

Utilization of mineralocorticoid receptor antagonists within guideline-directed medical therapy for patients with heart failure and reduced ejection fraction at Wallaga University Comprehensive Specialized Hospital: a hospital-based retrospective study

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Received: 29 May 2025 / Accepted: 25 September 2026

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Abstract

Background Despite the advancements of therapy and prevention, heart failure continues to be a major cause of morbidity and mortality worldwide. Appropriate use of Guideline Directed Medical Therapy has been proved to improve the clinical outcome of patients with heart failure with reduced ejection fraction. Nonetheless, there is a gap in the implementation of guideline-directed medical therapy for the management of heart failure globally. Particularly, data on the use of Guideline Directed Medical Therapy are scarce in developing countries, particularly in Ethiopia. Hence, this study aimed to assess the use of Mineralocorticoid Receptor Antagonist as part of Guideline Directed Medical Therapy and determine the factors that influence its use among patients with heart failure with reduced ejection fraction who were followed at Wallaga University Comprehensive Specialized Hospital.

Methods A facility based retrospective cross-sectional study was conducted among patients with heart failure with reduced ejection fraction on follow up at Wallaga University Comprehensive Specialized Hospital, Neke-mte, Ethiopia. The tool was developed by reviewing result parts of previously published articles and patient's specific data were collected using a structured questionnaire. Descriptive statistics such as frequency, percentage, mean, and standard deviation were computed. Statically package for social sciences Version 26.0 was used for analysis and multivariable logistic regression was used to identify associations, with statistical significance set at $p < 0.05$.

Results A total of 206 heart failure patients for whom Ejection Fraction was already done with reduced ejection fraction at Wallaga University Comprehensive Specialized Hospitals were included in this study. The mean (SD) age was 56.14 ± 13.72 and over 50% (55.8%) were female patients. About 15.5% of study patients had utilized Mineralocorticoid receptor antagonists during their follow up. The independent predictors of utilization of Guideline Directed Medical Therapy of Mineralocorticoid receptor antagonists among heart failure patients

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with reduced ejection fraction were duration since treatment greater than 24 months [AOR = 4.48, 95%CI = (1.84–10.90)] and Ejection fraction; 30%–40%; [AOR = 3.18, 95%CI = (1.35–7.52)].

Conclusion The utilization of guideline-directed target doses of mineralocorticoid receptor antagonists among patients with heart failure with reduced ejection fraction was low, with only 15.5% of patients achieving the recommended target dose. A treatment duration of more than 24 months and an ejection fraction of 30%–40% were independent predictors of guideline-directed mineralocorticoid receptor antagonist utilization. These findings highlight the need for interventions to optimize medication titration and improve adherence to heart failure treatment guidelines.

Clinical trial number Not applicable.

Keywords Chronic heart failure · Under dosing of mineralocorticoid receptor antagonists · Guideline directed medical therapy

Introduction

Heart failure (HF) is a complicated clinical illness caused by anatomical or functional impairment of ventricular filling or blood ejection, resulting in cardinal symptoms such as dyspnea, tiredness, and fluid retention [1]. HF is classified into three types based on left ventricular ejection fraction (LVEF): HFrEF (EF < 40%), HFmrEF (EF 41–49%), and HFpEF (EF > 50%) [2]. Guideline-directed medical therapy (GDMT) for HFrEF is the initiation and titration of multiple classes of pharmacologic agents to their maximally tolerated doses, in accordance with established clinical guidelines [3].

International societies, recommend the routine use of angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor blockers (ARBs), mineralocorticoid receptor antagonists (MRAs), and beta-blockers (BBs) in patients with HFrEF due to left ventricular systolic dysfunction [4]. Despite these recommendations, majority of patients with heart failure underutilized and/or prescribed below the recommended dosage [5, 6]. The utilization of GDMT in patients with heart failure and reduced ejection fraction (HFrEF) remains suboptimal, with significant gaps existing between evidence-based recommendations and real-world clinical practice [7, 8]. Patient factors like elder age group, Low BMI and comorbidities could directly lead to drug intolerance or contraindications to prescribed medications. Renal dysfunction was associated with underutilization of MRAs [9, 10].

Physician-related factors includes, lack of awareness of treatment goals, focusing on symptom relief rather than mortality reduction, or fear of adverse effects, further exacerbate the issue [11]. In some healthcare systems, general practitioners, internists and cardiologists co-manage HF patients, but general practitioners were less likely to prescribe guideline-directed medications [12, 13]. This reflects a lower risk of mortality or readmission of HF patients managed by cardiologists than non-cardiologists [14].

