

## Nurse-Family Caregiver Communication, Homecare Preparedness, and Associated Factors Towards Homecare of Patients with Chronic Diseases in South Wollo Zone Government Hospitals, North East Ethiopia 2022 (Mixed Study Design)

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### ABSTRACT

**Background:** Caregivers of families contribute a significant role in providing home care to patients with chronic illnesses. Nurses are uniquely positioned to communicate with family caregivers about home care for patients with chronic conditions. Previous studies have explored communication between nurses and patients, however, it is not studied in Ethiopia.

**Purpose:** To assess nurse-family caregiver communication and home care preparedness towards care of patients having chronic diseases in South Wollo Zone Government Hospitals, Northeast Ethiopia, 2022 G.C(Gregorian calendar).

**Method:** A cross-sectional mixed study design was conducted on 422 principal family caregivers and selected nurses. The collected data were analyzed by the SPSS version 23 statistical package and qualitative data was analyzed thematically. Descriptive statistics were done using frequencies, percentage mean, median and standard deviation. Multi-variable logistic regression was used to determine the associated factors on the level of communication and home care preparedness when  $p\text{-value} < 0.05$  and the strength of statistical association were measured by adjusted odds ratio and 95% confidence interval. Statistical significance was taken at  $p\text{-value} < 0.05$ .

**Main Findings:** The overall nurse-family caregiver effective communication and good homecare preparedness were 45% and 43.6% respectively. Being a brother or sister [AOR (95% CI)=2.41, 2.7, 4.37]] and family caregiver's patient diagnosed with cancer [AOR(95% CI) = 0.08(0.03,0.26)] has shown significant association with the level of communication. Having effective communication with nurses [AOR (95% CI)= 11.7(6.89, 20.02)], living in the same house with patient [AOR(95% CI)= 1.8(1.13, 2.86)] has shown significant association with home care preparedness. Family caregiver patients diagnosed with cancer were less likely to be prepared for home care [AOR (95% CI) = 0.1(0.05, 0.26)]. The majority of nurses are believed that they are not communicating with family caregivers as enough as expected.

**Conclusion:** The overall nurse family caregiver communication and family caregivers' homecare preparedness were low. Attention should be needed to increase nurse-family caregiver communication that leads to increased homecare preparedness.

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### Abbreviations

**AOR:** Adjusted odds ratio

**BLH:** Black Lion Hospital

**BSc:** Bachelor of Science

**CI:** Confidence interval

**COR:** Crude odds ratio

**CMHS:** College of medicine and Health science

**E.g:** Example

**ICU:** Intensive care unit

**MSc.** Master of sciences

**WU:** Wollo University

### Introduction

Family communication is a collaborative discussion with primary family caregivers about the patient's care plan at home and is a time when nurses can guide the family and interpret information in an easy-to-understand language. Nurses are appropriate for this

role because they are in between physicians and patients [1-3].

Principal family caregivers contribute a key role in assisting their relatives at home, so they should be well prepared for home care when their elder families with a chronic illnesses discharged from the hospital [4-5]. Caregiving readiness can be defined as how well a family caregiver believes they are ready for the tasks of the caregiving role [6-7]. Well-prepared feeling for care at home has a positive result on both family caregivers and patients [7-8]. The readiness of family caregivers for home care has a positive relationship with patient outcomes, either in improvement or recovery in functional and mental status<sup>8</sup>. Caregivers of families feel readiness to care when they are offered greater involvement in coordinating the care of their relatives. When nurses perceive family caregivers and work with them as partners in care, the continuity, and quality of care for families become improved [5, 8-11].

When family caregivers and nurses work together in collaboration as care partners, the quality and care continuity of elderly patients improve [12-13].

There is professional obligation to support patients at hospital however home care of patients with chronic disease left to family caregivers so that making effective communication with principal family caregivers is mandatory to bring well home care preparedness [14-15]. Based on studies, it can be assumed that when family caregivers of patients with chronic diseases have effective communication about home care of patients with nurses, they become prepared for home care, which is an excellent input for better outcomes for patients with chronic diseases. Culturally in Ethiopia, the elderly do not engage in self-care practices and other home care activities so advice from nurses to patients on lifestyle modifications are performed by family caregivers.

