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Food consumption patterns and score among women receiving cash assistance: emergency nutrition response in drought affected pastoralist community eastern Ethiopia

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Abstract

Background Food insecurity remain sub-Saharan African issues, particularly pastoral society. Pastoralist women's active role in the household economy and livelihood diversification despite their marginal position in terms of access to basic health and education services, and decision making. The use of cash transfers in humanitarian settings is an emerging; however, there is scare of evidence on how well cash transfers improve nutritional outcomes. Moreover, evidence limited on food consumption scores, particularly pastoralist women in Ethiopia. Therefore, this study aims to assess food consumption score and associated factors among cash-beneficiary women in emergency nutrition response in drought-affected pastoralist communities in Eastern Ethiopia.

Method A community-based cross-sectional study design was conducted among cash-beneficiary women in 2022. Data was collected using a pretested structured questionnaire among 374 randomly selected cash beneficiary women. Food consumption score was calculated using a seven-day dietary recall of food items consumed. After collecting the data the food items were categorized into eight food groups and summed up. EPI Data version 3.1 software was used to code, enter, and clean the data. SPSS version 23 was used for analysis. The study used ordinal logistic regression to identify factors influencing the food consumption score. Variables with p-value < 0.25 in bivariable analysis were considered for multivariable analysis, and 95% confidence interval was used to measure the strengths of association at p-values < 0.05.

Results The study shows that the acceptable food consumption score among cash beneficiaries' women was 43.3% (95% CI 38.27–48.36%). The source of food from own product (AOR = 2.18, [95% CI: 1.68, 4.56]), and animal source food (AOR = 12.14, [95% CI: 5.25, 28.0.6]) were significantly associated with the acceptable food consumption score. However, the acceptable food consumption score was significantly lower among cash-beneficiary women who requested by kebeles administrative to share money for registration (AOR = 0.059, [95% CI: 0.011, 0.32]).

Conclusion The findings show that the acceptable food consumption score was low among cash-beneficiary women. The government should be maximizing on local food production and animal-sourced food to scale up the acceptable food consumption score. Policies and programs should be enhancing and promoting on sustainable local food products. Moreover, strengthening the policies that promote the welfare of pastoralist women,

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providing training on women's capacity building, enhancing women's empowerment, and encouraging their participation in the decision-making process are essential to mitigating the problems pastoralist women face.

Keywords Food consumption score, Cash beneficiary women, Ethiopia

Introduction

Food insecurity is a significant public health challenge worldwide, particularly in developing countries, including Ethiopia [1]. Moreover, pastoralist women are a risk of food insecurity due to pastoral life. Women in Ethiopia's pastoralist society are relegated to subservient roles inside the home, they have always been marginalized and very restricted access to and control over the most important producing resources [2].Women have a unique dietary requirement throughout their lives. Ensuring women's nutrition is the fundamental to improve quality of life, advancing social development and the well-being of their children [3].However, poor dietary intake is the major cause of mortality and morbidity in women and children [4–8].

The FCS is an indicator of food security that shows food diversity and frequency at the household level consumed in the past seven days [9].Today World Food Programs (WFP's) recommended threshold of 90% for an acceptable FCS, however, the global acceptable FCS has drastically deteriorated [10] and leads to sub-optimal food consumption that represents a public health problem [11]. In 2024, the WFP reported that the acceptable national FCS coverage in Ethiopia was 74% [12]. However, a facility-based study conducted in 2018 stated that the magnitude of acceptable FCS among pregnant women was 81.5% [13]. In addition, in 2022 community-based study among pregnant women reported that the prevalence of acceptable FCS was found to be 54.5%[14], and study done at household level in 2021 in Konso Zone Southwestern Ethiopia is found 68.3%[15].

The government of Ethiopia reported that 15.8 million people would face hunger and need food assistance in 2024. This includes over 4 million people who are internally displaced and 7.2 million who have high levels of acute food insecurity and need emergency assistance [12]. Ethiopia's drought situation continues to worsen following five consecutive failed rainy seasons and the looming "lean season" (period between harvests), with the southern and eastern parts of the country mainly affected, accordingly, drought induced humanitarian was 24 million people currently living in drought affected areas, 11 million people estimated to be food insecure, and about 6.85 million livestock deaths since late 2021 [16]. Nearly 33 million people in Ethiopia suffer from chronic undernourishment and food insecurity of which 25% are in need of urgent assistance. The severity is more pronounced in the arid and semiarid rangelands of Ethiopia which comprises nearly 13% of the population and constitute about 63% of the country's landmass [17].

Globally, over three billion people cannot afford a healthy diet and suffer from hidden hunger, little iron, vitamin A, and iodine [18], and 29.3% are food insecure [19].The highest prevalence of hunger occurred in Sub-Saharan Africa (SSA) countries, with one in four people undernourished [15], either because of insufficient money or lack of access to food in nearby areas [20]. SSA has hardly confronted the food crisis and unacceptable household FCS because of food insecurity, household expenses and size, social instability, and food prices also affect vulnerable populations, making them more likely to have poor dietary intake [13, 14, 21–23].