However, there is limited data on GDMT utilization of MRAs and dosing patterns in many developing regions, including Ethiopia, making it challenging to design targeted interventions to improve heart failure care. This study aims to address this gap by assessing the utilization of GDMT and identifying factors associated with achieving optimal dosing of MRAs among patients with chronic HFrEF. The findings are expected to provide insight into current practice patterns, highlight areas for improvement, and inform locally appropriate strategies to enhance GDMT implementation, ultimately contributing to better patient outcomes and more efficient healthcare delivery.

Methods

Study setting, design and Period

The study was conducted at Wallaga University Comprehensive Specialized Hospital (WUCSH) which is located 331 Km West of capital City, Addis Ababa. The hospital gives health services at inpatient and outpatient level as a referral hospital with catering to a large population of western Ethiopia. About 250 bed capacity is found among different clinical departments. The department of Internal Medicine has a total of 40 beds with about 2134 annual admissions. There is one medical referral clinic and the total number of patients on follow up who visited clinic over last one year are 2711 and total number of HF patients on follow up are 719. Checkup is five times per week (from Monday to Friday). The service is provided by internists, medical residents, and sometimes general practitioners. A hospital-based cross-sectional study design was conducted from February, 1, 2025 to February, 30, 2025.

Study population

All heart failure patients with reduced ejection fraction (HFrEF) on follow-up during the study period and followed for at least ≥ 3 months at WUCSH during the study period.

Eligibility criteria

Patients ≥ 18 years old, Patient diagnosed with heart failure at least 3 months before the study period and had regular follow-ups at the referral clinic and Patients with impaired left ventricular function with an ejection fraction of $\leq 40\%$ in recent Echo done at least within the last 2 years were inclusion criteria. Whereas, Patients whose medical records incomplete for important variables like EF, Pregnant Women and unavailable echocardiography results for classifying the type of HF as reduced ejection fraction were exclusion criteria.

Sample size and sampling technique

For the first specific objectives

The sample was calculated using the single population formula with margin of error 5%, and 95% confidence interval. Accordingly, calculated sample size was 156 based on the results of a study conducted at Addis Ababa at four Selected Cardiac Centers which revealed 11.4% utilization among patients with HFrEF [8] (Table 1).

The sample size is calculated by using the following formula:

$$n = \frac{Z^2 P(1 - P)}{d^2}$$

Table 1 Sample size determination for associated factors by using Epi info version 7

Factors	CI and Power	%of outcome among exposed	%of outcome among unexposed	Ratio of unexposed to exposed	Odds Ratio	Risk ratio	Sample size including 10% NRR	Reference
Comorbidities	99% and 85%	18.81	36.37	0.98	0.40	0.52	180	[15]
Patient related factors	99% and 85%	40.25	59.75	1.98	0.45	0.67	206	[15]
Physician related factors	95% and 80%	44.4	66.35	0.74	0.41	0.67	192	[15]
Non-medical factors	99% and 85%	40	60	1.5	0.44	0.67	203	[16]

Where n = sample size,
 Z = Z statistic for a level of confidence (1.96),
 P = expected prevalence or proportion (11.4%, $P = 0.114$), and.
 d = precision (5%, $d = 0.05$).
 $n = 156$.

For the second specific objectives

Depending on the available evidence prevalence of associated factors largest sample size for patient related factors is 206. Sample size for first and second specific objectives is 192 and 206 respectively, so I used the larger sample size which is **206**.

Sampling procedure

List of card numbers of heart failure patients with reduced ejection fraction, on follow up at WUCSH medical referral clinic, within the study period, drawn from a logbook and collected from patient chart using online kobo toolbox based on the fulfillments of the inclusion criteria until the required sample size was completed.

Data extraction tools and methods

Kobo toolbox was prepared and used for data collection by reviewing literature. The demographic data, imaging results, data regarding GDMT dosing and associated factors for under titration was extracted using the tool.

Variables

GDMT utilization was dependent variable. Whereas, Socio-demographic related factors: Age, sex, residence, socioeconomic status, Comorbidities: hypertension, diabetes, COPD, Bronchial Asthma, Renal dysfunctions, Others: Duration on follow up, LVEF, Number of Hospital Admissions were independent variables.

