

ORIGINAL RESEARCH OPEN ACCESS

Identifying the Factors That Drive Health Service Utilization Among Healthy and Non-Healthy Aged in a Sample of Older Ethiopians: A Cross-Sectional Study

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Received: 25 January 2024 | **Revised:** 22 December 2024 | **Accepted:** 2 January 2025

Funding: The lead author was supported by an Australian Government Research Training Program (RTP) Scholarship. The funder had no role in the study or decision to publish the findings. The other authors report no funding for this study.

Keywords: determinants | Ethiopia | healthcare-seeking | older adults

ABSTRACT

Background and Aims: Population aging is associated with the rising incidence of chronic illness. This presents a significant challenge to healthcare systems, particularly in developing countries, as untreated chronic conditions can lead to years of disability and loss of independence straining health budgets and resources. Promoting healthy aging can be one avenue for mitigating these challenges. This study aims to identify factors influencing health service use among healthy and non-healthy aged, utilizing the Andersen-Newman model that describes predisposing (including demographic characteristics, social structure, and health beliefs), enabling (related to the logistical aspects of obtaining care, such as personal and community resources), and need factors (referring to the individual's perceived and evaluated health status).

Methods: Older adults ($n = 545$) in Bahir Dar, Ethiopia were surveyed about their health and health-seeking behaviors. Associations between risk factors and health service utilization were examined using Poisson regression with robust standard errors.

Results: A total of 79.3% of older adults utilized health services, with consistent usage between healthy and non-healthy aged. Factors associated with increased health service utilization included severe ($RR = 2.20$; 95% CI: 1.56–3.09), and moderate ($RR = 2.03$; 95% CI: 1.44–2.85) disease severity, reporting comorbid conditions ($RR = 1.14$; 95% CI: 1.06–1.23), having health insurance ($RR = 1.14$; 95% CI: 1.05–1.23), not reporting loneliness ($RR = 1.13$; 95% CI: 1.02–1.26), and being financially independent ($RR = 1.11$; 95% CI: 1.00–1.22). Conversely, residing in rented housing ($RR = 0.78$; 95% CI: 0.62–0.98) and living greater than 30 min from a healthcare facility ($RR = 0.62$; 95% CI: 0.54–0.71) decreased health service utilization.

Conclusion: Health service utilization was low compared to developed countries. This could be due to newer and improved health services in developed countries. Improving financial independence, health insurance coverage, access to healthcare facilities, and encouraging peer or family support can enhance healthcare access in Ethiopians.

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1 | Introduction

Population aging is common in high-income countries and progressively developing nations are similarly experiencing increases in population aging such that by 2050, developing nations will account for 80% of the global population aged 60 and above [1]. While aging itself should not be viewed through a lens of stigma and negative stereotype, population aging is associated with an increase in age-normative diseases (e.g., hearing loss, cataract and refractive errors, diabetes, depression, dementia, chronic obstructive diseases, osteoarthritis) which require medical intervention [2]. As the population ages, the burden of these age-related diseases increases and becomes the leading cause of mortality among older adults [3]. To address this, prevention and early detection through healthy lifestyle choices, vaccination, and screening programs are important strategies for the compression of morbidity [4, 5]. However, additional healthcare services become crucial for effective management once the diseases have manifested. Moreover, promoting healthy aging is characterized by good cognitive, mental, physical, and social function is vital, as it can be achieved through better health service utilization and an enhanced quality of life. By emphasizing both preventive measures and comprehensive care, societies can mitigate the challenges associated with population aging while maximizing the potential benefits of increased longevity [6].

Health service utilization can help prevent the incidence and management of age-related illnesses or health conditions and support older adults to maintain their independence and quality of life [7]. However, not all individuals proactively seek health care services in the same way and to the same extent. The Andersen and Newman Behavioral Framework for Health Services Utilization [8, 9] proposes that three factors play a pivotal role in determining health service utilization. This includes predisposing, enabling, and need factors. Predisposing factors are attributes or characteristics of an individual that can affect their utilization of healthcare services. These include socio-demographic factors such as sex, education, living conditions, and lifestyle choices. These factors can influence their ability to access and use healthcare services efficiently. For instance, age is a predisposing factor affecting healthcare utilization, as older people may utilize more frequent healthcare services due to more chronic health conditions [10, 11]. Gender is also a predisposing factor, with research suggesting that women tend to use healthcare services more than men [10, 11]. Education level is another predisposing factor, as people with higher levels of education may possess better health literacy skills and be more likely to seek healthcare services [10, 11]. Enabling factors encompass access-enhancing resources and means that enable individuals to utilize health services. Enabling factors include income, health insurance, and social support. High income and access to secure health insurance are examples of enabling factors that increase health service utilization of older adults [11, 12]. Lastly, need factors refer to individuals' clinically evaluated and self-perceived needs for health services such as comorbidity and self-assessed health status. Older adults who experience severe symptoms and know the cause and nature of their illness are more likely to use healthcare services [13]. By understanding the factors that influence health service utilization, policymakers can design

interventions that target specific barriers to access and promote equitable access to health service utilization for all individuals.