In Ethiopia, several studies confirm that only a few women use adequate diets [24–26]. Previous studies show that about 9.4% of rural women and 26.7% of children reach the mini-recommendation for food dietary diversity [27]. Severity of food insecurity in Ethiopia remain continues due to the impacts of a nearly three-year drought, displacement, climate change, poverty, inflation, conflict, inadequate access to safe drink water, poor sanitation, and insufficient food intake is significantly contribute to the food consumption especially among vulnerable women in pastoralist community, which contribute to 5.8 million people need food assistance in 2024 [28, 29]. Despite, the Sustainable Development Goals (SDG) and the world Food Association (WFA) have strategies to reduce the proportion of food insecurity, and end all form of malnutrition and to eliminate hunger through ensuring access by all people, in particularly people in vulnerable situations, by providing nutritious and sufficient food all the year by 2030; the situation remains dire, the number of people experiencing hunger and food insecurity continues to rise, leading to millions of deaths [30, 31].

In Ethiopia, intra-household food distribution is highly sensitive, which contributes to maternal malnutrition [29]. The Ethiopian government incorporates food-based interventions into nutrition policies, relies on food insecurity and FCS to detect gaps and act accordingly [13], especially in the study area (Eastern Ethiopia) an urgent need for policies and initiatives to assist farmers in improving their overall food security and increasing FCS [14].

For instance, in Ethiopia, one in four households (23%) had an inadequate FCS, which consumed less than the acceptable variety of foods or only consumed foods with less nutritional value, and 31% consumed energy-deficient food (25% rural and 14% urban) [32]. The Ethiopian government has played a significant role by launching productive safety net programs, General Food Distribution (GFD), and Supplementary Feeding Programs (SFP), which provide food assistance to vulnerable household targeting vulnerable women, such as lactating mothers, mother who have two or more under five children, householder women, and undernourished women [15]. Despite that, using different social protection policies, mothers'and children's diets were little changed [14, 33, 34].

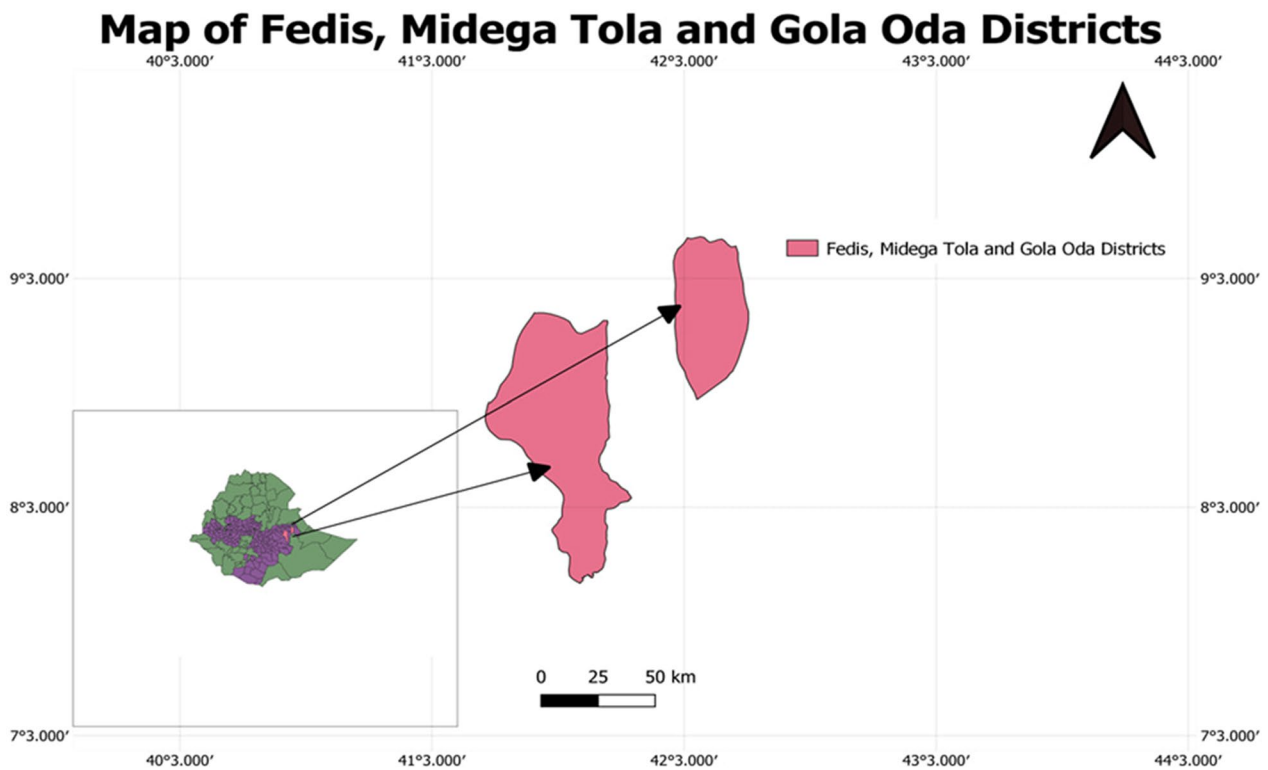
Pastoralist women are vulnerable due to cultural, economic, and institutional constraints. They suffer from a lack of decision-making power on issues that affect their lives, have limited access to various socio-economic services (such as education and health services), and carry more domestic responsibilities that put them under physical and psychological stress [35]. Additionally, pastoralist women bear substantial burdens to serve and look after their families; this in turn affects their education and hinders them from taking part in public life. On one hand, pastoralist women have to work extensively and firmer than men, accomplishing "female" tasks in the domestic spheres and earning money from chores culturally labelled as "women's work" comprising collecting firewood and producing and marketing handicrafts [36]

