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Prevalence of Diarrhea Disease and Associated Factors Among Children Under 5 Years in Geshiyaro Project Implementation Sites in Ethiopia: A Cross-Sectional Study

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ABSTRACT

Background: Globally, infectious diseases such as pneumonia, diarrhea, and malaria are the leading causes of death for children under 5. Diarrheal disease is a significant public health concern and causes the death of approximately 525,000 children under the age of 5 every year. In Ethiopia, studies revealed that the prevalence of diarrhea among children under 5 years is alarming. However, there has been a shortage of studies regarding the predictors of diarrheal disease in Geshiyaro project implementation sites in Ethiopia. Therefore, this study aimed to fill this gap.

Methods: A community-based cross-sectional study was conducted from June to July 2023. A total of 2937 participants were enrolled in this investigation. Descriptive and multivariate logistic regression analysis was performed using STATA version 16.

Results: The 2-week prevalence of diarrhea among children under 5 years was 11.8%. The following factors were significantly associated ($p < 0.05$) with the occurrence of childhood diarrhea: sex of the child (AOR: 1.6; 95% CI, 1.17–2.19), child age in a month (AOR: 0.5; 95% CI, 0.26–0.94), drinking water service (AOR: 2.6; 95% CI, 1.33–5.25), knowledge on diarrhea prevention (AOR: 1.4; 95% CI, 1.05–1.98), open defecation practice (AOR: 1.9; 95% CI, 1.33–2.74), and rotavirus vaccination (AOR: 1.8; 95% CI, 1.20–2.56).

Conclusions: This study identified several factors contributing to diarrhea. Besides, it also studied and showed a larger number of children who were not receiving basic vaccines. Therefore, the government and partner organizations should implement effective interventions to increase vaccine coverage and reduce diarrhea.

1 | Introduction

Diarrheal disease is a severe global public health problem that affects individuals of all ages and is the main reason for outpatient visits, hospitalizations, and the international year of life lost [1, 2]. It is a major health problem that accounts for 4% of all fatalities and 5% of health loss to disability globally [3]. Worldwide, 15% of all daily causes of child mortality are attributed to diarrheal illness [2]. More than 1.7 billion cases of diarrhea occur each year, resulting in the deaths of 525,000

children under the age of 5. This makes diarrhea the second leading cause of death for young children worldwide, after pneumonia [4, 5]. The regions of Africa and Southeast Asia account for 78% of all child diarrhea deaths [6]. In these areas, diarrhea causes one in eight fatalities in children under the age of 5 each year [7]. Although the diarrhea-related morbidity rate in sub-Saharan Africa, including Ethiopia, has decreased significantly during the past two decades, it is still a major public health issue. With a population of over 110 million, Ethiopia is the second-most populated nation in Africa, with more than 14% of its citizens under the age of 5 [8]. According to the 2016 Ethiopian Demographic Health Survey (EDHS) report, the prevalence of diarrheal disease among children under 5 years was found to be 12%, and diarrhea contributes to more than 1 in every 10 (13%) child deaths in Ethiopia [9, 10]. Moreover, the age of the child, the educational level of the mothers, and the economic status of the households were the most important variables that affected the occurrence of diarrhea in children [11].

In the Wolaita zone, Ethiopia, the prevalence of infectious is suspected to be high. As a result, the government and partner organizations implemented an interventional project called Geshiyaro. It focuses on mass drug distribution with high coverage across the community, together with enhanced services for water, sanitation, and hygiene (WASH) and changes in behavior communication [12]. This interventional project aims to reduce environmental exposure and the spread of infectious diseases. In addition, the initiative aims to develop a comprehensive and long-lasting approach to enhancing Wolayita zone community health and well-being. In children, diarrhea has been linked to stunted growth, compromised cognitive function, decreased immunization effectiveness, and disruption of physical and academic development [13]. Even though many factors influence the likelihood of developing diarrhea, their relative importance changes depending on how socioeconomic, environmental, and behavioral factors interact. Safe WASH services are thought to be crucial factors in reducing the prevalence of many infectious diseases [14–18]. The prevalence of diarrheal disease in Ethiopia is linked to various factors, including WASH services [19–23]. Nevertheless, the predictors of diarrhea vary significantly between different regions and zones of Ethiopia. In addition, there is no similar study conducted on predictors of diarrheal disease among children less than 5 years old in the studied districts, where the prevalence of diarrhea is high.