The level of health service utilization specifically in low-income nations varies greatly, from 53% to 90.6% [14–16]. This variability in prevalence rates may be accounted for by differences in study characteristics, study sites, and sample size. As a specific focus of this paper, health service utilization among older adults in Sub-Saharan Africa [17] is substantively lower compared to developed nations like America [18], where approximately 90.58% of older adults seek at least one general practitioner (GP) visit per year. A systematic review study [17] indicated that 58.2% of older adults in Sub-Saharan Africa utilize traditional, complementary, and alternative medicine. This has been attributed to the low availability of geriatric healthcare services, out-of-pocket payment for medications, limited infrastructure, and cultural norms which include the widespread availability and acceptance of traditional and alternative medicines in Africa [11, 17]. Traditional healers refer to individuals who use plants, animals, or other techniques to treat an ill person. On the other hand, religious fathers attempt to provide relief through psychological means, such as offering advice or praying to God for the person. Consequently, these two approaches differ significantly, with the religious approach being more widely accepted [19, 20]. Some studies indicate that using traditional medicines does not offer significant benefits and may have their own impacts, unless they are managed and prescribed interactively by physicians [21, 22]. Efforts to increase healthcare service utilization in Africa should consider these factors and work towards ensuring healthcare services that are accessible, affordable, and of high quality.

Various strategies have been implemented to address the need for geriatric healthcare services in Africa. The African Union emphasized the need for primary health care to incorporate both curative and preventive care services for major non-communicable diseases and to work to provide universal health cover and age-friendly health care services in Sub-Saharan Africa [23]. However, 12 years after this agreement, the policy implementation has been low and only a handful of countries (South Africa, Ghana, and Senegal) have implemented the policies needed to improve healthcare access for older adults [24]. This failure appears to be driven by governments' priority of improving maternal and child health outcomes. For example, the Ethiopian Health policy package system has given less emphasis on geriatric healthcare services due to the high priority given to maternal and child health services [25]. Consequently, the impact of chronic diseases on older adults' daily activities of living has remained high [26] and this age-related problem is increasing in the aging population in Sub-Saharan Africa, including Ethiopia [27].

In Ethiopia, knowledge of the health service utilization of older adults is limited. Specifically, it is unknown to what extent health service utilization differs between healthy and non-healthy agers. The study examines health service utilization in a large community sample of Ethiopian older adults aged 60 years and older, drawn from rural and urban areas of Bahir Dar, Ethiopia. Two aims include (1) to identify the prevalence of health service utilization and to determine if there are differences between healthy agers and non-healthy agers; (2) to

examine the predisposing, enabling, and need factors that drive health service utilization, following the Andersen–Newman model. Findings will strengthen the need for geriatric health-care services and service delivery suited to the needs of older adults to address inequality in access to healthcare services to improve health outcomes and subsequently promote healthy aging.

2 | Methods

2.1 | Study and Sample Characteristics

A community-based cross-sectional health survey of adults aged 60 years and older ($n = 545$) was conducted in Bahir Dar administrative zone, Amhara Regional State, Ethiopia from June to October 2022. Bahir Dar itself is the capital city of Amhara state, located 485 km Northwest of the Ethiopian capital, Addis Ababa. The Bahir Dar administrative zone includes urban and rural subdistricts and the last local census in 2016 reported a population of 406,433. There were 17,141 adults aged 60 years and older of which 2889 were living in rural areas. There are more than sixty health centers in the administrative zone, two specialized government hospitals, three private hospitals, more than ten government or private health centers, and over 15 private pharmacies that promote and provide health services.