The study will have the added benefit of minimizing morbidity and mortality in elderly patients with chronic diseases through effective communication and making family caregivers well-prepared by minimizing possible barriers. Generally in Ethiopia, there is no study about Nurse-family caregiver communication and home care preparedness and its associated factors towards home care of patients with chronic disease. Therefore, this study aimed to investigate the level of communication between hospital nurses and family caregivers of chronic patients and their home care preparedness for care after hospital discharge as a possible predictor.

## Methodology

**Study Design and Period:** Institutional-based cross-sectional mixed (quantitative and qualitative) from May 10 to June 30 2022 G.C study design was conducted.

**Population:** All principal family caregivers and respective nurses of chronic patients attending South Wollo zone government hospitals were the source population as those of them who were available in the study period were the study population.

## Eligibility Criteria

**Inclusion Criteria:** Principal caregivers of patients with chronic diseases and respective nurses.

**Exclusion Criteria:** Principal family caregivers who will have little contact with the patient or not be principal caregivers. Nurses who will not be involved with the care of chronic disease patients.

## Determining the Sample Size

The sample size was determined using the formula for the single population proportion formula based on the following assumption

1. Since no similar study has been conducted in Ethiopia, the estimated proportion (p) is assumed to be 50% to obtain a larger sample size
2. Margin of error d= 5 %
3. Confidence interval of 95% is assumed ( $Z_{2\alpha/2}=1.96$ )  
 $n = Z_{2\alpha/2}^2(P(1-P)/d^2)$   
 $Z$  is the standard normal value corresponding to the desired level of confidence  
 $d$ =margin of errors  
 $p$ = is the estimated proportion of the attribute that is present in the population  
 $n = Z_{2\alpha/2}^2(P(1-P)/d^2) = (1.96)^2(0.5)(1-0.5)/(0.05)^2 = 384$  By adding 10% non-response rate, the final sample size was **422**.

## Sampling Technique

Three months of patient flow charts before data collection period had shown a total of 1312 patients visited South Wollo Zone selected Government Hospital inpatients. This sample frame was used to estimate patients who were attended to due to chronic diseases from May 10 to June 30, 2022. Thus, by dividing  $N/n$ ,  $1312/422= 3.04$ . The first participant with chronic disease was selected through systematic random sampling; the lottery method was used to select 1st participant from 1st three patients then every 3rd patient was selected to recruit their principal family caregiver as a study participant. Principal family caregivers who live near patients and perform the majority of home care for patients were selected by the data collector. Concerned nurses, head nurses, and matrons were selected by data collectors for in-depth interviews purposively (Table 1).

**Table 1: Proportionally allocated sample to inpatients from South Wollo Zone Government Hospitals**

| S.no  | Health facilities                         | Total chronic disease within 3 months | Proportionally allocated sample |
|-------|-------------------------------------------|---------------------------------------|---------------------------------|
| 1     | Dessie comprehensive specialized hospital | 650                                   | 209                             |
| 2     | Hidar 11 hospital                         | 150                                   | 48                              |
| 3     | Mekaneselam Hospital                      | 230                                   | 74                              |
| 4     | Borumeda hospital                         | 140                                   | 45                              |
| 5     | Haiq primary hospital                     | 142                                   | 46                              |
| Total |                                           | 1312                                  | 422                             |

## Study Variables

### Dependent variables

- Level of communication between nurses and family caregivers
- Family caregiver's home care preparedness

### Independent variables

- Socio-demographic factors of caregivers
- Relationship between caregivers and patients
- Type of chronic disease
- Patient's health status

## Data Collection Methods and Procedures

Data were collected by four trained BSc nurses, using an interview method for family caregivers, and a self-administered questionnaire for nurses to get the socio-demographic characteristics of nurses through a pre-tested questionnaire and Focused group discussion.

The data collectors first make interviews with Principal family caregivers and then collect the socio-demographic characteristics of the respective nurse for the selected patient through a self-administered questionnaire and the supervisor will facilitate focused group discussion.