Operational definition

Heart failure with reduced ejection fraction (HFrEF)

A patient with Heart failure with ejection fraction $\leq 40\%$ on echocardiography [17].

Optimal dose

Up titrated to the maximum tolerated level as per the Guideline-directed medical therapy (GDMT) doses [18].

MRA target dose

Spirolactone/Eplerenone 50 mg/day [19].

Under titrated FOR MRAs

a cardiac patient who has been taking MRA for at least three consecutive months and on less optimal dose or less frequently titrated up dose if at all titrated up as per the guideline recommendations [20].

MRA utilization

refers to the extent to which MRAs are prescribed and dosed in accordance with guideline for patients with Heart Failure with Reduced Ejection Fraction (HFrEF) including prescription (Initiation of MRA) and dose Optimization (Target Dose Achievement that is 25-50 mg/day of spironolactone).

Polypharmacy

-patients taking ≥ 5 drugs currently [21].

Data quality control

Investigator of the study controlled the overall activity and training for the data collecting team was given on the process. Two professional healthcare workers were recruited and trained on data collection procedures. Data quality ascertained by designing the proper data collection tool and through continuous supervision. The quality of data was assured by; pre-tested questionnaire on 10 patients before actual data collection, and appropriate modifications of questionnaire was done based on the result of the pre-test. The medical chart number of the patient checked whether clinically matched or not. Completeness, accuracy and consistency of data collection checked on each day of the data collection period. All completed data then imported directly to SPSS 26 from kobo toolbox and cleaned for analysis.

Data processing, analysis

The collected data was imported and analyzed using software program SPSS 26.0. The entered data was checked for completeness and consistency before analysis was done. Categorical variables were described by frequencies and percentages. Continuous variables were presented by means and standard deviations. Multivariable logistic regression analysis was done among variables with a p-value < 0.25 in bivariable analysis to identify independent determinant of dependent variable. Variables with a p-value < 0.05 from multivariable logistic regression output were considered statistically significant. Finally, the result was summarized and presented in the form of texts and tables.

Ethical consideration

The study was approved by the Research Ethics Review Committee (RERC) of Wallaga University. All information's pertinent to the present study were kept confidential.

Results

Socio-Demographic characteristics of the study participants

Among 206 study participants included in this study, more than half of participants 115 (55.8%) were female and the mean age was $56.14 \text{ years} \pm 13.72$. More than half (57.3%) of patients were residing in rural areas and about one fourth (24.3%) of participants had no formal education (Table 2).

Table 2 Socio-demographic characteristics of heart failure patients with reduced ejection fraction (HFrEF) on follow-up at Wallaga University Comprehensive Specialized Hospital from February, 1, 2025 to February, 30, 2025

Variables	Categories	Frequency (%)
Age(56.14 ± 13.72)years	<48	55(26.7)
	48–63	83(40.3)
	≥ 64	68(33)
Sex	Male	91(44.2)
	Female	115(55.8)
Residence	Urban	88(42.7)
	Rural	118(57.3)
Occupational Status	Unemployment	53(25.7)
	Gov't Employed	86(41.7)
	Self employed	67(32.5)
Educational Status	No formal education	50(24.3)
	Primary education	57(27.7)
	Secondary education	66(32)
	College and above	33(16)
Payment Modality	Free	10(4.9)
	Insurance	117(56.8)
	Out of Pocket	79(38.3)
BMI Category	<18.5	22(10.7)
	18.5–24.9	107(51.9)
	≥ 25	77(37.4)

Table 3 Clinical characteristics of heart failure patients with reduced ejection fraction (HFrEF) on follow-up at Wallaga University Comprehensive Specialized Hospital from February, 1, 2025 to February, 30, 2025

Variables	Categories	Frequency (%)
Underlying cause of Heart failure	Cardiomyopathy	81(39.3%)
	Ischemic heart disease	75(36.4%)
	Valvular heart disease	40(19.4%)
	Others*	10(4.9%)
Admission history last one year	Yes	113(54.9%)
	No	93(45.1%)
Duration in months (24.28 ± 13.91)	<24months	97(47.1%)
	≥ 24 months	109(52.9%)
Ejection Fraction category (30.52 ± 6.04)	$\leq 30\%$	104(50.5%)
	31%–40%	102(49.5%)
Presence of comorbidity	Yes	48(23.3%)
	No	158(76.7%)

* Thyrocardiac disease (2.1%), congenital heart disease (1.5%), and HHD (1.3)

Clinical characteristics of the study participants

From 206 participants included in the study 81 (39.3%) of the participants had experienced heart failure due to cardiomyopathy and followed by ischemic heart disease 75(36.4%) and about one fourth (23.3%) of the participants had comorbid medical condition (Table 3).