The community health survey sample was selected through multistage cluster sampling to reach the study population of the Bahir Dar administrative zone. To be eligible to participate in the survey, participants had to have been living in the Bahir Dar administrative zone for at least 6 months. The zone was stratified into 25 urban and 14 rural sub-districts. Eight urban and four rural sub-districts were chosen using simple random sampling (lottery method). A list of all rural and urban households was obtained from the subdistrict health extension workers. Participants from the broader health survey were selected for this study on health service utilization if they self-reported any disease symptoms in the preceding 12 months. This paper includes those survey respondents ($n = 545$) who reported an illness in the year before the interview. The research study was approved by both the Australian National University Human Research Ethics Committee (Protocol #: 2022/002) and Bahir Dar University (Protocol #: 484/2022). Informed consent was obtained during the interviews; literate respondents signed a consent form, while illiterate respondents gave verbal consent and signed the consent form with their thumbprint, a common practice in Ethiopia.

2.2 | Data Collection Procedures and Quality Measures

Data collection was conducted through face-to-face interviews using structured questionnaires to gather comprehensive information on participants' socioeconomic conditions, health status, and health service utilization behaviors. The measures selected were chosen based on reviewing the literature and identifying what measures have been specifically used previously within an Ethiopian context [28–31]. Interviews were

undertaken by four psychiatric nurses who received training on the questionnaire content, interviewing techniques, study purpose, and appropriate management of confidentiality issues. Participants were informed about the study's purpose before the interviews. During the data collection process, the lead author conducted random spot checks on the interviews to ensure adherence to protocols. The lead author checked all questionnaires had been completed fully and inputted all of the data into Epi-Data software.

2.3 | Measures

The outcome of the study was health service utilization. Participants included in this study had reported experiencing one of the symptoms of diseases (e.g., diabetes, hypertension, arthritis, CVD, malaria, etc) in the last 12 months. If the participants had multiple episodes of illnesses, they were asked about their utilization of health-seeking behavior for the most recent illness. Following previous study [31] we coded health service utilization as “yes” = 1 if participants had first attended modern health facilities, including hospitals, health centers, or clinics, for treatment or diagnosis. Other participants were coded as “no” = 0; they may have sought traditional treatments or home management, or not formal treatment.

2.3.1 | Covariates

Healthy Ageing: Healthy agers were defined as those who had independent daily functions, good cognitive function, were free from major depression, had moderate to good social support, and good sensory function [32]. All other respondents were classified as non-healthy agers.

Other factors that were examined were categorized as predisposing, enabling, and ending factors [33, 34].

Predisposing factors: included age, gender (male vs. female), literacy level (yes vs. no), and marital status (not partnered vs. partnered vs. widowed), family size (0–4 vs. > 5), living arrangements (living alone vs. with family), and living conditions (own house vs. rent vs. government house). Predisposing lifestyle factors included chat chewing and/or smoking (never vs. ever), and alcohol consumption was measured using the Alcohol Use Disorder Identification Test the AUDIT scale [35] and categorized as (never drinking (reference) vs. 1–2 standard drinks vs. 3–4 standard drinks vs. 5+ standard drinks). The physical activities of older adults were measured using a physical activity recall questionnaire in which participants were asked to recall the time spent on light activities (such as walking, and housework), moderate activities (such as brisk walking, cycling, and dancing), and vigorous-intensity activities (such as running or other physical exertion tasks). The total physical activity in MET-minutes per week was calculated using the formula $\text{MET-min/week} = (1.5 \times \text{light-intensity activities}) + (3 \times \text{moderate-intensity activities}) + (6 \times \text{vigorous-intensity activities})$ [36]. Then, to provide a more widely interpretable metric the MET measure was divided by 3 (the moderate intensity exercise factor to correspond to several hours of moderate physical activity).

Enabling factors: included place of residence (rural or urban), health insurance coverage (uninsured vs. insured), income, social support, and loneliness. Social support was measured through Oslo Social Support Scale (OSSS_3) and classified as poor (3–8), moderate (9–11), and strong (12–4) social relationships [37]. The wealth index was calculated through principal component analysis using household asset information (e.g., television, chair, mobile phone), type of toilet used, source of water, ownership of agricultural land, livestock quantity, and materials used in house construction. A wealth index score was used for analysis purposes. The loneliness score was assessed using three UCLA scales with scores ranging from 3 to 9. A score of 3–5 indicates “not lonely,” while a score of 6–9 signifies “lonely” [38].

Need factors: included self-perceived health status (good vs. poor), medical comorbidities (single vs. multimorbidity), and self-perceived severity of illness (mild vs. moderate vs. severe). Further, functional status was measured with the Katz scale [39], ranging from 0 to 6. Those having > 4 is grouped as having no functional impairments.