#### **Instrument /Tool/**

Data were collected using a structured data collection questionnaire prepared and developed from different kinds of literature for this purpose. The questionnaire is adapted from a previously validated study, and then this questionnaire was modified in this study under the guidance of two experts [16]. The answer options for this questionnaire are dichotomous, which are “yes” and “no”. This tool is used to determine the level of communication between nurses and principal family caregivers from a family caregiver’s perspective another instrument is an interview questionnaire in the Likert scale used to determine home preparedness for giving care to chronic patients. An open-ended questionnaire for the in-depth interview was prepared for selected nurses and was guided and facilitated by the supervisor of this study project. Cronbach’s alpha of 0.93 was reported.

#### **Selection and Training of Data Collectors**

To maintain data quality, the principal investigator trained one supervisor and two data collectors for two days on information confidentiality, the methodology of data collection, and how to approach study participants.

**Data quality control:** Data were evaluated and checked for completeness and consistency through a pre-test of the data collection format. The supervisor and principal investigator performed daily direct supervision and each completed questionnaire was checked for completeness and consistency. Finally, the completed data were cleaned before being entered into SPSS version 23 by the principal investigator.

#### **Processing, Analysis, Interpretation, and Presentation**

The collected data were cleaned, coded, and analyzed by the statistical package SPSS version 23. The first descriptive statistics were performed for categorical and analyzed using frequencies and percentages. Binary logistic regression analysis was performed to determine if there was any significant association between the selected variables. Multivariable logistic regression models were used to determine the associated factors at the level of communication between nurses and the main family caregivers and to determine the associated factors of family caregivers’ readiness for home care, qualitative content analysis was used for the recorded qualitative data. A stepwise regression as part of the multi-variable logistic regression was done to avoid multicollinearity. The strength of the statistical association was measured by adjusting the odds ratio and 95% confidence interval. Statistical significance was taken at p-value <0.05. Thematic analysis was used to analyze qualitative data of nurses.

#### **Ethical Consideration**

Data collection was initiated after the study was approved by the Institutional Ethical Review Committee of the College of Medicine and Health Sciences, University of Wollo, and clearances were secured from Government Hospitals in South Wollo Zone. Patients, family caregivers, and nurses’ confidentiality were maintained throughout the study. Written consent Reports will not contain names and identifiers of patients, Family caregivers, or nurses. The study was done by fulfilling the declaration of Helsinki.

#### **Operational Definitions**

**Principal Family Caregiver:** The main person who is near to the patient in support lives with, near to the patient or near them for psychological support, and who prepares the patient’s food and fluids.

**Effective Communication:** when the family caregiver responds to recommended communication greater than or equal to the average score.

**Noneffective Communication:** when the family caregiver responds correct answer with less than to average score.

**Good Preparedness:** Principal family caregivers respond home care preparedness questionnaire with agree and strongly agree for 1-13 questioners or good prepared and quite prepared for 14-21 preparedness questioners.

**Poor Preparedness:** A family caregiver responds home care preparedness questionnaire with Neutral, disagree, and strongly disagree for 1-13 questioners or neutral, Not too well prepared, and Not at all prepared for 14-21 preparedness questioners.

**Chronic Disease:** patients who have non curable disease demanding long term followup and home care

#### **Dissemination Plan**

The results of the study were presented to Wollo University, College of Medicine and Health Sciences and shared with South Wollo Zone and South Wollo zone public hospitals health bureau, South Wollo Zone Government Hospitals, Dessie Administrative Town health department.

#### **Result**

##### **Socio-Demographic Characteristics**

From a total of planned 422 study participants, all planned study participants were enrolled in this study and the response rate was 100%. Of the total number of study participants, 174 (41.2%) of them were within the 21-30 years of age group, and more than half of 252(59.7%) were females. More than half (59.5%) of respondents were urban settlers. One hundred fifty-eight (37.4%) of the family caregiver has said that the patient is their spouse. The majority of family caregivers (74.2%) were living in the same house as the patient (Table 2).

