information and using communication to clarify roles and responsibilities, several essential components of effective communication were poorly scored. These included timely responses, clarity of information, feedback exchange, active listening, coordination of patient care, and the role of communication in improving patient outcomes and supporting timely clinical decisions

This inconsistency concludes an important finding: information transmission alone does not equate to effective communication. Although main clinical information may be exchanged, deficits in responsiveness and coordination limit the functional impact of communication on patient care. This finding supports the WHO Interprofessional Collaborative Practice framework, which emphasizes that effective collaboration requires not only information sharing but also shared decision-making, psychological safety, and relational trust (32).

Although information exchange appears to occur regularly at SPHMMC, the limited effectiveness in coordination and decision making suggests that communication remains largely task oriented rather than collaborative. Similar challenges have been reported in Ethiopia and Asia health case settings, where heavy workloads, staffing shortages, and fragmented workflows constrain meaningful interprofessional dialogue (14,25).

Individual behavioral factors emerged as important barriers to effective communication. Many respondents reported disruptive physician behaviors, unsatisfactory interprofessional communication skills, conflicting physician orders, and uncooperative attitudes. Although abusive behaviors were reported less frequently, their presence remains significant, as even isolated incidents can erode psychological safety and discourage open communication. These behaviors contribute to stress, burnout, and reduced job satisfaction, particularly among nurses and junior staff, consistent with Ethiopian and international literature (11,17).

Conflicting physician orders were reported by a substantial proportion of respondents, posing a direct threat to patient safety and effective teamwork. Similar findings have been reported in South west Ethiopia, where lack of coordination among physicians and unclear communication channels contribute to medication errors and delays in care (15).). In contrast, study from United Kingdom shows that formal communication tools like SBAR, standardized handover protocols, and clear accountability mechanisms significantly reduce the occurrence of conflicting orders and enhance patient safety (3,23). These issues highlight the importance of structured communication tools and clear accountability mechanisms to ensure consistency in clinical decision-making.

Organizational support for interprofessional communication was perceived as limited across multiple domains. Recognition and appreciation of professional contributions were inconsistent, staffing and resource constraints were widely reported, and regular forums for discussing communication issues were largely absent. In addition, perceptions of unfair treatment by management and poor conflict resolution mechanisms were prevalent. These findings align with several studies across Ethiopia identifying weak managerial commitment, inadequate organizational structures, and entrenched hierarchies as major barriers to effective interprofessional collaboration in Ethiopia (6,7,12,28).

In contrast, role clarity and shared vision for patient care were reported more positively, suggesting that professionals understand their responsibilities and share common goals, but lack the organizational support needed to operationalize effective collaboration. This imbalance may explain why satisfaction levels were relatively high while perceived effectiveness remained limited. Similar patterns have been observed in Kenya, where professional roles are defined but collaboration is undermined by systemic and cultural barriers (6,33).

Formal communication training was strongly associated with higher satisfaction, underscoring the value of structured tools such as SBAR. This finding is consistent with international evidence showing that SBAR improves clarity, confidence, and mutual respect between nurses and physicians, and reduces communication-related errors (3,23). However, the low proportion of participants who had received such training highlights a critical gap in institutional capacity-building efforts.

Years of service in the ward were also significantly associated with satisfaction, with more experienced staff reporting higher satisfaction. This suggests that familiarity with team and

institutional culture facilitates communication, while junior staff and interns may struggle to navigate hierarchical relationships and informal norms. Similar findings have been reported in global studies, emphasizing the need for mentorship and supportive onboarding processes for newly assigned professionals (15,27).

7. Strength and limitation of the study

8.1 Strength of the study

- ✓ The study provides comprehensive evidence on both satisfaction and perceived effectiveness of interprofessional communication in a tertiary teaching hospital setting in Ethiopia, addressing a gap in the literature.
- ✓ Inclusion of both doctors and nurses allowed a holistic view of interprofessional dynamics, capturing perspectives from multiple professional levels.
- ✓ Examination of individual, relational, and organizational factors concurrently offers practical insights for interventions targeting both personal and systemic barriers.