2.4 | Statistical Analysis

Data were analyzed in Stata V.17 [40]. Frequencies and percentages were used to describe the socio-demographic and health characteristics of the study sample and to compute the prevalence of health service use. For the analysis of our binary health service utilization outcome, Poisson regression with a robust standard error was used to derive the Relative Risk (RR) of health service utilization associated with each of the independent variables [41]. We estimated two models: (1) a main effect model included all covariates (Model 1), and (2) a second model (Model 2) tested several interactions between enabling factors and other covariates identified in Model 1. A statistical significance was set at $p = 0.05$, and all tests were two-tailed. Given the sample size, we balanced reporting effects which meet this probability threshold with a consideration of the magnitude of the RR reported. We considered the sample size needed to detect statistically significant effects between predictors and health service utilization. Based on power = 0.80, $\alpha = 0.05$, a base rate of health service utilization = 0.5, and a small effect RR = 1.3, we estimated a required sample size of $n = 295$. The analytical sample ($n = 545$) obtained from the broader health survey was larger than $n = 295$ needed.

3 | Results

3.1 | Characteristics of the Study Participants

The characteristics of the participants are summarized in Table S1. The sample comprised a greater number of females ($n = 314$ (57.6%)). Despite Ethiopia's comparatively lower life expectancy, 27.5% of respondents were aged 80 years and above. Most respondents were Orthodox (81.3%) and illiterate (62%). Two hundred twenty-one respondents (40.6%) were married, 261 (47.9%) were widowed, and 63 (11.6%) were not partnered. A majority of respondents ($n = 422$; 77.43%) owned their homes,

and 283 (51.92%) lived with their children. Health behaviors revealed that a majority of older adults were non-smokers (86%), had never drunk alcohol (90.6%), and were not physically active (88.8%). Two hundred and thirty-four respondents (42.93%) were financially independent, 270 (49.54%) had health insurance, 9.4% had good social support, and 53.6% reported not feeling lonely.

3.2 | Health Service Utilization

To address the first aim, the majority of participants (79.3%) reported using healthcare services in the last 12 months of which 86.6% utilized a hospital, and 13.4% utilized a health center. The prevalence of health service utilization between healthy agers (81.5%) and non-healthy agers (78.6%) was not significantly different ($Z = 0.71$; $p = 0.47$) (see Table 1). As there was no substantive difference between healthy and non-healthy agers, the rest of the results focus on the population as a whole.

A number of participants chose to self-medicate or sought treatment from pharmacies without a doctor's prescription (6.4%). Additionally, a small percentage of respondents sought medical care from religious leaders to receive holy water (5.5%) or traditional practitioners who used plants or other natural remedies (2%). Furthermore, 6.2% of respondents reported not seeking any medical help for their condition. The primary reasons reported for not using modern healthcare facilities included the perception that the illness was not severe (58.4%), the belief that no curative medicine was available (35.4%), and the lack of funds (25.7%).

3.2.1 | Determinants of Health Service Utilization Amongst Older Adults

Results from a multi-variate analysis identified several factors that were associated with an increased likelihood of utilizing health services (see Table 2). The factors most strongly related to increased health service utilization included severe (RR = 2.20; 95% CI: 1.56–3.09, $p < 0.001$), and moderate (RR = 2.03; 95% CI: 1.44–2.85, $p < 0.001$) disease severity, reporting comorbid conditions (RR = 1.14; 95% CI: 1.06–1.23, $p = 0.001$), having health insurance (RR = 1.14; 95% CI: 1.05–1.23, $p = 0.001$), not reporting loneliness (RR = 1.13; 95% CI: 1.02–1.26, $p = 0.02$), and being financially independent (RR = 1.11; 95% CI: 1.00–1.22, $p = 0.04$). Some factors were associated with a decreased likelihood of utilizing health services. Individuals residing in rented housing (RR = 0.78; 95% CI: 0.62–0.98, $p = 0.03$) and living at a distance greater than 30 min from a healthcare facility (RR = 0.62; 95% CI: 0.54–0.71, $p < 0.001$) were found to have a lower likelihood of reporting health service utilization.

3.2.2 | Examining the Enabling Factors in Moderating Health Care Utilization in Ethiopia

The main effects model identified significant factors associated with health service utilization. Notably, distance to health

TABLE 1 | Health service utilization, choices of other seeking treatment options and its rationale among community-dwelling older adults in Bahir Dar, 2022.