Pattern of medication used for treatment of reduced EF HF

Among the respondent's majority of patients were taking BBs, ACEi/ARBs and MRAs 190(92.2%), 179(86.9%) and 192(83.2%) respectively. However, 25(12.1%) of the respondents were taking ARBs. Moreover, about 27.7% of patients were taking either Aspirin or/and Statins. About 13.1%, 7.8% and 6.8% of the participants didn't start ACEi/ARBs, BBs and MRAs respectively at all. About one fourth 52(25.2%) of study participants were taking more than five (≥ 5) medications (Table 4).

Table 4 Pattern of medication of heart failure patients with reduced ejection fraction (HFrEF) on follow-up at Wallaga University Comprehensive Specialized Hospital from February, 1, 2025 to February, 30, 2025

Variable	Category	Frequency (%)
MRAs	≤ 25 mg/day	160(77.7)
	50 mg/day	32(15.5)
	No MRAs Taken	14(6.8)
	Total	206(100%)
ACEi/ARBs	Enalapril 10-20 mg/day	87(42.3)
	Enalapril 5-10 mg/day	27(13.1)
	Enalapril ≤ 5 mg/day	40(19.4)
	Losartan 25 mg/day	5(2.4)
	Losartan 50 mg/day	20(9.7)
	No ACEi/ARBs	27(13.1)
	Total	206(100%)
BBs	Metoprolol succinate 12.5-25 mg/day	82(39.8%)
	Metoprolol succinate 25-50 mg/day	85(41.3%)
	Metoprolol succinate 50-100 mg/day	9(4.4%)
	Bisoprolol 2.5 mg/day	7(3.4%)
	Bisoprolol 5 mg/day	4(1.9%)
	Bisoprolol 10 mg/day	3(1.4%)
	No BBs taken	16(7.8%)
	Total	206(100%)
Number of medications	< 5 Medications	154(74.8)
	≥ 5 Medications	52(25.2)

Optimization status of MRAs in chronic heart failure with reduced ejection fraction

Of the total of 206 study participants, 192(93.2%) patients were taking MRAs among these 15.5% patients adhered to GDMT of MRAs and 84.5% were underutilized GDMT of MRAs. Moreover, 14(6.8%) of patients had not taken MRAs at all.

Factors associated with Optimization Status of MRAs in chronic heart failure with reduced ejection fraction

Bivariable and multivariable logistic regression were carried out to identify determinant factors of optimization status of MRAs. From bivariable regression model, variables with a p-value of less than 0.25 were taken to multivariable logistic regression analysis. The result of multivariable analysis revealed that, ejection fraction between 31% and 40% [AOR=3.18, 95%CI= (1.35–7.52)] and duration of disease since treatment greater than 24 months [AOR=4.48, 95%CI= (1.84–10.90)] were independent predictors for the underutilization of GDMT of MRAs (Table 5).

Discussions

This study aimed to evaluate the utilization patterns, optimization, and factors associated with the implementation of GDMT in patients with heart failure with reduced ejection fraction at WUCSH.

The present study demonstrated that 93.2% of patients with HFrEF were prescribed MRAs, which is higher than the proportions reported in several observational studies. For instance, observational studies from Sub-Saharan Africa have reported variable MRA utilization, ranging from approximately 56% to 65% in routine clinical practice, although substantial underutilization and failure to achieve target doses remain common [22]. Observational studies from South Asia have demonstrated considerable variability in MRA utilization across clinical settings, with reported rates ranging from approximately 56% in European real-world registries to over 80% in some tertiary-care Indian cohorts, reflecting differences in healthcare systems, patient populations, and adherence

Table 5 Bivariable and multivariable logistic regression analysis of the reason for utilizing GDMT of MRAs among chronic heart failure patients (HFrEF) at Wallaga University Comprehensive Specialized Hospital from February, 1, 2025 to February, 30, 2025