8.2 Limitation of the study

- ✓ The study was cross-sectional, which limits the ability to establish causal relationships between variables such as training, experience, and satisfaction.
- ✓ Data were collected from a single hospital, which may reduce generalizability to other healthcare settings, especially non-academic or rural hospitals.
- ✓ Self-reported data may be subject to social desirability bias, particularly regarding sensitive topics like disruptive behaviors or abusive conduct.

8. Conclusion and recommendation

9.1 Conclusion

This study demonstrated that interprofessional communication between doctors and nurses in the Internal Medicine wards of St. Paul's Hospital Millennium Medical College is characterized by moderate levels of satisfaction but limited perceived effectiveness and insufficient organizational support. While communication is generally effective in transmitting clinical information and clarifying professional roles, it is less effective in facilitating timely responses, feedback exchange, coordinated care, and improved patient outcomes.

Multivariable analysis identified key predictors of satisfaction: higher individual/behavioral factor scores, male sex, greater ward experience, and stronger organizational support were associated with higher satisfaction levels. These findings underscore that satisfaction with interprofessional communication is influenced not only by the technical exchange of information but also by relational dynamics, behavioral factors, hierarchical structures, and institutional support.

In conclusion, improving interprofessional communication in Internal Medicine wards requires a comprehensive, system-level approach that integrates structured communication tools, supportive leadership, fair and responsive management practices, and a culture that promotes mutual respect and psychological safety.

9.2 Recommendation

Based on this study, the following recommendations were forwarded:

St. Paul's Hospital Millennium Medical College Administration:

- Implement structured communication protocols such as SBAR for all shifts to reduce conflicting orders and improve coordination.
- Establish regular interprofessional meetings and debriefings to address communication gaps, clarify responsibilities, and promote shared decision-making.
- Ensure fair staffing levels and adequate resources to minimize workload-related communication barriers.

St. Paul's Hospital Millennium Medical College Training and Professional Development

Departments:

- Provide formal interprofessional communication training for all doctors and nurses, including workshops on effective feedback, active listening, and conflict resolution.
- Develop mentorship and onboarding programs for junior staff and interns to build confidence in navigating hierarchical dynamics.

Policymakers and Healthcare Regulators:

- Develop and enforce institutional policies that promote psychological safety, zero tolerance for abusive behavior, and fair management practices.
- Support hospitals in implementing interprofessional education as part of continuous professional development and accreditation standards.
- Encourage research and monitoring of interprofessional communication to evaluate the effectiveness of interventions over time.

9. References

1. Darcho SD, Ayele BH, Demena M, Firdisa D, Shawel S, Berhanu A. Organizational Communication Skills and Its Associated Factors Among Healthcare Providers Working at Wolaita Sodo Health Facilities, Southern Ethiopia: A Cross-Sectional Study. *Risk Manag Healthc Policy*. 2024;17.
2. MOHAMMED A, Sileshi C, Nigussie Y, YESUF M, DIRESS G. Interdisciplinary Communication in the Intensive Care Unit at Saint Peter Specialized Hospitals Addis Ababa, Ethiopia, 2023: A Mixed-method Study. *AMERICAN JOURNAL OF CLINICAL AND EXPERIMENTAL MEDICINE*. 2024;12(6):87-99.
3. Thomas CM, Bertram E, Johnson D. The SBAR communication technique: teaching nursing students professional communication skills. *Nurse educator*. 2009 Jul 1;34(4):176-80.
4. Leonard M, Graham S, Bonacum D. The human factor: The critical importance of effective teamwork and communication in providing safe care. Vol. 13, *Quality and Safety in Health Care*. 2004.
5. Tjia J, Mazor KM, Field T, Meterko V, Spenard A, Gurwitz JH. Nurse-physician communication in the long-term care setting: perceived barriers and impact on patient safety. *J Patient Saf*. 2009 Sep;5(3):145–52.
6. Darcho SD, Ayele BH, Demena M, Firdisa D, Shawel S, Berhanu A. Organizational Communication Skills and Its Associated Factors Among Healthcare Providers Working at Wolaita Sodo Health Facilities, Southern Ethiopia: A Cross-Sectional Study. *Risk Manag Healthc Policy*. 2024;17.
7. Mehammedamin Jemal, Mohammed Abdurke Kure, Tesfaye Gobena, Biftu Geda. Nurse-Physician Communication in Patient Care and Associated Factors in Public Hospitals of Harari Regional State and Dire-Dawa City Administration, Eastern Ethiopia: A Multicenter-Mixed Methods Study. *J Multidiscip Healthc [Internet]*. 2021 Aug 27 [cited 2025 Aug 24]; Available from: <https://www.dovepress.com/article/download/68265>