Therefore, the objective of this study is to identify the prevalence of diarrheal disease and associated factors among children under 5 years in the studied districts and to provide a clue for further project implementation.

2 | Methods

2.1 | Study Design

A community-based cross-sectional survey was conducted between June and July 2023.

2.2 | Setting

The study was conducted in the Wolayita zone, adjacent districts of Oromia and Sidama regional states, Ethiopia. The Wolayita region is 330 kilometers (km) away from Ethiopia's capital city, Addis Ababa. The Wolayita zone's administrative units are divided into woredas (districts) and kebeles (villages). Along with 17 rural districts, the zone has 3 municipal administrations [24].

2.3 | Definition of Variables

2.3.1 | Diarrheal

Defecation frequency of at least three loose or watery stools per day for at least 1 day during the 2 weeks before the survey [25].

2.3.2 | Knowledge of Diarrhea Prevention

Knowing prevention mechanisms of diarrheal disease includes regular handwashing with clean water and soap, access to safe drinking water, use of improved sanitation, exclusive breastfeeding for the first 6 months of life, rotavirus vaccination, and good personal and food hygiene practices.

Open defecation is the act of disposal of human feces in fields, forests, shrubs, open bodies of water, beaches, or other open spaces or solid wastes [26].

WASH services were defined according to the WHO/UNICEF Joint Monitoring Program (JMP) for WASH services [26].

Enumeration areas (EAs) are defined geographic areas used to speed up the collection of data in surveys and censuses. Their small size in larger regions makes population surveys more effective by covering certain households or population sizes, which makes data collection and analysis easier.

Woreda, also known as an administrative division in Ethiopia, is responsible for overseeing local government and service provision; it is comparable to a district or county.

Kebele is a woreda administrative unit that has a size that is smaller than a village or neighborhood, and it is focused on community development and grassroots governance.

2.4 | Sample Size Determination

For this research, sample size was calculated using a single population proportion formula with a 95% confidence interval (CI), 1.5 design effect (e), 2% marginal error (m), and a 10% non-response rate. Based on a previous study, the prevalence of diarrheal disease among children under 5 years (P) was assumed to be 26% [27]. Accordingly, the sample size determination is given as.

$$n = \frac{z^2 \times p(1-p) \times e}{m^2} = \frac{(1.96)^2 \times (0.26) \times (1-0.26) \times (1.5)}{(0.02)^2} = 2772$$

Hence, adding a 10% non-response rate, the total sample size for this study was 3049.

2.5 | Sampling Procedure and Respondents Selection Criteria

The sampling frame was stratified by woreda administration, and the sample was selected in two stages. In the first, 321 EAs were selected by the Ethiopian Central Statistics Services. In the second stage, for each EA, a new listing of households having at least one under-5 child was gathered. A constant 9.5–10 households were taken from each EA. Then, the new listing was divided by 9.5–10 to obtain the sampling interval. At first, one household was taken using a lottery method, and continuously adding the sampling interval to attain the necessary 9.5–10 households per EA. However, households having at least one child under the age of 5 were the inclusion criteria for the household. The inclusion criteria for respondents in the household were that individuals had to be 18 years or older and were the child's mother's guardians. But, the exclusion criteria were respondents with mental disorders (mental illness).

2.6 | Data Quality Control

Data quality was checked using statistical and visual methods. The data were cleaned and checked for errors in data compilation and entry. Goodness-of-fit tests were used to evaluate the model's statistical appropriateness.

2.7 | Data Collection Procedure

The technical expertise of the data collectors in collecting the required information with the Open Data kit was taken into consideration while selecting them. A total of 58 data collectors holding a Bachelor of Science degree and 18 master's degree holders in health-related subjects were selected to carry out the survey, following a 5-day training period. Written informed consent was collected from every research participant. Face-to-face interviews were conducted with mothers of children under 5 years of age. Data were collected using a structured questionnaire. The survey comprised questions about socio-demographic variables, household water safe handling and storage practices, the prevalence of diseases linked to environmental health, exposure to knowledge about environmental health and sanitation, and children's health. The child's immunization status was confirmed by checking the child's vaccination card.

