

# COVID-19 Preventive Measure Practices and Knowledge of Pregnant Women in Guraghe Zone Hospitals

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**Background:** The COVID-19 pandemic is caused by a severe acute respiratory syndrome coronavirus which emerged in Wuhan. Recently this virus has rapidly spread throughout Ethiopia. The current preventive measure practices and knowledge have gaps. Therefore this study aimed to assess COVID-19 preventive measure practices and knowledge of pregnant women in Guraghe Zone hospitals.

**Methods and Materials:** This cross-sectional study was conducted from July 27–August 27, 2020 among pregnant women in Guraghe zone hospitals. Systematic random sampling technique were employed to select 403 participants. Data were checked manually for completeness, cleaned, and stored in Epi Data and exported to SPSS for further analysis. Variables which have a *P*-value less than 0.25 on bivariate analysis were taken to multivariate analysis. A *P*-value of less than 0.05 and 95% confidence level was used as a cut-off point for presence of association in multivariate analysis.

**Results:** COVID-19 preventive measure practice and knowledge of pregnant women visiting Guraghe Zone hospitals was 76.2% and 54.84%, respectively. Those aged 20–24 (AOR=1.22, 95% CI=1.15–22.24), 25–29 (AOR=1.32, 95% CI=1.20–20.25), and 30–34 (AOR=2.57, 95% CI=2.32–43.38) were more likely to practice COVID-19 preventive measures. Those residing in urban area (AOR=2.16, 95% CI=1.24–3.77) and perceiving that COVID-19 is worst for people with chronic disease (AOR=5.12, 95% CI=1.73–15.17) were more likely to practice COVID-19 preventive measures.

**Conclusion:** COVID-19 preventive measure practices and knowledge were low. Age, residence, and perception of COVID-19 on chronic disease were independent factors associated with preventive measure practices. Pregnant women aged  $\geq 35$  need to be counseled on practices of preventing COVID-19 by their healthcare providers.

**Keywords:** COVID-19, Guraghe Zone, pregnant women, 2020

## Introduction

In December 2019 a coronavirus (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) emerged in Wuhan, China.<sup>1–5</sup> The first cases were then reported from Thailand, Japan, and the Republic of Korea, and then devastating all over the world.<sup>6</sup> On January 30, 2020 the Director-General of WHO declared the 2019-nCoV outbreak a public health emergency of international concern.<sup>7–10</sup>

COVID-19, as of June 2, 2020 had 6,403,439 cases and 378,113 deaths in the world, and 1,344 cases and 14 deaths in Ethiopia were recorded.<sup>11</sup> The case fatality rate of SARS-CoV infection among pregnant women is up to 25%.<sup>12</sup> COVID-19

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mortality rate among pregnant mothers has been lower than that of SARS and MERS.<sup>13</sup>