**Table 2: Socio-demographic characteristics of Family caregivers of patients with chronic disease in South wollo zone public hospitals, Northeast Ethiopia (n=422).**

| Variables                         | Category                                | Number | Percentage (%) |
|-----------------------------------|-----------------------------------------|--------|----------------|
| Sex                               | Male                                    | 170    | 40.3           |
|                                   | Female                                  | 252    | 59.7           |
| Age in year                       | ≤20                                     | 120    | 28.4           |
|                                   | 21-30                                   | 174    | 41.2           |
|                                   | 31-40                                   | 84     | 19.9           |
|                                   | >40                                     | 44     | 10.4           |
| Place of resident                 | Rural                                   | 251    | 59.5           |
|                                   | Urban                                   | 171    | 40.5           |
| Educational status                | Unable to read and write                | 49     | 11.6           |
|                                   | Read and write                          | 129    | 30.6           |
|                                   | Primary education                       | 111    | 26.3           |
|                                   | Secondary education                     | 76     | 18             |
|                                   | College or University                   | 57     | 13.5           |
| Relationship with the patient     | Parent of family care giver             | 134    | 31.8           |
|                                   | Wife/Husband                            | 158    | 37.4           |
|                                   | Brother/Sister                          | 69     | 16.4           |
|                                   | Uncle/aunt                              | 21     | 5              |
|                                   | Others                                  | 40     | 9.5            |
| Living condition with patient     | Within one house                        | 313    | 74.2           |
|                                   | Near to patient's house                 | 109    | 25.8           |
| Patient's type of disease         | Hypertension                            | 121    | 28.7           |
|                                   | Diabetes mellitus                       | 109    | 25.8           |
|                                   | Heart failure                           | 88     | 20.9           |
|                                   | Cancer                                  | 58     | 13.7           |
|                                   | Stroke                                  | 19     | 4.5            |
|                                   | Others(COPDS,Osteoporosis and Aneurysm) | 27     | 6.4            |
| Types of care needed for patients | Whole compensatory care                 | 169    | 40.1           |
|                                   | Partly compensatory care                | 111    | 26.3           |
|                                   | Supportive educative                    | 142    | 33.6           |

### Nurse-Family caregivers communication

Of the total family caregivers, 312(73.9%) of them reported that communication with a nurse had eye contact. The majority (87.9%) of Principal family caregivers said that the distance between a nurse and principal family caregivers was up to a half meter. Among all principal caregivers (74.6%) of them reported that they get clear information about their patient's disease and its treatment (Table 3).

**Table 3: Level of communication between a nurse and family care giver in south Wollo zone public hospitals, North East Ethiopia from May 10, to June 30 , 2022 G.C (n=422)**

| Variables                                                                    | Category      | Number | Percentage (%) |
|------------------------------------------------------------------------------|---------------|--------|----------------|
| Does the communication with a nurse had eye contact?                         | Yes           | 312    | 73.9           |
|                                                                              | No            | 110    | 26.1           |
| Distance between you and nurse was up to half meter?                         | Yes           | 371    | 87.9           |
|                                                                              | No            | 51     | 12.1           |
| Do you get chance to talk?                                                   | Yes           | 311    | 73.7           |
|                                                                              | No            | 111    | 26.3           |
| Nurse's communication was clear?                                             | Yes           | 396    | 93.8           |
|                                                                              | No            | 26     | 6.2            |
| Have you was asked for permission to your patients care?                     | Yes           | 358    | 84.8           |
|                                                                              | No            | 64     | 15.2           |
| Do you get response for your complain?                                       | Yes           | 318    | 75.4           |
|                                                                              | No            | 104    | 24.6           |
| Does a Nurse used clear language communication?                              | Yes           | 250    | 59.2           |
|                                                                              | No            | 172    | 40.8           |
| Do you get clear information about your patient's disease and its treatment? | Yes           | 315    | 74.6           |
|                                                                              | No            | 107    | 25.4           |
| Does a Nurse used attractive language?                                       | Yes           | 280    | 66.4           |
|                                                                              | No            | 142    | 33.6           |
| Does a nurse explained about her/his self?                                   | Yes           | 146    | 34.6           |
|                                                                              | No            | 276    | 65.4           |
| Does a nurse listens your complains?                                         | Yes           | 212    | 50.2           |
|                                                                              | No            | 210    | 49.8           |
| Does the nurse communicated you with patience, compassion and friendly?      | Yes           | 309    | 73.2           |
|                                                                              | No            | 113    | 26.8           |
| Do you summarized your communication with a nurse?                           | Yes           | 294    | 69.7           |
|                                                                              | No            | 128    | 30.3           |
| Do you had conflict with a nurse?                                            | Yes           | 106    | 25.1           |
|                                                                              | No            | 316    | 74.9           |
| Does a nurse calm you with compassion and friendly?                          | Yes           | 303    | 71.8           |
|                                                                              | No            | 119    | 28.2           |
| Overall Nurse family caregiver communication                                 | Effective     | 190    | 45             |
|                                                                              | Non-effective | 232    | 55             |