2.8 | Data Analysis

The data analysis was done using STATA Version 16. Binary and multivariate logistic regression analyses were conducted to identify predictor variables of diarrhea disease. In the binary logistic regression analysis, every variable having a p value < 0.05 was included in the multivariate logistic regression analysis. Similarly, in the multivariate logistic regression analysis, variables having a p value of less than 0.05 were considered statistically significant. Four assumptions of the logistic regression analysis were examined: an appropriate sample size, the absence of highly significant outliers, multicollinearity, and independent observations [28–30]. Model suitability was tested and validated using a Pearson goodness-of-fit test [31]. Furthermore, the overall Cronbach's alpha value for the questionnaire to assess child diarrhea was 0.56, which indicates that the items were fairly acceptable [32].

3 | Results

3.1 | Socio-Demographic Characteristics of Participants

A total of 2937 households participated in this study, with a response rate of 96.3%. Over half (54.7%) of household heads were between the age group of 20 and 34 years. The majority (73.8%) of heads of households were farmers. Almost half (51.4%) of mothers had no formal education. Likewise, 54.6% of households had more than six family members. A significant number (21%) of households' availability of water services were intermittent. In addition, 32.1% and 20.6% of households used shared latrines and unimproved water sources, respectively. Most (88.6%) households had no water treatment practice at the household level. Nearly half (43.9%) of heads of households did not know the prevention mechanisms of diarrheal disease, like regular handwashing with clean water and soap. Similarly, 70.7% of households' heads did not wash their hands at critical times (Table 1).

3.2 | Child Vaccination Status

In the present study, children under 5 years had the following vaccine coverage percentages: 87.2% of children received full vaccinations to prevent diseases, while 10.9% had not, and 1.9% were unsure. For the oral polio vaccine, 11.1% of children had not received it, 86.2% had, and 2.7% were unsure. Furthermore, 14.4% of children did not receive the rotavirus immunization, 80.2% did, and 5.4% were unclear. Similarly, 72.2% of children received measles vaccination but, 24.8% had not received it (Table 2).

3.3 | Household Exposure to Health Information

In this study, it was found that 49.5% of households had access to a limited level of drinking water services as defined by the JMP, while only 29.9% had basic water services. In addition, 16.2% and 4.3% of households utilized unimproved and surface water, respectively. However, there was no data on safely managed drinking water services, as the study did not assess the water's quality parameters. On the other hand, 9.1% of households had access to safely managed sanitation services.

TABLE 1 | Socio-demographic characteristics of participants ($n = 2937$).

Study variables	Category	Frequency	Percentage
Age of respondents in years	18–27	831	28.3
	28–37	1347	45.9
	38–49	759	25.8
Occupation of the head of households	Farmer	2167	73.8
	Merchant	230	7.8
	Government worker	292	9.9
	No occupation	46	1.6
	Other	202	6.9
Mother's education level	No formal education	1510	51.4
	Primary	367	12.5
	Secondary	647	22
	Collage/vocational/university level	413	14.1
Family size	< 6 family members	1334	45.4
	≥ 6 family members	1603	54.6
Availability of water services	Intermittent	618	21.0
	Continuous	2319	79.0
Status of toilet facilities utilization	Unshared	1995	67.9
	Shared	942	32.1
The average annual income of the household	< 33905.67	1914	65.2
	≥ 33905.67	1023	34.8
Type of water source	Unimproved	604	20.6
	Improve	2333	79.4
Having water treatment practice at the household level	No	2603	88.6
	Yes	334	11.4
Knowledge of diarrhea Prevention	No	1289	43.9
	Yes	1648	56.1
Handwashing practices at a critical time	No	2075	70.7
	Yes	862	29.3
Ever received a rotavirus vaccination	No	581	19.8
	Yes	2356	80.2

Furthermore, 4.4% of households had limited access to sanitation services, 68.7% used unimproved sanitation services, and 17.6% practiced open defecation. Moreover, 32.2% of households lacked a hand hygiene facility, while a majority (64%) had access to limited hygiene services and only 3.7% had access to basic hygiene services. Furthermore, in the previous 12 months, 35.6% of respondents took part in WASH awareness-raising activities or education. Only 21.3% of respondents obtained WASH products and services in the previous 12 months (Table 3).