In Ethiopia, evidence indicates that FCS research has been limited among pastoralist cash transfer beneficiary women's household food group consumption, household expenditure, and FCS. This study assesses the effectiveness of cash transfers on increasing dietary diversity and provide evidence on the effects of cash transfers at the household level. The study also highlights to policymakers, researchers, and the community at large, through given a comprehensive picture on FCS among cash transfer vulnerable women in the pastoralist community. As far as researchers knowledge there is no study has been done on the level of FCS among cash transfers in the pastoralist community. Therefore, this study is to fill the evidence gap and examines the nutritional changes in household FCS among cash transfer programs. This information is crucial for the development of social protection schemes as well as the implementation of public health policies and programs for food consumption. In light of this, the findings of this study can be used to make evidence-based decisions on the factors that influence the FCS of women who receive cash benefits.

Methods

Study setting and period

The study was conducted in eastern Hararghe zone in Eastern Ethiopia drought affected area in pastoralist communities, Oromia regional state Fedis, Medega-tola, and Gola-oda districts from September 2022 to November 2022. Based on the 2007 census (CSA), the total population was 2,723,850, of which 1,383,198 men and 1,340,652 women living in the zone. On the average 4.7 family size live in the household. Ethiopia experiencing an extreme drought that has killed over 1.5 million livestock and affect 8 million people. Among the spot area Fedis, Gola Oda, and Midega Tola, are severely affected by the drought [37].



The map of the study area, in East Hararghe, Oromia Regional State, Eastern Ethiopia, 2022.

Study design and sampling size, and procedure

A community-based cross-sectional study design was conducted among cash transfer beneficiary women in Fedis, Medega-tola, and Gola-oda districts, East Hararghe zone, Ethiopia. The study population was women who received cash benefits in selected kebeles (the smallest administrative unit). Cash beneficiary women who critically ill during data collection were excluded. The sample size was estimated using a single population proportion based on the following assumptions: 95% confidence interval, a minimum proportion rate considered as 50%, and a tolerable margin of error ($d = 0.05$). Finally, the minimum calculated sample size was 344, and by adding 10% of the non-response rate, the final sample size was 374.

The cash transfer beneficiary services provided in the East Hararghe zone were Gola-oda, Medega-Tola, and Fedis districts, comprising 23 cash distribution kebeles; out of these, five kebeles were selected by using lottery methods. The cash-beneficiary women registered in the program based on the screening criteria for the cash assistance by established committee from local administrative, religious leader, International Medical Corp (IMC) coordinator, Health Extension Workers (HEWs) and Health Development Arm (HDAs) and representative of woreda office. The total number of cash beneficiaries of women in selected kebeles was obtained from the director's office of the IMC, and the sample size was allocated proportionally to each kebele. According to 2022 reports of the IMC director's office, the total number of women registered in three woredas attending cash beneficiary services was 3,060. From the total beneficiaries, 374 cash beneficiary women were selected from the selected kebeles by using a simple random sampling technique.

Data collection and measurement

Data were collected using a structured questionnaire and anthropometric measurements. The questionnaire comprises socio-demographic characteristics, cash assistance disbursement, household livelihoods and expenditure, service satisfaction, and food consumption questions. The questionnaire was adapted from the survey of the United Nations High Commissioner for Refugees [38]. The questionnaire was first prepared in English and translated into Afaan Oromo, and then back to English by bi-lingual experts. Data was collected by trained experienced BSc female nurses and two supervisors, through face-to-face interviews using a structured questionnaire at a private place to maintain confidentiality

of the respondents. During the interview, the study participants were asked to recall all the food items they had consumed in the past seven days to assess their FCS. The local food items were categorized into eight food groups by using the Ethiopian food composition table and its scientific food groups [15]. All consumption frequencies of foods in the same group were summed, and when the value of each group result was above 7, it was recoded as 7. Then the value was multiplied by its assigned weight. Finally, the weights of food groups' scores were summed to obtain the FCS to determine the status of households [39].

Finally, the weight of each food category was computed by sum up the FCS of women who received cash beneficiary based on the following outcomes: a score of 0–21 was considered poor; a score of 21.5–35 was considered borderline; and a score of > 35 was considered acceptable FCS [13, 40].

Animal-source food group consumption was defined as when cash beneficiary women consumed at least one animal-source food item within the animal-source food group assigned as "yes" and when they had not consumed any food item within the animal-source food group assigned as "no" [40].

The anthropometric was measured by using non-elastic tape on the mother's Mid-Upper Arm Circumference (MUAC) of the left upper arm at the mid-point between the tip of the shoulder and tip of the elbow. The measurements were taken on the non-dominant arm by using UNICEF tape[41]. MUAC was translated according to the World Health Organization (WHO) for pregnant and lactating women (PLW) < 21 cm: severe malnutrition; 21–23 cm: moderate malnutrition; 23–30 cm: normal, and > 30 cm were obese [42, 43].

Vulnerable women is targeting households that have a woman member who is pregnant or breastfeeding an infant under six months or has a child under two (or in some cases five) years of age, and householder women[44]. Based on vulnerability criteria to target households and individuals were selected and registered in the cash transfer program by the local community committee.