Variables	Category	Number	Percent (%)
Treatment was sought from	Health facility	432	79.3
	Private pharmacy/self-medications	35	6.4
	Traditional healers	11	2
	Religious leaders/holy water	30	5.5
	Self-treatment at home	3	0.6
	They did nothing for their illnesses	34	6.2
Type of health facility utilization	Hospital	374	86.6
	Health center	58	13.4
Reasons for going to health facilities	Near to your home	37	8.6
	The service is good	117	27.1
	Illness is cured by medicine	265	61.3
	The cost of medical treatment is cheap	9	2.1
	Less waiting time	4	0.9
Source of information	From media	182	42.2
	From religious leaders	13	3
	From friends, family, and neighborhoods	236	54.8
Self-medication practice	Yes	35	6.4
Reasons for not doing anything about your illness	Believed that not cured by medicine	4	11.8
	Illness not severe	5	14.7
	Believed that the illness is relived without medical treatment	19	55.9
	Believed that no effective treatment was available	4	11.8
	Lack of money	2	5.9
The main reasons for not seeking modern health facilities were	The illness was not severe	66	58.4
	Lack of money	29	25.7
	Health service to far	6	5.4
	Nobody to take me to the hospital	3	2.7
	Believed that no curative medicine in HF	40	35.4
	Believed cured without treatment	23	20.4
	Not being aware of their morbidity	7	6.2
	Easily available to traditional healers	16	14.2
	Wait for services for too long time	4	3.5
	Poor welcoming of the provider	1	0.9
	Healthy agers (120)	Utilized health services	98
Non healthy agers (425)	Utilized health services	334	78.6

facilities decreased health service utilization while the availability of health insurance increased health service utilization. We then examined interactions between these two factors and those factors identified as significant drivers or barriers of health service utilization in the main effects model these included loneliness (RR = 1.31; 95% CI 0.99–1.72, $p = 0.05$), perceived illness severity as severe (RR = 3.60; 95% CI 2.09–6.20, $p < 0.001$), and multimorbidity (RR = 1.38; 95% CI 1.05–1.80, $p = 0.01$). There was also an interaction

with health insurance (RR = 1.32; 95% CI 1.02–1.69, $p = 0.03$). The interactions displayed in Figure 1a–d indicate that older adults who experienced loneliness, perceived their illness severity as mild, lacked health insurance, and had a single morbidity were more likely to utilize healthcare services when residing near health facilities. No significant interactions between health insurance and either perceived illness severity (RR = 0.84; 95% CI 0.43–1.64, $p = 0.60$), or multimorbidity (RR = 0.89; 95% CI 0.77–1.05, $p = 0.17$), or

TABLE 2 | Factors associated with health service utilization among older adults.

Variables	RR (95% CI)	p-value
Age (years)	0.99 (0.99 – 1.00)	0.36
Gender (ref, male)	1	
Female	0.99 (0.90 – 1.09)	0.85
Literate (ref, no)	1	
Yes	0.97 (0.89 – 1.06)	0.47
Marital status (ref, single)	1	
Married	0.89 (0.77 – 1.02)	0.102
Widowed	0.93 (0.82 – 1.07)	0.31
Living arrangement (ref, living alone)	1	
Living with others	1.07 (0.90 – 1.27)	0.43
Living condition (ref, living own house)	1	
Government House	1.02 (0.91 – 1.14)	0.77
Live with children's house	0.98 (0.87 – 1.12)	0.79
Rent House	0.78 (0.62 – 0.98)	0.03
Family size (ref, ≤ 4)	1	
≥ 5	0.98 (0.90 – 1.06)	0.60
Currently smoking or chat chewing (ref, no)	1	
Yes	0.99 (0.87 – 1.14)	0.93
1-hour moderate physical activity per week	0.96 (0.92 – 1.00)	0.08
Alcohol drinking (ref, not drinking at all)	1	
1–2 drinks	0.93 (0.81 – 1.06)	0.25
3–4 drinks	1.10 (0.95 – 1.26)	0.19
5+ drinks	0.98 (0.72 – 1.33)	0.90
Time taken to health facilities (ref, < 30 min)	1	
≥ 30 min	0.62 (0.54 – 0.71)	< 0.001
Lonely (ref, yes)	1	
No lonely	1.13 (1.02 – 1.26)	0.02
Social support (ref, poor)	1	
Good	0.99 (0.84 – 1.08)	0.86
Moderate	0.97 (0.88 – 1.15)	0.60
Residence (ref, rural)	1	
Urban	1.07 (0.98 – 1.17)	0.15
Financial dependency (ref, dependent)	1	
Independent	1.11 (1.01 – 1.23)	0.04
Partially dependent	1.05 (0.95 – 1.16)	0.30
Health insurance (ref, no)	1	
Yes	1.14 (1.05 – 1.23)	0.001
Wealth	1.00 (0.99 – 1.02)	0.76
Self-rated health status (ref, good)	1	
Poor	1.01 (0.94 – 1.09)	0.76
Self-perceived severity of illness (ref, mild)	1	
Severe	2.20 (1.56 – 3.09)	< 0.001
Moderate	2.03 (1.44 – 2.85)	< 0.001