This study shows that only 45% of principal family caregivers had effective communication with nurses about home care of patients with chronic disease. This result was supported by examples of themes from qualitative results from an in-depth interview with nurses as follows; “I

#### Factors associated with Nurse-family care giver Communication

Through Bi-variable Logistic regression analysis, 7 independent variables have a P value less than or equal to 0.25. However in Multivariable logistic regression and only two variables (The patient's types of chronic disease and the relationship of family caregiver with the patient have shown a significant association with Nurse-family care communication.

Being brother or sister was 2.4 times more likely to have effective communication with Nurses as compared with other relatives (Aunt, uncle, grandparent...) [AOR (95% CI):=2.41.27, 4.37)]. Family giver's patients who had been diagnosed with cancer were less likely to have effective communication with nurses compared to those family caregiver's patients diagnosed with other chronic diseases like stroke, renal failure...[AOR(95% CI) = 0.08(0.03,0.26)] Table 4).

**Table 4: Factors associated with Nurse-family caregiver communications among among Principal family caregivers of patients with chronic disease in South wollo zone public hospitals, Northeast Ethiopia from June 2022 to July 2022 (n=422)**

| I                                 | Category          | Nurse-family care giver communication |                | Odds Ratio       |                  | P value |
|-----------------------------------|-------------------|---------------------------------------|----------------|------------------|------------------|---------|
|                                   |                   | Effective                             | None-effective | COR(95%CI)       | AOR(95% CI);     |         |
| Sex                               | Male              | 72                                    | 98             | 1                |                  |         |
|                                   | Female            | 118                                   | 134            | 1.1[0.81, 1.77]  | 0.8[0.48,1.36]   | 0.42    |
| Age of family care giver in years | <20               | 41                                    | 79             | 1                | 1                |         |
|                                   | 21–30             | 75                                    | 99             | 1.4[0.9, 2.36]   | 0.60[0.29,1.23]  | 0.16    |
|                                   | 31-40             | 50                                    | 34             | 2.8[1.59, 5.04]  | 0.88[0.41,1.89]  | 0.74    |
|                                   | 41-50             | 24                                    | 20             | 2.3[1.14,4.67]   | 0.81[0.34, 1.92] | 0.64    |
| Relation ship with the patient    | Parent            | 54                                    | 80             | 1                | 1                |         |
|                                   | Husband/wife      | 58                                    | 100            | 0.9[0.54,1.38]   | 0.92[0.48,1.76]  | 0.8     |
|                                   | Brother/Sister    | 44                                    | 25             | 2.6[1.43, 4.75]  | 2.4[1.27, 4.37]  | 0.007*  |
|                                   | Other relative    | 34                                    | 27             | 2[0.78, 5.01]    | 1.6[0.55, 4.67]  | 0.39    |
| Living condition with the patient | With in one house | 133                                   | 180            | 1                | 1                |         |
|                                   | Near to house     | 57                                    | 52             | 1.48[0.96, 2.30] | 0.63[0.355,1.13] | 0.12    |
| Your patient's disease            | Hypertension      | 66                                    | 55             | 1                | 1                |         |
|                                   | Diabetes mellitus | 64                                    | 45             | 1.8[0.94, 3.73]  | 1.1[0.65,1.94]   | 0.68    |
|                                   | Heart failure     | 28                                    | 60             | 0.39[0.22, 0.69] | 0.5[0.26, 0.95]  | 0.03*   |
|                                   | Cancer            | 5                                     | 53             | 0.08[0.13, 0.78] | 0.08[0.03,0.26]  | 0.00*   |
|                                   | Others disease    | 27                                    | 19             | 1.18[0.59, 2.36] | 1.2[0.57, 2.37]  | 0.6     |