Data quality control

Two days of training were given for data collectors, and supervisors focused on the objective and the relevance of the study, how to gather the appropriate information, field data collection techniques, the procedure of data collection, and the content of the structured questionnaire. To reduce interviewer bias, female data collectors who fluently speak Afan Oromo and well known for the local culture were recruited and trained on the study tool. The interviewer guide, FCS interviewing techniques, was used. Data collectors interviewed eligible participants who consented to participate at home, in a private setting, to maintain the confidentiality of their responses. The field research supervisors closely monitored the data collection process and checked the filled questionnaire for completeness and accuracy daily. After the training was given, pre-tests were conducted on 5% of the sample in Fedis Kebele, which was not included in the main study, to check the consistency of the tool and refine it based on the feedback obtained. The study participants would probe the holidays and fasting days and then separat**e,** to minimize recall and social desirability bias.

Data processing and analysis

Data entry was done using EPi Data version 3.1 software and coded, entered, and cleaned to minimize errors. The data was exported to SPSS version 23 for analysis. Tables, graphs, the mean, median, standard deviation, frequency, and percentages were used to describe the data. The ordinal logistic regression model (proportional odds model (POM)) was used for data analysis and to identify predictors. The proportional odds assumption was checked and the multicollinearity was verified by using the variance inflation (VIF) factor. The proportional odds assumption was tested using the parallel line ($p = 0.68$) and the Pearson chi-square ($p = 0.566$). The goodness-of-fit test adequately describes the model, and model fitting information indicated that there is a significant improvement in fit as compared to the null model ($p = 0.000$), hence, the model was showing a good fit. Furthermore, the Negelkerke R-square (0.202) indicated that there had been a 20.2% improvement in the prediction of food consumption score based on the predictors in comparison to the null model. The bivariable and multivariable ordinal logistic regression model was fitted to identify the predictors of food consumption scores. Variables that fall with the p-value < 0.25 were candidates for multivariable analysis, and an adjusted AOR with the 95% confidence interval was calculated. Finally, variables with *P* values < 0.05 in multivariable analysis were considered to be statistically significant.

Results

The overview of the main findings of the study was 43.3% acceptable FCS, 35.3% borderline FCS, and 21.4% poor FCS among cash transfer women. The majority of the study participants, 58% were undernutrition. A severe shortage of water in the Midega Tola district, while the community was fetching rainwater on the road site. Women also reported that they had to walk long distances to collect surface water for drinking. In general, they are not treating or filtering the water. Potable water is a major problem in many of these areas.

Table 1 Socio-demographic characteristics of cash beneficiary women in Eastern Hararghe, Ethiopia, 2022 (n = 374)

Variable	Category	Frequency	Percent (%)
Gender of household head	Female	285	76.2
	Male	89	23.8
Residence	Rural	324	86.6
	Urban	50	13.4
Educational status	Unable to read and write	329	88
	Primary school	38	10.2
	Secondary school and above	17	4.6
Respondents age	≤ 29	177	47.3
	> 29	197	52.7
Family size	< 6	189	50.5
	6–13	185	49.5
Resident status	Host community	369	98.7
	Internally or internationally displaced	5	1.3
Family members with special needs	Yes	37	9.9
	No	337	90.1
Disability members (n = 37)			
Difficulty of mobility	Male	8	21.6
	Female	9	24.4
Difficulty of hearing	Male	1	2.7
	Female	1	2.7
Difficulty of vision	Male	6	16.2
	Female	8	21.6
Other		4	10.8

Other = mental health condition, neurological disability

Table 2 Beneficiary selection, and information sharing of social aid program of cash beneficiary women in Eastern Hararghe, Ethiopia, 2022 (n = 374)

Variable	Category	Frequency	Percent (%)
Clearly explained how the beneficiary selection process	Yes	293	7.3
	No	43	11.5
Do you know the Purpose of cash assistance	Yes	364	97.3
	No	10	2.7
Level of satisfaction with beneficiary selection process	Not satisfied	11	2.9
	More or less satisfied	34	9.1
	Satisfied	329	88
Did you incur any expenses when you collected the cash assistance?	Yes	57	15.2
	No	317	84.8
Did you know when and where you will receive the cash assistance beforehand the cash distribution?	Yes	231	61.8
	No	143	38.2

Socio-demographic characteristics of respondents

A total of 374 participants were recruited in the study, of which 148 (39.6%) were from Fedis District, followed by 123 (32.9%) from Midega-Tola District and 103 (27.5%) from Gola-oda District. The study shows that the majority of the household heads (76.2%) were female. Regarding the age of participants, nearly half, 177 (47.3%) of the women were less than or equal to 29 years with the mean age of 29.61 (SD ±6.57) years, and the minimum age was 16 years. The majority of the study participants, 329 (88%) of women, were unable to read and write, and 324 (86.6%) women lived in rural residences. The study shows that half of the participants, 185 (49.5%), had a family size of six or above, and 37 (9.9%) had special needs in the family members (Table 1).

Table 3 Household expenditure in average amounts of Cash beneficiary women respondents in Eastern Hararghe, Ethiopia, 2022 (n = 374)

Household expenditure	Maximum	Mean	Std. Deviation
Food	10,000	2827.49	1388.140
Water	100	102.54	194.388
Hygiene products	800	92.09	155.602
Cooking fuel	800	42.18	113.628
Medical cost	2000	37.42	158.269
Debit Repay	1000	2.67	51.709
khat and cigarettes	3000	33.42	236.327
Total expenditure	10,910	3155.16	1564.981

Beneficiary selection and information sharing

Among the study participants, 364 (97.3%) knew the purpose of cash assistance, while 10 (2.7%) did not know. Regarding on selection towards the program, the majority of participants (90.6%) were satisfied with the beneficiary selection process. The cash assistance disbursement method for all beneficiaries was through the cash disbursement method (hand in hand) and all of them received equal to 2100 ETB every three months (Table 2).