8. Wanzer MB, Wojtaszczyk AM, Kelly J. Nurses' perceptions of physicians' communication: the relationship among communication practices, satisfaction, and collaboration. *Health communication*. 2009 Nov 30;24(8):683-91.
9. Daheshi N, Alkubati SA, Villagrancia H, Pasay-an E, Alharbi G, Alshammari F, et al. Nurses' Perception Regarding the Quality of Communication between Nurses and Physicians in Emergency Departments in Saudi Arabia: A Cross Sectional Study. *Healthcare (Switzerland)* [Internet]. 2023 Mar 1 [cited 2025 Aug 24];11(5). Available from: <https://pubmed.ncbi.nlm.nih.gov/36900650/>
10. Azeze GA, Haile KE, Gebrekidan AY, Kassie GA, Negash BT, Asgedom YS. Patient safety culture in public hospitals of Ethiopia: A systematic review and meta-analysis. *PLoS One* [Internet]. 2025 Jun 1 [cited 2025 Aug 24];20(6 June). Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0325723>
11. Kasaye MD, Beshir MA, Endehabtu BF, Tilahun B, Guadie HA, Awol SM, et al. Medical documentation practice and associated factors among health workers at private hospitals in the Amhara region, Ethiopia 2021. *BMC Health Serv Res*. 2022;22(1).
12. Chung VCH, Ho LTF, Leung TH, Wong CHL. Designing delivery models of traditional and complementary medicine services: A review of international experiences. Vol. 137, *British Medical Bulletin*. 2021.
13. Yavello Nataye Yatasa Advisor B, Cherie AB. Perception of Nurses and Physicians towards Barriers to Nurse-Physician Communication and its Impact on patients 'outcomes at Hawassa Referral and Teaching Hospital, SNNPRS, Ethiopia [Internet]. 2011 [cited 2025 Aug 24]. Available from: <http://etd.aau.edu.et/handle/123456789/27745>
14. Forbes TH, Larson K, Scott ES, Garrison HG. Getting work done: a grounded theory study of resident physician value of nursing communication. *J Interprof Care*. 2020;34(2).
15. Amsalu E, Boru B, Getahun F, Tulu B. Attitudes of nurses and physicians towards nurse-physician collaboration in northwest Ethiopia: A hospital based cross-sectional study. *BMC Nurs* [Internet].

2014 Nov 19 [cited 2025 Aug 24];13(1):1–6. Available from: <https://bmcnurs.biomedcentral.com/articles/10.1186/s12912-014-0037-7>