(Continues)

TABLE 2 | (Continued)

Variables	RR (95% CI)	p-value
Physical functions (ref, having no functional impairment)	1	
have functional impairment	1.04 (0.94 – 1.14)	0.49
Multimorbidity (ref, one disease)	1	
≥ 2 diseases	1.14 (1.06 – 1.23)	0.001

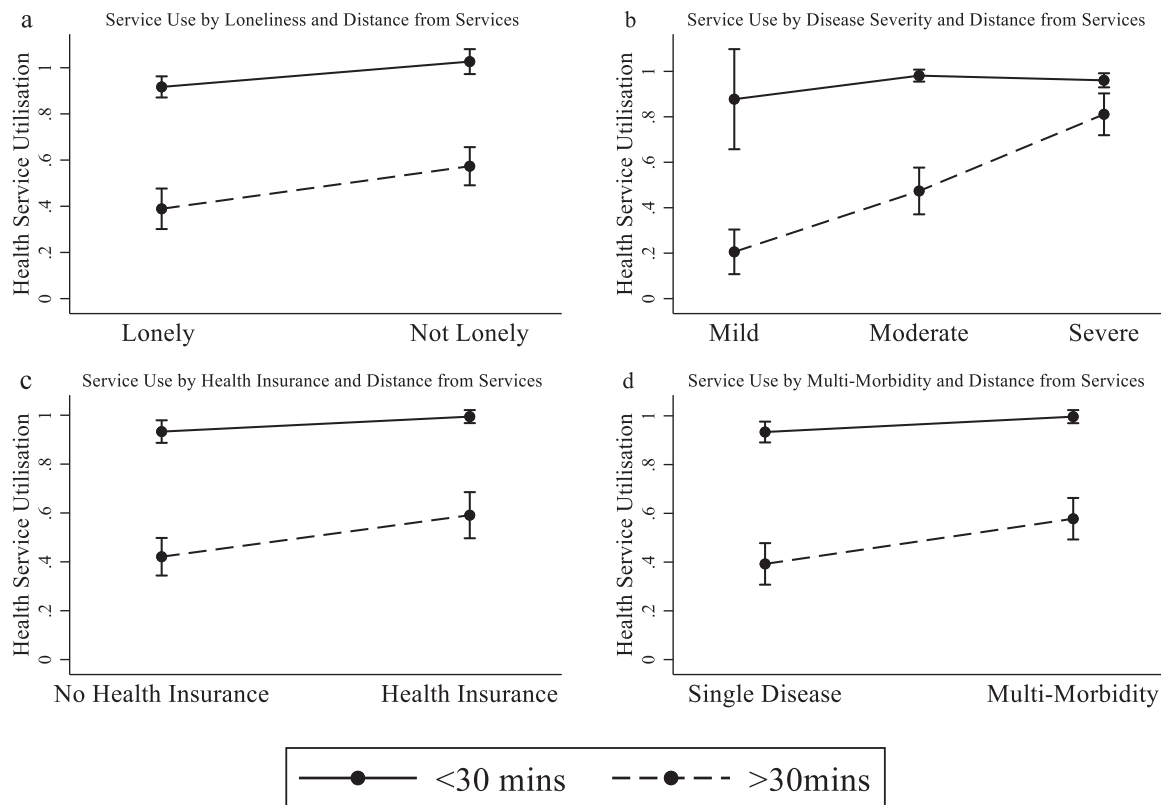


FIGURE 1 | (a–d) The figure shows the interaction of loneliness, perceived illness severity, health insurance, and multimorbidity with distance of health facility for health service utilization.

loneliness (RR = 0.90; 95% CI 0.0.78–1.05, $p = 0.19$), or rented house (RR = 1.02; 95% CI 0.64–1.62, $p = 0.94$) were reported.

4 | Discussion

A substantial number of responding adults in this survey reported numerous health challenges. Positively, approximately 79.3% of participants utilized health services within the past year. Notably, this did not vary between healthy or non-healthy agers. This prevalence is comparable to previous studies conducted in Türkiye (77.3%) [42], but higher than the prevalence reported in Bangladesh (34.0%) [15] and Nigeria (35.3%) [43]. It also surpasses the 58.2% prevalence of traditional and alternative medicine use among older adults in Sub-Saharan Africa, as reported in a systematic review [17]. However, the finding of this study is slightly lower than previous studies done in Nepal, America, India, and China [16, 18, 44, 45] which reported 90.6%, 90.0%, 90.0%, and 92.8% health service utilization rates, respectively.