Cash assistance utilization and expenditure

Of the surveyed participants, 9(2.4%) reported a conflict was happen within the family on the utilization of the money, and almost all participants reported that they mainly used cash assistance for food purchases and decided the cash assistance used by the household head. The total expenditure of the household was ranged from 400 ETB to 10,910 ETB with a mean (± SD) of 3155.16, (± 1564.981) ETB. The main household expenditure was on food (90%) and 1.05% was spent on khat and cigarettes (Table 3).

Nutritional status of the women

The study shows that the mean of MUAC measurement of the study participants was 22.6 cm ± 2.09 cm. Among the study cash beneficiary mothers, 71(19%) were severe malnourished (MUAC < 21 cm), and 148(39.6%) were moderate malnourished (MUAC 21–23 cm). However, more than one-third of the study participants, 119(31.8%) were normal (MUAC 23–30 cm) in nutritional status, and 36(9.6%) were obese (Fig. 1).

Household Food Consumption Score (FCS)

The study shows that about 29% of the study participants consumed main staples and 26% consumed oil food groups in the last seven days before the data collection (Table 4).

The main food consumption in households were staples, and oil products were the most commonly consumed food groups. In contrast, households of cash-beneficiary women consumed vegetables, fruits, sugar, honey, and eggs less frequently. The majority of the participants, 230 (61.4%) consumed food in the household during the last seven days of the study was purchased in cash or credit from the market (Table 5).

The study shows that the proportion of acceptable FCS was 43.3% (95% CI 38.27–48.36) among cash beneficiaries. The study shows that about 35.3% of the participants were borderline of FCS, and 21.4% were poor FCS among cash-beneficiary women (Fig. 2).

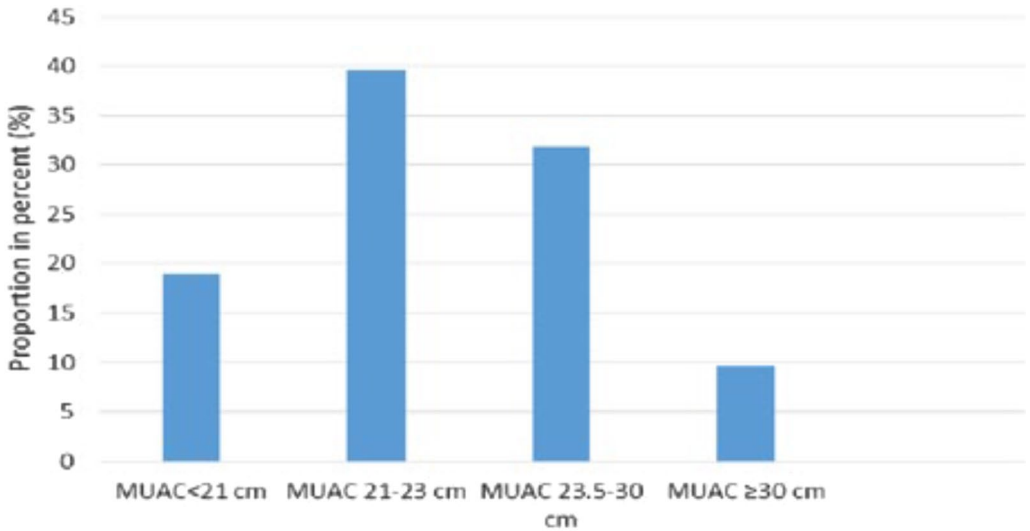


Fig. 1 Nutritional status cash beneficiary women in drought emergency pastoralist community in eastern Ethiopia Hararghe Ethiopia, 2022

Table 4 Percentages of households food groups consumption in the past seven days of Cash beneficiary women respondents in Eastern Hararghe, Ethiopia, 2023(n = 374)

Food group consumption	Category	Frequency	Percent (%)
Sugar and honey	No	359	96
	yes	15	4
Oil	No	277	74
	yes	97	26
Main staples	No	265	71
	Yes	109	29
Vegetables	No	352	94
	Yes	22	6
Fruits	No	359	94
	Yes	15	4
Tubers	No	329	88
	Yes	45	12
Pulse	No	352	94
	Yes	22	6
Dairy Products	No	344	92
	Yes	30	8
Meat, fish, and eggs	No	355	95
	Yes	19	5

Factors associated with the food consumption score

In the bivariable analysis variables like favours in exchange, any expenses during the cash assistance, cash assistance caused some problems within the household, the main source of own production (crops, animals), and consumption of animal source foods were candidates for the final model at p-value < 0.25.

In the final multivariable of POM, the variables such as the main source of own production (crops, animals), animal source food, and women with favours in exchange for being registered for cash assistance were significantly associated with food consumption scores. The odds of acceptable food consumption score (against borderline and poor FCS) were 2.7 times higher among cash beneficiary women with the main source of own production (crops, animal) (AOR = 2.76, [95%CI: 1.68, 4.56], P = 0.001) in compared with women without the main source of own production. Cash beneficiary women with animal-source foods had 12 times (AOR = 12.14, [95%CI: 5.25, 28.06], P = 0.000) the chance of having an acceptable food consumption score (against borderline and poor FCS) compared with women without animal-source food. However, those cash beneficiary women with the favours in exchange for being registered cash assistance (AOR = 0.059, [95%CI: 0.011, 0.32], P = 0.000) were significantly associated with a lower probability of being classified with acceptable food consumption score (against borderline and poor FCS) compared with their counter partner (Table 6).