16. Hailu FB, Worku Kassahun C, Woldie Kerie M. Perceived nurse - Physician communication in patient care and associated factors in public hospitals of Jimma zone, South West Ethiopia: Cross sectional study. *PLoS One*. 2016;11(9).
17. Robinson FP, Gorman G, Slimmer LW, Yudkowsky R. Perceptions of effective and ineffective nurse-physician communication in hospitals. *Nurs Forum (Auckl)*. 2010;45(3).
18. Wudu MA, Tarekegn SM, Wondifraw EB, Birhanu TA, Hailu MK, Bekalu YE, et al. Uptake of evidence-based practice and its predictors among nurses in Ethiopia: a systematic review and meta-analysis. *Front Pharmacol* [Internet]. 2024 [cited 2025 Aug 24];15:1421690. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/39092215>
19. Nakhaee S, Nasiri A. Inter-professional Relationships Issues among Iranian Nurses and Physicians: A Qualitative Study. *Iran J Nurs Midwifery Res* [Internet]. 2017 Jan 1 [cited 2025 Aug 24];22(1):8–13. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28382051>
20. Kunjukunju A, Ahmad A. EFFECTIVE COMMUNICATION AMONG DOCTORS AND NURSES: BARRIERS AS PERCEIVED BY DOCTORS. *Malaysian Journal of Nursing*. 2019;11(2).
21. Müller M, Jürgens J, Redaelli M, Klingberg K, Hautz WE, Stock S. Impact of the communication and patient hand-off tool SBAR on patient safety: A systematic review. *BMJ Open* [Internet]. 2018 Aug 1 [cited 2025 Aug 26];8(8). Available from: <https://pubmed.ncbi.nlm.nih.gov/30139905/>
22. Amsalu E, Boru B, Getahun F, Tulu B. Attitudes of nurses and physicians towards nurse-physician collaboration in northwest Ethiopia: A hospital based cross-sectional study. *BMC Nurs* [Internet]. 2014 Nov 19 [cited 2025 Aug 24];13(1):1–6. Available from: <https://bmcnurs.biomedcentral.com/articles/10.1186/s12912-014-0037-7>
23. Degu T, Amsalu E, Kebede A, Adal O. Inter-professional collaboration and associated factors among nurses and physicians in specialized public hospitals, the northwest, Ethiopia: mixed method multi-centered cross-sectional study. *BMC Health Serv Res*. 2023;23(1).

24. Endris Y, W/selassie M, Edmealem A, Ademe S, Yimam W, Zenebe Y. Nurse–Physician Inter-Professional Collaboration and Associated Factors at Public Hospitals in Dessie City, Amhara, Northeastern Ethiopia, 2021. *J Multidiscip Healthc.* 2022;15.
25. Abye Ambele A, Berhanu A, Ousman SK, Ambele AA. Magnitude, management and determinants of Hypokalemia among Medical Ward patients at Saint Paul’s Hospital Millennium Medical College, Addis Ababa, Ethiopia. *Scholarly Journal of SPHMMC [Internet]*. 2025 [cited 2025 Aug 25];4(2). Available from: <http://sphmmc/mjh.edu.et>
26. Bisrat A, Minda D, Assamnew B, Abebe B, Abegaz T. Implementation challenges and perception of care providers on Electronic Medical Records at St. Paul’s and Ayder Hospitals, Ethiopia. *BMC Med Inform Decis Mak.* 2021;21(1)
27. Wudu MA, Tarekegn SM, Wondifraw EB, Birhanu TA, Hailu MK, Bekalu YE, et al. Uptake of evidence-based practice and its predictors among nurses in Ethiopia: a systematic review and meta-analysis. *Front Pharmacol [Internet]*. 2024 [cited 2025 Aug 24];15:1421690. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/39092215>
28. O’Leary KJ, Thompson JA, Landler MP, Kulkarni N, Haviley C, Hahn K, et al. Patterns of nurse-physician communication and agreement on the plan of care. *Qual Saf Health Care.* 2010;19(3).
29. Yimer Endris MWS, Afework Edmealem S, Ademe W, Yimam YZ. Nurse-physician inter-professional collaboration and Associated factors at Public hospitals in Dessie City. Amhara, Northeastern Ethiopia; 2021
30. Endris Y, W/selassie M, Edmealem A, Ademe S, Yimam W, Zenebe Y. Nurse–Physician Inter-Professional Collaboration and Associated Factors at Public Hospitals in Dessie City, Amhara, Northeastern Ethiopia, 2021. *J Multidiscip Healthc.* 2022;15.
31. House S, Wilmoth M, Stucky C. Job satisfaction among nurses and physicians in an Army hospital: A content analysis. *Nursing Outlook.* 2022 Jul 1;70(4):601-15
29. Abdulkerim Hassen Moloro, Kebede Gemedo Sabo, Begetayinoral Kussia Lahole, Beriso Furo Wengoro, Kusse Urmale Mare. Prevalence of interprofessional collaboration towards patient care and associated factors among nurses and physician in Ethiopia, 2024: a systematic review and meta-analysis. 2025 Feb 25;