Key note: COR: Crude odd ration, AOR: Adjusted odd ratio, CI: Confidence interval index, housewife, \* : Significant variable at P-value <0.05

- Other relatives; Ancle, Aunt, Cusin, friends..et.c
- Other chronic diseases; Stroke, Renal failre and Chronic liver disease

#### Family caregiver's home care preparedness

Of all principal family caregivers, one hundred eighty-three (43.4%) of them are ready to help their patients and 41% of them are well prepared to give psychological support to you, and only 55% of Principal family caregivers are prepared to give planned home care. Nearly half (44.8%) of principal family caregivers are not prepared to give home care if their patient faces an emergency problem. The overall home care preparedness was 43.6%. The mean score for family caregivers' home care preparedness was 2.43±1.37 (Table 5), (Table 6).

**Table 5: Principal family caregivers home care preparedness among principal family care giver of patients with chronic disease in South wollo zone public hospitals, Northeast Ethiopia from May 10, 2022 to June 30, 2022 (n=422)**

| Variable                                                              | Good prepared | Quitely prepared | I did not know | Not prepared | Totally not prepared |
|-----------------------------------------------------------------------|---------------|------------------|----------------|--------------|----------------------|
| How much you are ready to help your patient?                          | 183(43.4)     | 68(16.1%)        | 97(23%)        | 69(16.4%)    | 5(1.2%)              |
| How much you are ready to give psychological support to your patient? | 173(41%)      | 71(16.8%)        | 74(17.5%)      | 96(22.7%)    | 8(1.9%)              |
| How much you are ready to give planned home care?                     | 141(33.4%)    | 91(21.6%)        | 20(4.7%)       | 78(18.5%)    | 92(21.8%)            |
| How much you are ready to make home care attractive?                  | 156(37%)      | 64(15.2%)        | 98(23.2%)      | 31(7.3%)     | 73(17.3%)            |
| How much you are ready to give home care with great attention?        | 166(39.3%)    | 67(15.9%)        | 102(24.2%)     | 20(4.7%)     | 67(15.9%)            |
| How much you are ready if your patient faces emergency problem?       | 166(39.3%)    | 67(15.9%)        | 102(24.2%)     | 20(4.7%)     | 67(15.9%)            |
| How much you are read to get information from health system?          | 157(37.2%)    | 80(19%)          | 19(4.5%)       | 158(37.4%)   | 8(1.9%)              |

  

|                               |      |     |       |
|-------------------------------|------|-----|-------|
| Overall homecare preparedness |      | 184 | 43.6% |
|                               | Poor | 238 | 56.4% |

**Table 6: Descriptive statistics of family caregivers homecare preparedness among family caregivers of chronic disease in south wollo zone public hospitals Northeast Ethiopia from May 10, 2022 to June 30, 2022 (n=422)**

|                                                                      | Mean Statistic | Std. Deviation Std. Error | Variance Statistic | Skewness Statistic | Kurtosis Statistic | Std. Error | Statistic | Std. Error |
|----------------------------------------------------------------------|----------------|---------------------------|--------------------|--------------------|--------------------|------------|-----------|------------|
| How much you are ready to help your patient?                         | 2.1588         | .05765                    | 1.18418            | 1.402              | .457               | .119       | -1.187    | .237       |
| How much you are ready to give psychological support to your patient | 2.2773         | .06144                    | 1.26206            | 1.593              | .378               | .119       | -1.344    | .237       |
| How much you are ready to give planned home care                     | 2.7370         | .07767                    | 1.59557            | 2.546              | .263               | .119       | -1.564    | .237       |
| How much you are ready to give home care with great attention        | 2.3981         | .06219                    | 1.27754            | 1.632              | .280               | .119       | -1.252    | .237       |
| How much you are ready to make home care attractive?                 | 2.5284         | .07185                    | 1.47598            | 2.179              | .479               | .119       | -1.128    | .237       |
| How much you are ready if your patient faces emergency problem       | 2.4194         | .07025                    | 1.44311            | 2.083              | .612               | .119       | -.920     | .237       |
| How much you are read to get information from health system          | 2.4787         | .06640                    | 1.36403            | 1.861              | .161               | .119       | -1.681    | .237       |
| Sum average                                                          | 2.43           |                           | 1.37               |                    |                    |            |           |            |

1=Good prepared, 2=quietly prepared, 3= I don't know, 4=not prepared, 5=totally not prepared at all

#### Factors affecting family care giver's home care preparedness

Through bi-variable logistic regression, seven variables were eligible on multi-variable logistic regression however level of communication, living condition with the patient, and patient's type of disease had shown significant association with principal family caregivers' home care preparedness. principal family caregivers who had an effective level of communication were more likely to be prepared for home care of patients with chronic disease [AOR (95% CI)= 11.7(6.89, 20.02).