3.4 | Multivariable Logistic Regression Analysis

In the binary logistic regression analysis, eight predictor variables like residence type, sex of the child, child age, water service (based on JMP), diarrhea prevention knowledge, open defecation practices, soap availability, and rotavirus vaccination were significantly associated ($p < 0.05$) with diarrheal disease in the past 2 weeks before this study. However, only six [6] explanatory variables including sex of the child, child age, water services, diarrhea prevention knowledge, open defecation practices, and rotavirus vaccination were significantly associated in the multivariable logistic regression model with ($p < 0.05$) (Table 4).

4 | Discussion

The objectives of this study were to identify the prevalence of diarrheal disease and its predictors among children under 5 years. The prevalence of diarrheal disease in the 2 weeks before the interview was found to be 11.8%. This finding was in line with the EDHS 2016 report, where the prevalence of

TABLE 2 | Child vaccination status ($n = 2937$).

Study variables	Category	Frequency	Percentage
Did ever receive any vaccinations to prevent from getting diseases, including vaccinations received in campaigns on immunization days or child health days?	No	320	10.9
	Yes	2562	87.2
	Do not know	55	1.9
Has ever been given a vaccination against tuberculosis; that is, an injection in the left shoulder that left a scar?	No	408	13.9
	Yes	2440	83.1
	Do not know	89	3.0
Have you ever received the oral polio vaccine, that is, two drops in the mouth to prevent polio?	No	327	11.1
	Yes	2531	86.2
	Do not know	79	2.7
Have you ever received a pentavalent vaccination, that is, an injection usually given on the left upper thigh sometimes at the same time as polio drops?	No	403	13.7
	Yes	2392	81.4
	Do not know	142	4.8
Have you ever received a pneumococcal vaccination, that is, an injection usually given on the right upper thigh to prevent pneumonia?	No	397	13.5
	Yes	2385	81.2
	Do not know	155	5.3
Has ever received a rotavirus vaccination, that is, liquid in the mouth to prevent diarrhea?	No	422	14.4
	Yes	2356	80.2
	Do not know	159	5.4
Have you ever received a measles' vaccination, that is, an injection in the arm to prevent measles given at 9 months?	No	729	24.8
	Yes	2120	72.2
	Do not know	88	3.0
Has ever been breastfed?	No	107	3.6
	Yes	2830	96.4
Is still being breastfed?	No	1644	56.0
	Yes	1293	44.0

diarrhea among children under 5 years was 12% [33]. However, the result of the current study is lower compared with another previous cross-sectional study carried out in Ethiopia that found the prevalence of diarrheal disease among children under 5 years was 29.0% [34]. Moreover, the current study's prevalence of diarrhea was lower than similar studies conducted in Ethiopia: Sidama region (13.6%) [23], Oromia region (14.8%) [14], Amhara region (16.4%) [35], and South Gondar zone, Northwest Ethiopia (14.5%) [36]. Diarrheal diseases among children under 5 years can be prevented and managed with the help of caregivers' knowledge and attitude. According to other studies, women's awareness of sanitary measures can prevent diarrhea by more than 80% [37]. Similarly, the Health Extension Program (HEP) model household had a 17.7% lower prevalence of children's diarrheal diseases among under-5 children than those in non-model households [38].

In the present study, 87.2% of children under 5 years received full vaccinations. This finding revealed that a higher proportion of children had received vaccines to prevent diseases. This result is higher compared with another previous cross-sectional study carried out in Ethiopia that found more than three-fourths (76.8%) of the children aged 12–23 months were fully vaccinated based on card and history [39]. Health programs and immunization campaigns may have played critical roles in increasing the immunization coverage of the study areas. According to the study by Getachew et al. 2024, children who received the recommended vaccinations for their age were less likely to experience diarrhea than those who did not [40]. Hence, the current study calls for further investigation and intervention for the 10.9% of children who have not received any full vaccinations. Regarding tuberculosis vaccination, 83.1% of children took the vaccine, while 13.9% had not been vaccinated. This could be due to the lack of access to healthcare facilities, culture and lack of awareness, which might be contributing factors. The tuberculosis vaccination is essential in disease prevention, and it will contribute to reducing mortality and morbidity, particularly in areas with a higher prevalence of infectious disease [41, 42]. Likewise, a previous study indicated that the polio vaccine was one of the most frequently taken vaccines with a range of 93.2%–97% [39], this percentage is comparable with the current research finding (86.2%). Through this study, 11.1% of children had not received oral polio vaccine, and this needs efforts to ensure full coverage. Similarly, measles vaccination is important for herd immunity against contagious diseases. The proportion of measles vaccination in this study is higher (72.2%) than in a study done by Meleko et al. [43] reported that only 40% of children received measles vaccination.