30. Degu T, Amsalu E, Kebede A, Adal O. Inter-professional collaboration and associated factors among nurses and physicians in specialized public hospitals, the northwest, Ethiopia: mixed method multi-centered cross-sectional study. *BMC Health Serv Res.* 2023;23(1).
31. Forbes TH, Evans S. From anticipation to confidence: A descriptive qualitative study of new graduate nurse communication with physicians. *J Nurs Manag.* 2022;30(6).
32. Yimer Endris MWS, Afework Edmealem S, Ademe W, Yimam YZ. Nurse-physician inter-professional collaboration and Associated factors at Public hospitals in Dessie City. Amhara, Northeastern Ethiopia; 2021
33. Musitia P, Boga M, Oluoch D, Haaland A, Nzinga J, English M, Molyneux S. Strengthening respectful communication with patients and colleagues in neonatal units-developing and evaluating a communication and emotional competence training for nurse managers in Kenya. *Wellcome open research.* 2025 Apr 25;7:223.

10. Annexes

Annex I: Study Participant Information Sheet

Title: Assessment of satisfaction and perceived effectiveness of patient-care-related communication among doctors and nurses in the St. Paul's Hospital Millennium Medical College, Internal Medicine Wards

Principal Investigator: Dr. Elham Awel, Medical Intern, St. Paul's Hospital Millennium Medical College, ellawelmefam5@gmail.com, +251923113456

The purpose of this study is to assess the satisfaction and perceived effectiveness of patient-care-related communication among doctors and nurses working in SPHMMC, Internal Medicine wards, and to identify factors that influence the effectiveness of such communication. Your participation in this study will help to understand the current satisfaction and perceived efficacy of patient care related communication that doctors and nurses working in the SPHMMC, internal medicine wards and the factors affecting the communication.

Your participation in this study involves completing a questionnaire that will take approximately 15 minutes to complete. The questionnaire covers various aspects of patient related communication, including factors affecting the communication.

All responses will be kept strictly confidential and will be used only for the purposes of this study. Your responses will be anonymized, and no personally identifiable information will be included in the final report.

By signing this consent form, you acknowledge that you have read and understood the information provided, and you voluntarily agree to participate in this study. You have the right to ask questions, decline from answering to some or more of the questions you do not like to answer and to withdraw from the study at any stage.

Annex II: Consent form

I hereby acknowledge that I have read and understood the information provided in the Study Participant Information Sheet for the research study titled “Assessment of satisfaction and perceived effectiveness of patient-care–related communication among doctors and nurses in the St. Paul’s Hospital Millennium Medical College, Internal Medicine Wards.”

I understand that my participation in this study is entirely voluntary, and I have the right to withdraw at any time without penalty. I understand the purpose of the study, the procedures involved, and any potential risks or benefits associated with participation.

I agree to participate in the study and consent to the collection and use of my survey responses for research purposes. I understand that my confidentiality will be protected, and my responses will be anonymized in any reports or publications resulting from this study.

Participant's Signature: _____

Date: _____

Data collector's Signature: _____

Date: _____

Annex III: Questionnaire

PART ONE: Participant Characteristics			
No	QUESTION	RESPONSE	CODE
101	Age		
102	Sex	1. Male 2. female	
103	Marital Status	1. Single 2. Married 3. Divorced 4. Widowed	
104	Profession	1. Physician 2. Nurse	
105	Highest qualification	1. Diploma Nurse 2. BSc Nurse 3. MSc Nurse 4. Intern Doctor 5. General Physician 6. Resident Doctor 7. Specialist Doctor	
106	Years in practice	1. <1 year 2. 1–3 years 3. 4–6 years 4. 7–10 years 5. >10 years	
107	Years on this ward/service:	1. <1 year 2. 1–2 years 3. 3–5 years	

		4. >5 years	
108	Typical working shift	1. Day 2. Evening 3. Night 4. Rotating	
109	Work pattern last month	1. Full-time 2. Part-time 3. Locum (Filling duties of someone else)	
110	Average weekly hours in ward in hours	1. <48 2. 48-72 3. >72	
111	Monthly Salary in ETB	1. <7000 2. 7000-15000 3. >15000	
112	Have you received formal team communication training (e.g., SBAR)?	1. Yes 2. No	

PART TWO: Assessment of Satisfaction in Patient-care-related Communication among Professionals (doctors and nurses) (1=never, 2=rarely, 3=sometimes, 4=mostly, 5=always)							
No	QUESTION	1	2	3	4	5	CODE
201	I feel understood after interacting with Nurses/Physicians.						
202	I feel respected during Nurse–Physician interactions.						
203	I feel pleased after interacting with Nurses/Physicians.						
204	I trust the information I receive from Nurses/Physicians.						