Those principal family caregivers who lived in the same house with patients were more likely to be prepared for homecare [AOR (95% CI) = 1.8(1.13, 2.86)]. Family caregiver's patients diagnosed with diabetes mellitus and heart failure were less likely to be prepared for home care [AOR (95% CI) = 1.8(1.13, 2.86)] and [AOR(95% CI)= 0.1(0.05, 0.26)] respectively (Table 7).

**Table 7: Factors affecting Principal family caregivers home care preparedness among Principal family caregivers of patients with chronic disease in South wollo zone public hospitals, Northeast Ethiopia from June 2022 to July 2022 (n=422)**

| Variable                          | Category          | Home care preparedness |      | Odds Ratio       |                  | P value |
|-----------------------------------|-------------------|------------------------|------|------------------|------------------|---------|
|                                   |                   | Well                   | Poor | COR (95%CI);     | AOR (95% CI);    |         |
| Sex                               | Male              | 70                     | 100  | 1.2[0.80, 1.75]  | 1.3[0.74, 2.11]  | 0.4     |
|                                   | Female            | 114                    | 138  | 1                | 1                |         |
| Age of family care giver in years | <20               | 45                     | 75   | 1.2[0.75, 1.94]  | 1.2[0.56,2.66]   | 0.6     |
|                                   | 21-30             | 73                     | 101  | 1.8[1.04, 3.2]   | 0.9[0.43, 1.86]  | 0.8     |
|                                   | 31-40             | 44                     | 40   | 1.6[0.83, 3.34]  | 1.3[0.58, 2.97]  | 0.5     |
|                                   | 41-50             | 22                     | 22   | 1                | 1                |         |
| Place of residence                | Rural             | 100                    | 151  | 1.45[0.99, 2.16] | 1.1[0.65, 1.86]  | 0.7     |
|                                   | Urban             | 84                     | 87   | 1                | 1                |         |
| Living condition with the patient | With in one house | 141                    | 172  | 1.26[0.81, 1.96] | 1.8[1.13, 2.86]  | 0.01*   |
|                                   | Near to house     | 43                     | 66   | 1                | 1                |         |
| Your patient's disease            | Hypertension      | 66                     | 55   | 1.8[0.94, 3.73]  | 1.7[0.83, 3.55]  | 0.1     |
|                                   | Diabetes mellitus | 57                     | 52   | 1.7[0.85, 3.44]  | 1.7[0.81, 3.56]  | 0.16    |
|                                   | Heart failure     | 35                     | 53   | 1.02[0.49, 2.13] | 1.2[0.54, 2.70]  | 0.65    |
|                                   | Cancer            | 8                      | 50   | 0.25[0.09, 0.65] | 0.1[0.04, 0.44.] | 001*    |
|                                   | Others disease    | 18                     | 28   | 1                | 1                | 1       |

|                                                                                                                                   |               |     |     |                   |                   |       |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------|-----|-----|-------------------|-------------------|-------|
| Level of communication                                                                                                            | Effective     | 138 | 52  | 10.7[6.82, 16.89] | 11.7(6.89, 20.02) | 0.00* |
|                                                                                                                                   | Non-effective | 46  | 186 | 1                 | 1                 |       |
| Key note: COR: Crude odd ration, AOR: Adjusted odd ratio, CI: Confidence interval index, *: Significant variable at P-value <0.05 |               |     |     |                   |                   |       |

## Discussion

In this study, the proportion of effective nurse-family caregiver communication was 45%, 95% CI (40.5-49.8), head nurses and staff nurses mentioned that there was not adequate communication between nurses and principal family caregivers due to lack of time, lack of attention, or feeling exhaustion. This result was in line with some kinds of literature stated as follows "... I never forgot to smile... moreover, when I felt very tired and there were personal problems with family at home, I tried to keep smiling... though maybe my smile was different yea..." A similar opinion was expressed by another participant who said "... also when I was sick of the jobs, there were a lot of patients in bad conditions, many problems at home... so, I was unable to communicate well, I could not focus," (P3) [17-18].