Discussion

The study showed that the proportion of acceptable, borderline, and poor FCS among cash-beneficiary women was 43.3%, 35.3%, and 21.4%, respectively. Factors like the main source of own production (crops, animals), favors in exchange for being registered for cash assistance, and consuming animal source food were associated with food consumption scores.

In this study, about 43.3% of cash-beneficiary women were acceptable FCS. From previous national food consumption score vulnerability assessment and mapping has been reported that the level of food consumption score in Ethiopia was 74% [45], which is far lower than recommended by WFP, which is 90% [46] but higher than this study finding 43.35%. This figure was consistent with the studies done in Kibumba (42.5%) [22], Burkina Faso (44%) [47], and Sri Linka (44.6%) [9]. The proportion of women with accepted FCS in our study was lower than the study conducted in the Haramaya East Hararghe zone

Table 5 Household Food Consumption Score (FCS) of Cash beneficiary women respondents in Eastern Hararghe, Ethiopia, 2022 (n = 374)

Variable	Frequency (n = 374)	Percent (%)
Main source of food consumed in the HH during the last seven days		
Market (purchase in cash/on cred)	230	61.5
Market (purchase in cash/on cred and food aid	23	6.2
Food Aid from Social Welfare Fund, Market (purchase in cash/on cred, Own production (crops, Animal), food aid, and gift food	15	4
Market(purchase in cash/on cred and other	2	0.5
Market(purchase in cash/on cred and own production	7	1.9
Own production (crops, Animal)	97	25.9
Animal source foods		
Yes	344	92
No	30	8

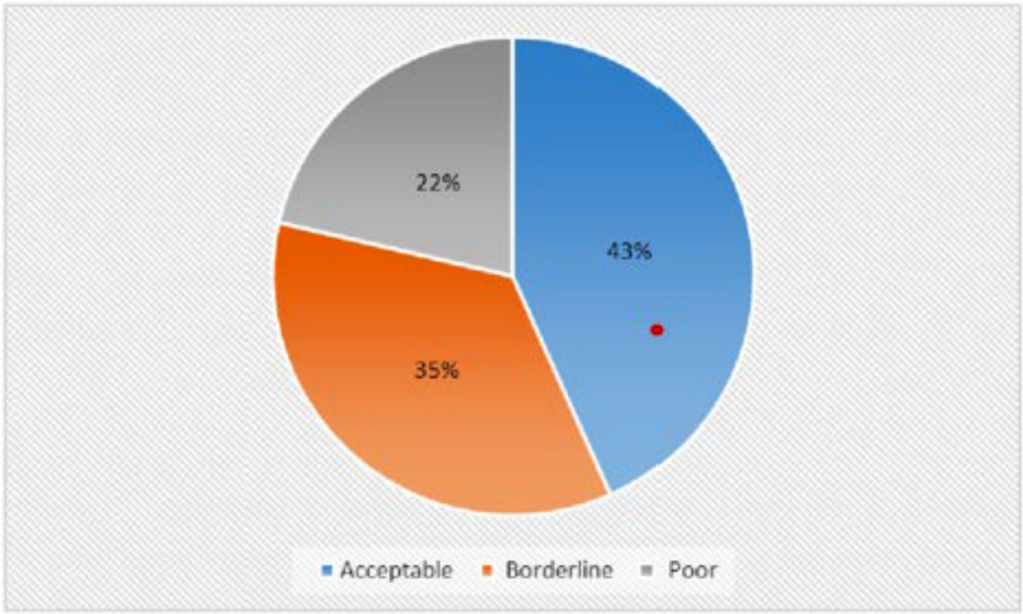


Fig. 2 Food consumption score cash beneficiary women in drought-affected pastoralist community in eastern Hararghe Oromia, Ethiopia, 2022

Table 6 Bi-variable and multivariable analysis ordinary logistic regression model of Food consumption score among cash-beneficiary women in Eastern Hararghe, Ethiopia, 2022 (n = 374)

Variable	FCS				COR (95%CI)	AOR (95%CI)	P-value
	Acceptable	Borderline	Poor	Total			
Favours in Exchange for being registered assistance							
Yes	1(16.7)	1(16.7)	4(66.7)	6(1.6)	0.147(0.03,0.76)	0.059(0.011, 0.32)	0.001**
No	161(43.8)	131(35.6)	76(20.7)	368(98.3)	1	1	
Any expenses when you collected the cash assistance?							
Yes	31(54.4)	18(31.6)	8(14.0)	57(15.2)	1.71(0.99, 2.95)	1.59(0.907, 2.78)	0.106
No	131(41.3)	114(36.0)	72(22.7)	317(84.7)	1	1	
Cash assistance caused some problems within HH							
Yes	6(66.7)	2(22.2)	1(11.1)	9(2.47)	2.60(0.663, 10.27)	2.63(0.68, 11.42)	0.195
No	156(42.7)	130(35.6)	79(21.6)	365(97.59)	1	1	
Own production (crops, animal)							
Yes	52(59.8)	28(32.2)	7(8.0)	87(23.26)	2.6(1.618, 4.188)	2.76(1.68, 4.56)	0.000**
No	110(38.3)	104(36.2)	73(25.4)	287(76.73)	1	1	
Animal source food							
Yes	161(46.8)	124(36.0)	59(17.2)	344(91.97)	12.1(5.30, 27.55)	12.14(5.25, 28.06)	0.000**
No	1(3.3)	8(26.7)	21(70.0)	30(8.02)	1	1	