205	I feel confident that my input is valued during communication.						
206	I feel comfortable asking questions or clarifying doubts.						
207	Nurses/Physicians consider my information about the patient as relevant and important.						
208	Interactions between me and Nurses/Physicians are positive and enjoyable.						

PART TWO: Assessment of Perceived Effectiveness in Patient-care-related Communication among Professionals (doctors and nurses)

(1=never, 2=rarely, 3=sometimes, 4=mostly, 5=always)

No	QUESTION	1	2	3	4	5	CODE
201	I receive accurate and complete information about patient care from nurses/physicians						
202	I feel confident that information shared during communication is acted upon correctly.						
203	We use communication to clarify responsibilities and roles in patient care.						
204	Nurses/Physicians respond appropriately and in a timely manner to requests or questions.						
205	I clearly understand the information provided by Nurses/Physicians.						
206	I am able to provide feedback and ensure it is understood by Nurses/Physicians.						
207	We openly exchange information about matters related to work in patient care						
208	We actively listen to each other during patient care discussions.						
209	I feel that communication helps improve patient outcomes.						
211	Communication allows me to coordinate patient care effectively with other professionals.						

212	I believe communication helps us make timely decisions regarding patient care.						
-----	--	--	--	--	--	--	--

PART FOUR: Individual Factors (1=Strongly disagree, 2=Disagree, 3=Neither, 4=Agree, 5=Strongly agree)							
No	QUESTION	1	2	3	4	5	CODE
301	Some physicians display disruptive behaviors (e.g., raising voice, showing disrespect, or berating colleagues/patients).						
302	Some nurses display disruptive behaviors (e.g., raising voice, showing disrespect, or berating colleagues/patients).						
303	Some professionals have unsatisfactory inter-professional communication skills.						
304	Physicians sometimes give conflicting orders.						
305	Some professionals display unfavorable attitudes toward colleagues						
306	Some nurses or physicians do not comply with professional advice or recommendations.						
307	Abusive behavior (verbal, physical, or sexual) occurs among professionals						
308	Some professionals display a poor attitude toward their work.						
309	Professionals sometimes show uncooperativeness at work						

PART FIVE: Organizational Factors**(1=Strongly disagree, 2=Disagree, 3=Neither, 4=Agree, 5=Strongly agree)**

No	QUESTION	1	2	3	4	5	CODE
401	Nurses' and physicians' contributions are recognized and appreciated by the organization.						
402	The ward environment supports effective communication among staff						
403	There are enough staff members to provide safe and effective patient care.						
404	Adequate resources (equipment, supplies) are available to support teamwork and communication.						
405	There are regular forums (meetings) to discuss communication issues among doctors and nurses?						
406	Roles and responsibilities of physicians and nurses are clearly defined.						
407	All professionals are treated fairly and equally by management.						
408	Physicians and nurses share a common vision for patient care.						
409	The hospital enforces a zero-tolerance policy for abuse, disrespect, or harassment.						
410	Conflicts among nurses and physicians are addressed constructively.						

Declaration

I, the undersigned student, declare that this research project is my original work in partial fulfillment of the requirement for the **Degree of Doctor in Medicine, MD**. I also declare that it has never been presented in this or any other higher institution and that all resources and materials used in the research work have been duly acknowledged.

Name of the student: Dr. Elham Awel Aman
Signature: 
Date: 26/03/2026

Approval of Advisors

This research work has been submitted for examination with my approval.

Name of School of Public health advisor 1: Ermias Mulu
Signature: 
Date: 3/26/2026

Name of Clinical advisor 2: Derese GizawMD
Signature: 
Date: 26, March 2026