Variables and category	GDMT Utilization of MRAs		Multivariable analysis		
	Yes	No	COR(95%CI)	AOR (95%CI)	P-Value
Age (56.14 ± 13.72) yrs					
18–48	7(21.9)	53(30.5)	1	1	1
48–63	10(31.3)	60(34.5)	1.26(0.45–3.55)	1.47(0.48–4.49)	0.5
≥ 64	15(49.8)	61(35)	1.86(0.71–4.91)	2.94(0.99–8.74)	0.052
Residence					
Rural	15(46.9)	103(59.2)	1.64(0.77–3.51)	1.59(0.68–3.77)	0.285
Urban	17(53.1)	71(40.8)	1	1	1
Occupation					
Employed	15(46.9)	71(40.8)	1	1	1
Unemployed	11(34.4)	42(24.1)	0.81(0.34–1.92)	0.823(0.325–2.086)	0.68
Self employed	6(18.8)	61(35.1)	0.38(0.13–1.09)	0.30(0.09–0.95)	0.04
Educational Status					
No formal education	13(40.6)	37(21.3)	0.28(0.07–1.09)	4.07(0.91–18.25)	0.067
Primary education	7(21.9)	50(28.7)	0.45(0.17–1.16)	2.31(0.46–11.56)	0.31
Secondary education	9(28.1)	57(32.8)	0.398(0.14–1.09)	2.85(0.61–13.27)	0.308
College and above	3(9.4)	30(17.2)	1	1	1
Last year admission					
Yes	13(40.6)	100(57.5)	0.51(0.24–1.09)	0.82(0.31–2.15)	0.682
No	19(59.4)	74(42.5)	1		
Duration since treatment					
<24 months	9(28.1)	97(55.7)	1	1	1
≥24 months	23(71.9)	77(44.3)	3.22(1.41–7.36)	4.48(1.84–10.90)	<0.001*
Ejection fraction (%)					
≤30%	21(65.6)	83(47.7)	1		
30%–40%	11(34.4)	91(52.3)	0.48(0.22–1.05)	3.18(1.35–7.52)	0.008*
Number of drugs per patient					
<5	27(84.4)	127(73)	1	1	1
≥5	5(24.55)	47(27)	0.5(0.18–1.38)	0.39(0.13–1.15)	0.088

to guideline-directed medical therapy [23]. The higher utilization observed in the present study may reflect differences in study settings, prescribing practices, drug availability, patient characteristics, and the periods during which the studies were conducted.

However, despite the high prescription rate, only 15.5% of patients in our study received the guideline-recommended target dose, indicating that dose optimization remains a major challenge. This finding is consistent with evidence from several real-world observational studies and heart failure registries, which have demonstrated that although MRAs are commonly prescribed, relatively few patients achieve guideline-recommended target doses [24, 25]. Poor dose optimization has been attributed to concerns regarding hyperkalemia and worsening renal function, symptomatic hypotension, inadequate laboratory monitoring and follow-up for dose titration, therapeutic inertia, older age and multiple comorbidities, as well as health system constraints that limit implementation of guideline-directed medical therapy in routine clinical practice.

The proportion of patients receiving MRAs in the present study (93.2%) was higher than that reported in several real-world observational studies. For example, the PINNACLE Registry in the United States and the European Society of Cardiology Heart Failure Long-Term Registry (ESC-HF-LT) reported MRA utilization rates of approximately 28% and 67%, respectively [26, 27].

Similarly, the Taiwan Society of Cardiology–Heart Failure with Reduced Ejection Fraction (TSOC-HFrEF) Registry, a prospective multicenter observational study involving 21 hospitals, reported MRA prescription in 49% of patients at discharge [28]. The relatively higher MRA utilization observed in our study may be explained by differences in study settings, patient selection criteria, healthcare resources, medication availability, prescribing practices, and the period during which the studies were conducted. In addition, our study was conducted in a

single tertiary referral hospital with a heart failure follow-up clinic, which may represent patients receiving more consistent guideline-directed medical therapy compared with broader multicenter registries. However, despite the high prescription rate, only 15.5% of patients in our study achieved the guideline-recommended target dose, highlighting that medication optimization remains a persistent challenge in routine clinical practice.

The result of multivariable logistic regression showed that ejection fraction between 30% and 40% and duration of disease since treatment greater than 24 months were independent predictors for the underutilization of GDMT of MRAs. The likelihood of having underutilized GDMT [AOR = 3.18, 95%CI= (1.35–7.52)] was about three times in patients whom ejection fraction was 30%–40% as compared to those whom their ejection fraction was less than 30%. Similarly study done in Sweden among patients taking MRA for reduced EF heart failure patients, higher EF was found to be independent associated factors of underutilized MRAs [29]. It was found that patients who were greater than 24 months since treatments started were about four times [AOR = 4.48, 95%CI= (1.84–10.90)] more likely to have underutilized GDMT for MRAs.