These variations between studies can be attributed to socio-demographic characteristics, health insurance coverage, and the use of traditional and alternative medicines. The current study indicates higher health service utilization compared to some previous studies [15, 43], possibly due to higher literacy rates (38%) in the present study compared to the Bangladesh study (23%) [15], and lower prevalence of self-medication practices (6.4%), and reduced reliance on traditional healers (2%) in the present study compared to a Nigeria study, where 57.9% of participants practiced self-medication, using herbal medicine, or consulted spiritualists [43]. On the other hand, the current study reveals lower healthcare service utilization among older adults compared to other studies [16, 18, 44, 45]. This difference in health service utilization can be attributed to less than half of the older adults included in the current study reporting community health insurance; other studies report higher health insurance coverage [16, 18, 44, 45]. The higher rates of health insurance in these studies can also be attributed to their design where they have focused on outpatient settings, which included respondents with higher levels of health insurance, whereas the

current study utilized a household sample design. Another difference might be due to sociocultural factors; for example, a significant proportion of participants (35.6%) in the present study believed that their illness would resolve on its own. These factors could contribute to the disparity in healthcare service utilization among older adults. Moreover, differences in health service utilization are observed even within the same country. For instance, a study in southern Ethiopia [46] reported lower health service utilization compared to the present study, possibly due to limited healthcare accessibility and lower literacy rates. In this study, there were only three hospitals and 60 health centers serving approximately two million people, with 84.2% of participants being illiterate. In contrast, the present study area had more than 18 health centers, three primary hospitals, and two specialized hospitals serving 500,000 individuals, with a 38% literacy rate among older adults. Addressing the various obstacles to access and utilization, including those related to education, infrastructure, and cultural beliefs, will be necessary to improve health service utilization for older adults in developing nations.

4.1 | Predictors of Health Service Utilizations

Several factors were found to influence health service utilization. The most important enabling factors driving the use of health services include economic independence, having community health insurance, not experiencing feelings of isolation, and living in proximity to healthcare facilities. Need-based factors were also related to health service utilization, including having multimorbidity, perceiving one's health status as poor, and considering diseases with high or moderate severity.

Income played a significant role in healthcare utilization. The present study found that older adults who were not financially independent or lived in rented houses were less likely to utilize healthcare services. This is consistent with previous studies [10, 14, 47], which found that those with low income were less likely to seek healthcare. Financial constraints limit access to care, as individuals with lower incomes often face barriers such as unaffordable out-of-pocket expenses, lack of insurance coverage, and reduced transportation options. Notably, 24.8% of participants in this study cited a lack of money as the primary reason for not seeking health facilities. In addition to income, disparities in healthcare utilization were observed based on community health insurance status, with older adults who had insurance being more likely to access services compared to those without [11, 12, 48]. To address financial and insurance-related barriers, strategies such as providing economic support, offering free health insurance, and promoting health insurance programs for marginalized populations could significantly enhance healthcare utilization and improve the overall wellbeing of older adults facing financial challenges [49].

The present study found that living close to health facilities significantly enhances health service utilization, a finding consistent with previous studies [50, 51]. This trend can be attributed to the fact that the majority of older adults suffer from chronic diseases in this study, with 87% primarily seeking healthcare at hospitals where general practitioners are more readily available. In Ethiopia, health centers primarily focus on

child and maternal health services, such as vaccinations, family planning, and delivery services while non-communicable diseases are often overlooked. This limitation restricts older adults, who require ongoing care, from utilizing health centers, forcing them to seek treatment at hospitals for chronic conditions. As a result, older adults face delays in receiving care, which leads to increased healthcare costs and transportation expenses, further straining their economic situation and ultimately reducing health service utilization. Improving access to healthcare by providing chronic disease services at health centers or offering specialized transport options for older adults could significantly enhance health service utilization and outcomes for this population.

Older adults who do not experience loneliness tend to utilize health services more frequently, which aligns with findings from some previous studies [46, 52]. In the Ethiopian context, most older adults receive financial, emotional, and instrumental support from family members, which often encourages and assists them in accessing health services. This support helps to reduce barriers such as transportation challenges or financial constraints. Additionally, socially connected older adults have better access to health information, motivating them to engage in preventive health behaviors and thus leading to more frequent use of health services [25, 53]. However, it is important to note that this relationship between loneliness and health service utilization may vary across different contexts. For instance, a study conducted in the United States [54] found a positive correlation between loneliness and health service utilization. This discrepancy may be attributed to differences in healthcare access and availability across countries and contexts. In nations with well-developed healthcare systems, older adults may access services regardless of their social support networks. Conversely, in countries where healthcare access is limited, social support becomes crucial in facilitating the use of health facilities [55].