* Significance at P-value < 0.05; ** significance at P-value ≤ 0.001, 1 = reference of the variable

CI confidence interval, *COR* crude odds ratio, *AOR* adjusted odds ratio

in Estern Ethiopia (54.46%) [14], and in Konso Zone, Southern Ethiopia (68.3%) [15], Nigeria (56.1%) [48], Bangladesh (58%) [49], Nuwaraeliya districts (75.5%) [50], Amhara, Ethiopia (80.3%) [23], Sidama, Ethiopia (81.5%) [13], and the study in Polonnaruwa districts (94.7%) [50]. However, our finding was greater than the study done by the Federal University of Agriculture Abeokuta (19.4%) [51] and in Cote Devoir during lean season (33.6%) [21].

These variations may be due to inadequate food access, most households relying on food purchases, and inappropriate household expenditures in our study area. Moreover, pastoralist women are also socially, economically, and

politically marginalized in many countries [2]. They are further marginalized as a result of their restricted decision-making role and the limited attention they receive within the national development framework [36]. Additionally, study settings and sociocultural factors may contribute to this variability. Another explanation could be a decrease in public awareness towards proper food utilization in our study due to mobile community and ecological differences between the study settings [14]. Besides, availability issues, cultural issue and seasonal variation may explain the difference. Additionally, the figure from this finding was conducted in the pastoralist community among cash transfer women. Moreover, geographical variation and methodological differences, socio-economic, cultural settings and seasonal differences might contribute to this difference [14]. In addition, pastoralist women engage in household chores including sweeping the floor, constructing the house, cooking, fetching water, scraping the hide, grazing the herd, cleaning milk containers or fumigating milk pots, collecting wood, washing clothes, and pounding or grinding maize [36], this make them overburden due to different activities and they have no strategies plan to diversify the food.

The study revealed that the borderline FCS was 35.3%, and poor FCS was 21.4% among cash transfer women in pastoralist community. This study significantly higher compared to pervious studies conducted in Ethiopia in Konso Zone, southern Ethiopia (17.4%) borderline and (14.1%) poor FCS [15], Amara (11%), Tigray (16%), Afar (6%), and Somali (17%), and 1.9% poor and 16% border line of FCS in women attending antenatal care service at Shegaw Motta Hospital, East Gojjam Zone, Ethiopia [13]. The discrepancy may be due to the study setting area of the respondents, who enrolled in this study was vulnerable cash transfer women, and small sample size. In our study participants, we included women who is the house holder, undernutrtion, lactate and pregnant women. In addition the wealth status, geographical differences and methodological variation may be contribute for the discrepancy. The findings of the study have implications for policymakers, development practitioners, pastoral communities and the wider international community.

The other significant finding of this research is the association of key factors with the level of FCS among cash transfer women. Among considerable large number of analysed and the study come up with evidence of significant association that the main source of own production (crops, animals), favours in exchange for being registered for cash assistance, and consumption of animal source food was statistically significant with FCS. This study indicates that increasing own production (crops, animals) might improve diversifying of crap and increase food availability for cash beneficiary women households. This factor is consistent with the studies done in Tibet China [52] and Babbile, Ethiopia [53]. The food-based strategy is being employed in developing countries as well as Ethiopia to guarantee maternal and child nutrition. Households with appropriate production of crops, more livestock, and more money could have a high probability of getting adequate food consumption scores [53]. Our study highlights the need for policies and programs that support ways to encourage local food production by household women. For women to fully realize their potential in terms of adequate food output, improved access to resources, education, and income is essential [54].

In the current study show that the cash beneficiary women who registered for favours in exchange for cash assistance was significantly associated with a lower probability of the acceptable food consumption score. With the selection process, 1.6% reported they were asked to provide a favor from kebele administration in exchange for their selection into the program. Among the beneficiaries, 38.24% did not know how much money they would receive beforehand during the cash distribution. The beneficiaries reported to incur some expenses when collecting the cash (15.5%). This indicated that only 5.6% of them had the probability to be classified as having acceptable FCS. This might be because those who exchanged any favours for registration may be exposed to loan repayments, which makes it impossible to access food services with adequate money. Giving bribery can indirectly decrease the most important income determinants for food security [55]. Evidence indicated that the household where they have spent money or any favours on bribes would be destined for food [56]. This finding was supported by a study done on a global scale that indicates the absence of perceived corruption was significantly high in food security [57].The government and partners should be work on behaviour change communication is considered important to encourage recipients to use cash for key goods and services that could improve child and maternal nutrition. The strategies of some women engagement in exchanged favours included due to social support systems, sharing the money with the kebele leaders who screening the vulnerable women during cash transfer, the moral incentive, courage and motivation they earn from the cash transfer. Some Kebele militias and heads demanded payment from the beneficiaries to be registered. In addition, a few males waiting for cash distribution for their wives to collect the cash. About 15.5% participants raise a complaint including request to give money in exchange for registration, pay extra money for ID, mistreatment by kebele militia, and concern that distribution site is too far from their kebele.