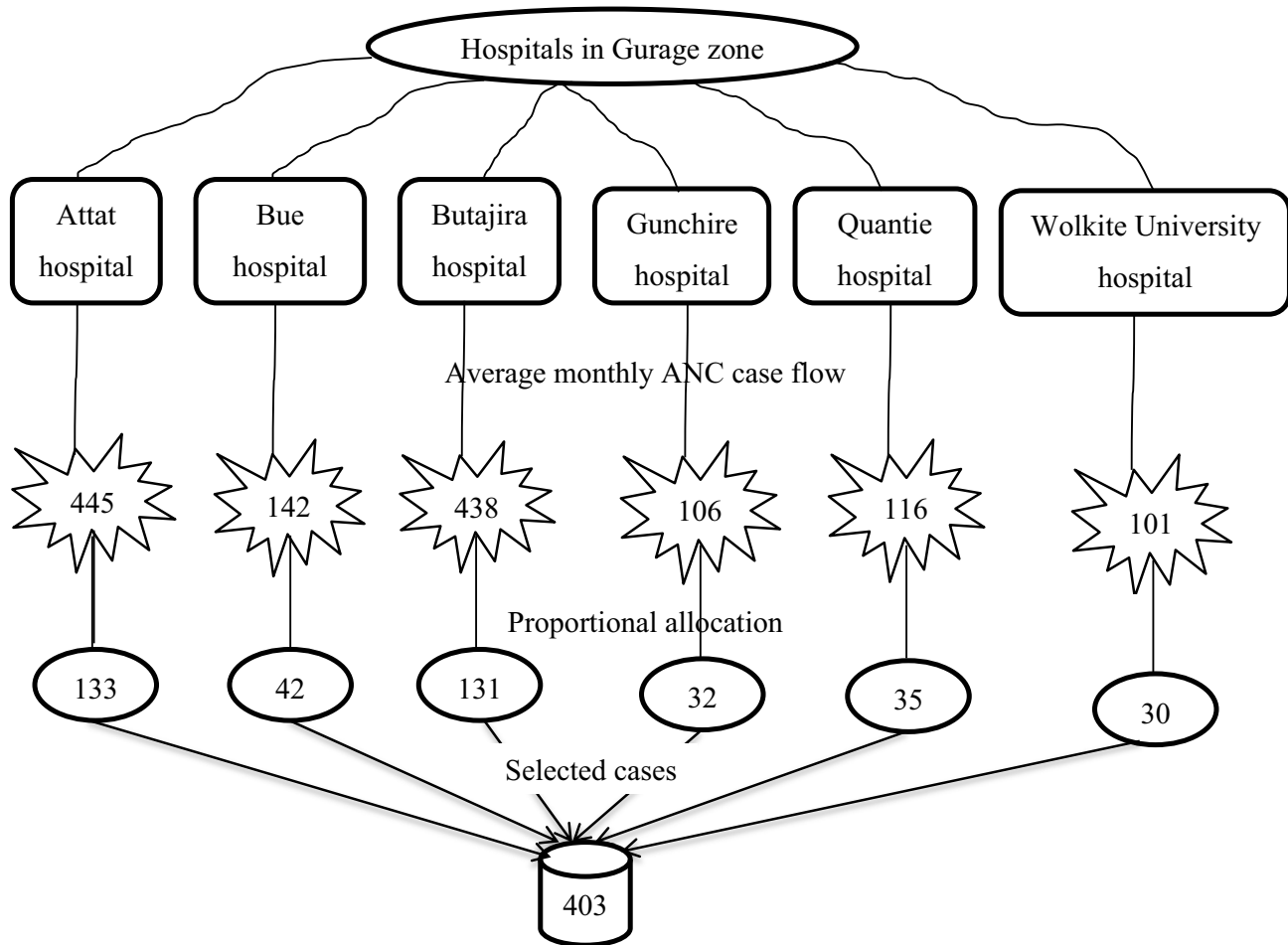
The COVID-19 pandemic is causing huge stress on the healthcare system of all countries in the world, putting on both social and economic distresses.<sup>14-17</sup> Despite the large and rapidly rising number of COVID-19 and resulting deaths, there are limited data about the clinical characteristics of pregnant women with the disease.<sup>2,-18-21</sup> Although pregnant women do not seem to have an increased susceptibility to COVID-19 or more severe complications than non-pregnant adults, the available studies suggest that they may have the risk of adverse pregnancy outcomes.<sup>22,23</sup>

A study conducted in New York City shows more than one in eight asymptomatic patients who were admitted to the labor and delivery unit were positive for SARS-CoV-2.<sup>1</sup> A case study conducted in the USA reports a high-risk pregnant woman who developed respiratory failure associated with COVID-19, possible vertical transmission of COVID-19

infection in this case.<sup>24</sup> Pregnant women at all gestational ages, the gravida in labor, and the acutely ill parturient are at risk of this virus.<sup>1,25,26</sup>

Pregnancy is a physiological state that predisposes women to viral respiratory infection due to the physiological changes in the immune and cardiopulmonary systems.<sup>3,-27-29</sup> Therefore, pregnant women and household members should be educated about personal hygiene, basic Infection Prevention and Control (IPC) measures, and how to care as safely as possible for the person suspected of having COVID-19 to prevent the infection from spreading to household contacts.<sup>6,13,14,30</sup>

Recently COVID-19 has rapidly spread throughout Ethiopia. New data are being collected every day. It is important to provide healthcare workers with the most updated information about COVID-19 in pregnant women. This information will help to answer the numerous questions that future mothers may have in the current situation and to prevent



**Figure 1** Sampling procedures of COVID-19 preventive measure practices and knowledge of pregnant women in Gurage zone hospitals, Wolkite, September 2020 (N=403).

obstetrical complications. Since pregnant women, especially in rural areas, have a limited information route, and scarcity of resources, this virus will have a severe impact. Therefore, this study is aimed to assess CoVID-19 preventive measure practices and knowledge of pregnant women in Guraghe zone hospitals.