Potential Implications for the Healthcare Sector: The findings of this study highlight persistent gaps in the implementation of GDMT, particularly regarding MRA use, among ambulatory patients with heart failure with reduced ejection fraction (HFrEF). These findings provide important evidence to inform improvements in clinical practice and healthcare delivery at the institutional level. Targeted interventions, including the development of heart failure management protocols, regular medication optimization reviews, clinician education, and patient-centered adherence support, may improve appropriate MRA initiation and continuation. Furthermore, identifying and addressing healthcare system-level barriers, such as medication accessibility, prescriber knowledge and adherence to guideline recommendations, clinical inertia, and limited patient education, will be essential to enhance the implementation of evidence-based therapies and ultimately improve clinical outcomes among patients with HFrEF.

Limitation of the study

This study has several limitations that should be considered when interpreting the findings. First, medication adherence among patients was not assessed, and physician-related factors influencing GDMT utilization, such as prescribing preferences, clinical decision-making, and guideline adherence, were not evaluated due to the study design. These factors may significantly contribute to variations in GDMT implementation among patients with HFrEF. Second, the study design relied on patient-reported information for certain variables, which may have introduced the possibility of recall bias. Future studies incorporating longitudinal designs, objective measures of medication adherence, and assessment of healthcare provider-related factors are warranted to better understand the determinants of GDMT utilization in HFrEF.

Conclusion

The study shows poor use of GDMT among patients with heart failure with reduced ejection fraction (HFrEF) in the study setting. Low left ventricular ejection fraction (LVEF) between 30 and 40% and long-term disease treatment for more than 24 months were determined as predictors of the absence of MRAs in the patients' treatment, which indicates the need to improve care in those who are more vulnerable to the development of the disease. It is necessary to pay more attention to the treatment of HFrEF by applying the recommended individual care methods and introducing specific measures for healthcare workers and patient education regarding the treatment of heart failure.

Abbreviations

ACEI	Angiotensin Converting Enzymes Inhibitors
ARB	Angiotensin II receptor blocker
ARNI	Angiotensin receptor neprilysin inhibitor
BMI	Body Mass Index.BB: Beta-Blockers
BP	Blood Pressure
CHF	Congestive Heart Failure
CHAMP-HF	Change the Management of Patients with Heart Failure
Echo	Echocardiography
ECG	Electrocardiogram
HFmrEF	Heart Failure with mildly reduced ejection fraction
HFrfEF	Heart Failure with reduced Ejection Fraction
HFpEF	Heart Failure with preserved Ejection Fraction: GDMT: Guideline-Directed Medical Therapy
WUCSH	Wallaga University Comprehensive Specialized Hospital
RAAS	Renin–Angiotensin–Aldosterone system
RFT	Renal Function Test
MRAs	Mineralocorticoid receptor antagonist
SPSS	Statistical Package for Social Science
WHO	World Health Organization

Acknowledgements Thank.

Author contributions B.S.S. conceived the idea, involved in the proposal development, data analysis, interpretation and manuscript writing. G.D. H.conceived the idea, developed the study proposal, facilitated data collection, did data analysis, and interpreted the findings. M.L. did data analysis and interpreted the findings. J.T. conceived the idea, developed the study proposal, facilitated data collection and did data analysis. A.A. G. conceived the idea, developed the study proposal, facilitated data collection, did data analysis, and interpreted the findings. All the authors reviewed the manuscript. All authors read and approved the final manuscript.

Funding This research was funded by Wallaga University. All financial supports for data collection, supervision of the study analysis and interpretation of the data were covered by Wallaga University. The funder had no role in the design of the study, collection, analysis and interpretation of data, and in writing manuscript.

Data availability The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate Ethical clearance was obtained from the Wallaga University, Institute of Health Sciences, Health Research Ethics Review Committee prior to data collection. Official permissions asked from WUCSH administration and outpatient director. All the information obtained was held with confidentiality and used only for the intended purpose. Participants' identities remained confidential and analyzed anonymously. Each participant was asked to sign a written informed consent before data collection. The right of participants to withdraw from the interview or not to participate was respected. All methods were performed in accordance with the relevant guidelines and regulations (Declaration of Helsinki).

Consent for publication Not applicable.

Competing interests The authors declare no competing interests.

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