In this study, those cash beneficiaries' women who consumed animal-source food had a higher chance of having acceptable FCS. Increasing the animal-based foods in one's diet leads to improved food consumption scores. This is supported by the study done in China and Ethiopia [14, 58]. Evidence displays that the increasing access to and consumption of animal-source food should simultaneously be a global priority for the vulnerable population including women of childbearing age [59] due to ASF's nutrient-rich diet and might help increase the acceptable food consumption score [60]. Ethiopia's second Growth and Transformation Program aims to increase animal source food production in poultry, red meat/milk, and crossbred dairy cows by improving genetics that helps for good access for households for ASFs. The finding shows an important point to increase the consumption of animal-source food by women cash beneficiaries at the household level. The study shows that bettering household access to ASF can be achieved through educating women, having milk cows, poultry and developing local dairy goats under the guidance of women through empowering and improving management techniques and genetic improvements [61]. This could be poor utilization of dietary diversity practice and poor consumption of cereal with pulses is common in these areas.In Ethiopia, food taboos differ from region to region. For instance, eating a large amount of any fatty food, foods that are not in liquid form, such as different types of bread, and cool/cold foods such as cold milk, cold meat, and cold water. The reasons mentioned to adhere to the food taboos for pregnant women were to avoid difficulty in delivering the fetus, to prevent diseases like Gastritis, Diarrhea, Typhoid, and skin discoloration of the fetus, and inconveniences like abdominal cramps. In pastoral societies variety of dietary habits are not accesses, like teff, wheat, corn, maize, and sorghum are common staple food items in the study setting and associated to poor food consumption [62].

Strengths and limitation of the study

The main strength of the study was the use of a validated food frequency questionnaire to assess the frequency consumption of food items over the past seven days' adapted from WFP and the survey of the United Notation High Commissioner for Refugees. It was addressed the large geographic location drought affected area in pastoralist communities among cash beneficiary women. Data collectors are female nurses, who are from the study area and who knew the culture and local language on the types and food groups usually consumed. This study also has some limitations that should be taken into consideration. Individual differences in the consumption of food items rely on the memory of the last seven days of food consumption may be a chance of introduce recall bias. This study delimits the relevance of its results to cash beneficiaries in the pastoralist community in eastern Ethiopia, which cannot be generalized to the general population of Ethiopia. In addition, the study did not address the seasonality, which was addressed in a single season; this limits the generalizability of the results to other seasons. The study also does not address the household decision-making dynamics and cultural food preferences. The respondent fears to respond sensitive issues like food items, and frequency at household levels, which introduce social desirability bias.

Conclusions

The study indicated that the level of acceptable FCS of cash beneficiaries' women was low. The main source of own production and consumption of animal-source food were significantly associated with the acceptable food consumption score. However, women with favors in exchange for being registered were inversely associated with the probability of having an acceptable food consumption score among cash-beneficiary women households. Based on this finding, we recommended policy makers need to recognize and support cash assistance program in their policy to promote food security and to address nutritional gaps, through promoting sustainable own croup and animal products. Maximize agricultural production (own product) and prevent the spending of money or any favors in exchange to address diet diversification and availability, and enhance the consumption of animal-sourced food like poultry, and milk in women's household levels. It would be better if policies and programs were revised to support women cash-beneficiary households through nutritional education to prevent the extra spent money (any favors in exchange) that hinders ensuring the optimal level of FCS, to increase agricultural production (their production), and enhance the consumption of ASF like poultry, and milk. Moreover, strengthening the policies that promote the welfare of pastoralist women, providing training on women's capacity building, enhancing women's empowerment, and encouraging their participation in the decision-making process are essential to mitigating the problems pastoralist women face.

Areas for further research

This study has identified several areas where further research is warranted to continue expanding acceptance of FCS and cash-beneficiary women at household level. Finally, we recommended that further qualitative study should be done to explore behavioral aspects such as food

taboos and social norms that may affect food consumption scores in women receiving cash support. Besides a more comprehensive future researches of the large scale comparative studies could be conducted among women with cash beneficiaries and those without use. In particular the findings highlighted the need for further research such as longitudinal studies should be conducted to identify the variability in FCS due to seasonal variations, and to develop a full picture of the food consumption trends in pastoralist communities.

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Author contributions
A.M., M.J.D., T.B., B.H., and HF.Z. participated in the conception, study design, data analysis, interpretation, and writing of the manuscript. AT.G., A.M., and KT.R. edited, suggested, and approved the concept; took part in data analysis; and made revisions to the paper's next draft. AM critically edited and revised the manuscript. All authors reviewed and approved the final draft of the manuscript and also agreed to be accountable for all contents of the manuscript under any circumstances.

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Availability of data and materials
No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
The Haramaya University College of Health and Medical Sciences Institutional Research Ethics and Review Committee (IRERC) provided an ethical approval with reference number (IHRERC/077/2023). The study was conducted in accordance with the Declaration of Helsinki. The official letter was sent to Gola-oda, Medega-tola, Fedis districts, and Office of International Medical Corpus (IMC) and the data collection began after permission and cooperation letter were written to the kebeles on which the study was carried out. For Participants explanation was done on the study's title, objective, procedure, duration, possible risks, and benefits were explained in the local language. Then, individual informed, voluntary, written, and signed consent was taken. The confidentiality and privacy of the participants was secured.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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