The overall good home care preparedness was 43.6% with 95% CI (39.1-47.9) with a mean score of 2.43±1.37 [19].

Relationship between principal family caregivers and patients shows significant association with nurse-family caregiver communication; being sister or brother is more likely to have effective communication with nurses as compared to parents. The possible reason might be brothers and sisters might get health information about chronic diseases in different media so that they may be eager to listen to the advice of nurses.

Principal family caregivers who have cancer patients are less likely to have effective communication as compared to principal family caregivers who have hypertension. The possible reason might be due to the consideration of cancer as death so that they may become hopeless.

This study also shows that there is a significant association between homecare preparedness and nurse-family caregiver communication. Family caregivers who had effective communication were more likely to be prepared for home care of patients with chronic disease the possible reason might be that when there is effective and adequate communication; there may be more understanding about homecare. So that they may show good preparedness.

Family caregivers who lived in one house with the patient were more likely to be prepared for home care as compared to those who lived in a different house. The reason might be those family caregivers who lived in one home with the patient may be more concerned about the disease of their patients so that they may show readiness for homecare.

Family caregivers who had cancer patients were less likely to be prepared for home care. The reason might be family caregivers of cancer patients are more likely exhausted and hopeless due to the misconsideration of cancer as death.

Through qualitative data collection, metron and head nurses said that "Nurses did not have enough and detailed communications with principal family caregivers due to lack of time, lack of attention and problem of identifying principal caregiver however not only nurses but also other health workers should give emphasis to principal family caregivers since principal family caregivers

play a crucial role for home care of patients with chronic diseases like some food and flood restrictions, drug adherence and other self-care practice". This study result was similar to other studies stated as follows "there are so many complaints, especially at the time of the emergency, why they (family) were not involved from the beginning" (P6). Nurses often received various service-related complaints from patients' families. Therefore they found it difficult to establish communication with the families [20, 21]. The study provides new information regarding Nurse-family caregiver communication and home care preparedness and their associated factor in the south wollo zone, Northeast Ethiopia.

## Strength of the Study

It is a new study in Ethiopia.

This study uses the structured tool to assess the level of Nurse-family caregiver communication and homecare preparedness.

## Limitation of the Study

A limitation of this study was not getting enough literature which lead to difficulty in comparison during the discussion. As in any cross-sectional study cause and effect, a relationship wasn't possible to establish for the factors dealt with in the study because it is difficult to know which occurred first the exposure or outcome variable.

## Conclusion

The proportion of both levels of Nurse-family caregiver communication and homecare preparedness was lower. Being a sister or brother has shown a positive significant association with nurse-family caregiver communication whereas a family caregiver who has a cancer patient has shown a negative association with nurse-family caregiver communication, family caregivers who lived in the same house with the patient and those who had effective communication with nurses had shown positive significant association for family caregivers homecare preparedness however similarly family caregivers who had cancer patient has shown a negative association with homecare preparedness. Nurses should give appropriate attention to communicating enough about the home care of patients to increase well-preparedness for home care since family caregivers play important role in continuing medical care as well as self-care practice at home.

## Recommendation

### Health Professional

Should provide appropriate consistent communications with family caregivers to provide proper readiness for homecare to bring good prognosis of patients with chronic disease.

### Health Officials

Should emphasize decreasing nurse: patient ratio since the main reason for not communicating with family caregivers was lack of time.

### Nurses

Nurses should give attention to incorporating family caregivers in the care of patients with chronic diseases, communicating enough about homecare that leads to increased home care preparedness of family caregivers.

## Researchers

Further, prospective cohort studies are required to investigate factors influencing both nurse-family caregiver communication and homecare preparedness of family caregivers.

## Data Availability

Data are available by contacting corresponding author any time.

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