TABLE 3 | Household's WASH services and exposure to health information ($n = 2937$).

Study variables	Category	Frequency	Percentage
Households' JMP ladders for drinking water service	Safely managed	No data	No data
	Basic	878	29.9
	Limited	1455	49.5
	Unimproved	477	16.2
	Surface water	127	4.3
Households' JMP ladders for sanitation service	Safely managed	267	9.1
	Basic	6	0.2
	Limited	129	4.4
	Unimproved	2019	68.7
	Open defecation	516	17.6
Households' JMP ladders for hygiene service	Basic	110	3.7
	Limited	1880	64
	No service	947	32.2
The mother attended awareness creation sessions about WASH practices in the past 12 months.	Yes	1046	35.6
	No	1891	64.4
Mother obtained WASH products and services in the past 12 months	Yes	627	21.3
	No	2310	78.7

Abbreviations: JMP, Joint Monitoring Program; WASH, Water, sanitation, and hygiene.

Nonetheless, the unvaccinated population (24.8%) in this study required targeted interventions through outreach efforts and education.

In this study, the odds of developing diarrheal disease among male children under 5 years old were 1.6 times higher (AOR = 1.6; 95% CI, 1.17–2.19) than female children. This finding is in line with other similar studies conducted in Ethiopia and Bangladesh [14, 44–46]. This revealed that further research is needed to fully understand the fundamental causes of the frequently observed difference in diarrheal illness between boys and girls. In addition, children living in households using surface water sources had 2.6 times (AOR = 2.6; 95% CI, 1.33–5.25) higher odds of developing diarrheal disease than those living in households using basic water services. This result is in line with previous studies [47, 48]. Similarly, developing diarrheal diseases was 1.4 times higher (AOR = 1.4; 95% CI, 1.05–1.98) among children under 5 years old whose mothers had no knowledge of diarrheal prevention compared with those children whose mothers knew about diarrhea prevention. The prevention of diarrhea was good in children whose mothers knew about it, and the results of this study support those of other studies [37, 49]. This indicated that knowledge was a power and a key instrument to reduce diarrheal disease. However, knowledge alone is not sufficient, while the transition of knowledge into practice is important [37].

Furthermore, children who lived in households having open defecation practices had 1.9 times the odds of developing diarrheal disease (AOR = 1.9; 95% CI, 1.33–2.74) than children who lived in households without such practices. This result is in line with past studies that found that children who lived in areas free of open defecation were less likely to have diarrhea than children who lived in areas that allowed open defecation [50–52]. This implies that reducing open defecation could lower the number of diarrhea occurrences. The odds of developing diarrheal diseases among children under the age of 5 years was 1.8 times higher (AOR = 18; 95% CI, 1.20–2.56) among children who took the rotavirus Vaccination than those children who did not take it. This finding is consistent with other research that showed a decline in hospitalizations related to rotavirus and a decline in the prevalence of diarrhea seen in several countries when the rotavirus vaccine was introduced [53–57]. On the other hand, the odds of developing diarrheal diseases among children aged 0–6 months were 50% less likely (AOR = 0.5; 95% CI, 0.26–0.94) to develop diarrheal disease than children aged 25–59 months. This finding is consistent with earlier research findings, which suggest that the reason for this could be that children older than 6 months begin to crawl or walk, increasing their exposure to infectious agents [58]. Because most mothers care for their children at this time, there may have been less exposure to the environment. Centers for Disease Control, and Prevention (US) reported that the likelihood of rotavirus infection in infants under 3 months is very low, likely due to passive maternal antibodies and possible breastfeeding. Rotavirus infections in adults are usually symptomless, but they can cause diarrhea [59].

5 | Strengths and Limitations of the Study

The study's strength is the utilization of international tools and the use of a large sample size. Nevertheless, the study focused on Ethiopia's Geshiyaro project implementation sites, which may limit its generalizability to other regions. In addition, the study's inclusion criteria did not account for households led by

TABLE 4 | Multivariate logistic regression analysis ($n = 2937$).