Previous studies have consistently concluded that healthcare utilization is predominantly influenced by the perceived health status of individuals [56, 57]. Our findings corroborate with this, indicating that older adults who perceive their illness as moderate or severe are more likely to seek healthcare services compared to those who view their illness as mild. This finding aligns with previous studies [13, 15, 57–59], which found that older adults often delay seeking care until their condition becomes acute or serious. Additionally, both our study and previous research have found that older adults with multimorbidity are more likely to utilize health services compared to those without chronic conditions [60]. This may be due to the increased health awareness and the complex care needs associated with managing multiple chronic diseases [61]. These findings underscore the importance of enhancing awareness about chronic diseases and their implications, which could be effectively addressed through media campaigns, mobile text alerts, and community education initiatives aimed at promoting healthy aging among older adults.

4.2 | Limitations of the Study

This study's findings are limited by several inherent design issues. All participant responses are self-reported, and the study

does not include information from informants or official medical records. Unfortunately, in countries like Ethiopia, health records are not digitized, and there is no central data repository accessible for comprehensive participant health records. Health records are maintained individually at the health centers participants attend, making it unfeasible to match self-reported data to medical records, especially in an anonymous survey, to confirm the participants' responses. Apart from confirming participants' responses, some data was not precise enough to be utilized. The timing of the study during a civil war and the COVID-19 pandemic may have also influenced health service utilization, either positively or negatively, adding another layer of complexity to interpreting the findings. Moreover, the cross-sectional nature of the study restricts the ability to establish causal relationships between variables. Even correlational relationships are limited, as current health and functional status, as well as the predisposing, enabling, and needing factors, are based on the current status, while other variables (e.g., health service utilization, chronic disease) are based on the last 12 months. Despite these limitations, the study provides valuable insights into the health outcomes of older adults in the study area and highlights potential areas for future research and interventions. However, it is crucial to acknowledge that these findings may not be universally transferable to other regions or countries with distinct cultural and social circumstances, particularly those involving different lifestyle factors.

5 | Conclusions

The study revealed lower health service utilization among older adults compared to both developing and developed countries, with certain enabling and need-related factors positively influencing utilization. To enhance health service usage, strategies such as providing affordable geriatric healthcare services, promoting health insurance, offering free or subsidized transportation, and conducting community education on the importance of geriatric care should be considered. Practical steps might include mobile health clinics, partnerships with local transportation services, and tailored health education programs. These findings are crucial for clinicians advising older adults and for policymakers developing strategies to improve healthcare access. However, further research is needed to assess the effectiveness of these interventions, explore their adaptability to various contexts, investigate additional factors such as digital literacy, and evaluate long-term cost-effectiveness. Addressing these research gaps and focusing on practical implementation will enable policymakers to develop evidence-based interventions that enhance health service utilization and improve overall health outcomes for older adults.

Author Contributions

A.B. contributed to the conception of the study design, collected and analyzed the data, interpreted the results, and drafted and finalized the manuscript. R.B. contributed to the conception of the study design, analyzed and interpreted the data, and reviewed and edited the manuscript. N.C. and N.B. contributed to the study design, interpreted the data, and participated in editing and reviewing the manuscript. All authors have read and approved the final version of the manuscript and A.B. had full access to all the data in this study and takes complete

responsibility for the integrity of the data and the accuracy of the data analysis.

Acknowledgments

The authors would like to extend their gratitude to all the study participants who generously agreed to take part in interviews and made invaluable contributions to this research. The lead author was supported by an Australian Government Research Training Program (RTP) Scholarship. The funder had no role in the study or decision to publish the findings. The authors have nothing to report.

Ethics Statement

Ethical approval for this study was obtained from Bahir Dar University and Australian National University. The Amhara Public Health Institute issued a letter to the Zonal Administration Health Bureau for approval. Subsequently, the Zonal Health Bureau informed each selected subdistrict administrative body to seek their support for the study. The purpose of the study was communicated to the participants, and they were informed of their right to withdraw at any time during the interview.

Consent

Written consent was obtained from all study participants.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study. Data will be made available upon reasonable request. Further enquiries can be directed to the corresponding author. A.B. has full access to all of the data in this study and takes complete responsibility for the integrity of the data and the accuracy of the data analysis.

Transparency Statement

The lead author Amare Belachew affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.