Study variables	Child diarrhea		*p*	AOR [95% CI]
	Yes (%)	No (%)		
Residence				
Urban	8.7	91.3		1.0
Rural	12.5	87.5	0.44	1.2 [0.77–1.82]
Sex of the child				
Female	9.3	90.7		1.0
Male	14.1	85.9	0.00	1.6 [1.17–2.19]
Child age in month				
(25–59)	12.1	87.9		1.0
(0–6)	8.0	92.0	0.03	0.5 [0.26–0.94]
(7–12)	10.4	89.6	0.28	0.8 [0.45–1.26]
(13–4)	13.4	86.6	0.62	1.1 [0.75–1.62]
Drinking water service ladders				
Basic	8.7	91.3		1.0
Limited	11.9	88.1	0.22	1.3 [0.87–1.90]
Unimproved	14.1	85.9	0.19	1.4 [0.85–2.29]
Surface water	22.8	77.2	0.01	2.6 [1.33–5.25]
Knowledge of diarrhea prevention				
Yes	8.3	91.7		1.0
No	16.1	83.9	0.03	1.4 [1.05–1.98]
Open defecation practice				
No	10.2	89.8		1.0
Yes	18.9	81.1	0.00	1.9 [1.33–2.74]
Soap availability				
Yes	6.2	93.8		1.0
No	10.9	89.1	0.06	1.4 [0.98–2.13]
Rotavirus vaccination				
Yes	11.2	88.8		1.0
No	13.9	86.1	0.00	1.8 [1.20–2.56]

Abbreviations: AOR, Adjusted odd ratio; CI, Confidence Interval.

individuals under the age of 18, often referred to as minor adults. Likewise, as the study is cross-sectional, it cannot know the exact cause and effect of diarrheal diseases. Nevertheless, the findings aim to contribute globally to Sustainable Development Goal 3 and public health initiatives. Thus, future research should include nationwide assessments of diarrheal disease prevalence and control mechanisms. Moreover, it is essential to include households led by individuals under the age of 18, commonly known as minor adults. Also, the authors recommend that effective interventions that address the existing public health problem using mass media should be done.

6 | Conclusion

The findings of this study indicate that various factors including the age of children, rotavirus vaccination status, access to clean drinking water, awareness of diarrhea preventive methods, and open defecation practice were found to be significantly associated with the occurrence of diarrhea. Furthermore, a larger number of children were not taking basic vaccines. These results highlight the urgent need for targeted interventions and improved health education programs in these communities to prevent and manage this prevalent childhood illness. By addressing these underlying factors, it is possible to reduce the burden of diarrheal disease and improve the health outcomes of children in these regions. Thus, the government and partner organizations should implement effective interventions that assist in reducing diarrhea and enhance vaccine coverage.

Author Contributions

Zinabu Assefa Alemu: conceptualization, data curation, funding acquisition, investigation, methodology, project administration, supervision, validation, writing–original draft, writing–review and editing, formal analysis. **Aderajew Mekonnen Girmay:** conceptualization,

data curation, investigation, methodology, validation, supervision, writing–original draft, writing–review and editing. **Kirubel Tesfaye Teklu:** writing–review and editing, supervision, methodology, investigation, data curation. **Ermias Alemayehu Adugna:** data curation, formal analysis, validation, methodology. **Melaku Gizaw Serte:** data curation, methodology, supervision. **Tsigereda Assefa Alemayehu:** methodology, data curation, supervision. **Badasa Wagari Likasa:** methodology, data curation, supervision. **Benjamin Collyer:** data curation, conceptualization, writing–review and editing. **Zelalem Mehari:** conceptualization, methodology, project administration, supervision. **Mihretab Salasibew:** conceptualization, project administration. **Getachew Tollera:** project administration. **Masresha Tessema:** conceptualization, project administration.

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Ethics Statement

The study proposal was approved by the Ethiopian Public Health Institute (EPHI) Scientific and Ethical Review Board, with reference number EPHI-IRB-321-2020.

Consent

Yes, there were human subjects. However, written consent was obtained from the participants. Those who did not want to be a part of the study were not compelled to do so. The participants' confidentiality and privacy were ensured through the investigation.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Transparency Statement

The lead author, Zinabu Assefa Alemu, 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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