## Methods and Materials

### Study Area, Design, and Period

Guraghe zone is one of the administrative zones in Southern nation nationalities and peoples region (SNNPR) of Ethiopia. It has 13 districts and two town administrations. Wolkite town is the capital of Guraghe zone, found 153 km southwest to Addis Ababa, the capital of Ethiopia. According to Wikipedia, Guraghe zone has a total population of 1,279,646, of which 657,568 are women.<sup>31</sup>

There are six hospitals in Guraghe zone: Attat primary hospital with an annual Antenatal Care (ANC) case flow of 5,342, Bue primary hospital with an annual ANC case flow of 1,700, Butajira general hospital with an annual ANC case flow of 5,254, Gunchire primary hospital with annual ANC case flow of 1,275, Quantie primary hospital with an annual ANC case flow of 1,396, and Wolkite university specialized referral hospital with an annual ANC case flow of 1,216 serving the total population in the zone. All hospitals provide comprehensive emergency obstetric care services. Moreover, there are 72 health centers which provide basic emergency obstetric care services in Guraghe zone. All the six hospitals in Guraghe zone were involved in this study and an institution-based cross-sectional study was conducted from July 27–August 27, 2020.

### Study Subjects

All pregnant women visiting those six hospitals in Guraghe zone were the source population of this study. Women who had come to the hospital for ANC follow-up in the study period were included. However, pregnant women who were either admitted to the inpatient department for gynecologic, medical, or surgical cases or treated in the out-patient department were excluded.

### Sample Size Determination, Sampling Technique, and Procedure

The required sample size was calculated using OpenEpi statistics software version 3.03. An assumption of 95%

confidence level, 5% margin of error, and a proportion of 60.9%<sup>32</sup> from a study done in Nigeria on knowledge and practice of preventive measures against COVID-19 infection among pregnant women in a low-resource African setting is considered. This makes a sample

**Table 1** Socio-Demographic Characteristics of COVID-19 Preventive Measure Practices and Knowledge of Pregnant Women in Guraghe Zone Hospitals, Wolkite, September 2020 (N=403)

Socio-Demographic Characteristics			
Variables	Category	Frequency	Percent
Age	≤19	48	11.9
	20–24	140	34.7
	25–29	127	31.5
	30–34	64	15.9
	≥35	24	6
Religion	Orthodox	156	38.7
	Muslim	205	50.9
	Protestant	33	8.2
	Catholic	9	2.2
Parity	Primipara	115	28.5
	Multipara	249	61.8
	Grand-multipara	39	9.7
Marital status	Married	380	94.3
	Single	10	2.5
	Divorced	9	2.2
	Widowed	4	1
Place of residence	Urban	252	62.5
	Rural	151	37.5
Occupation	House wife	208	51.6
	Civil servant	86	21.3
	Personal business	81	20.1
	Unemployed	28	6.9
Educational status	No formal education	99	24.6
	Primary	156	38.7
	Secondary	91	22.6
	College and above	57	14.1

size of 366, adding a 10% contingency to account for non-response rate, which yielded a final sample size of 403.

The total sample size was deployed proportionally to each hospital according to their case flow. A systematic random sampling technique was employed in this study. The intervals for subjects to be selected were calculated for each hospital in accordance with their case flow (Figure 1).

Professionals who were on routine service were data collectors on their respective hospitals. Two data collectors who were working in ANC and have a Bachelor of Science (BSc) degree in midwifery were selected. Two supervisors who have a degree in midwifery and instructors of Wolkite University were recruited. One day training for supervisors and data collectors in each hospital was given on how to conduct data collection. The training discloses the possible benefit and purpose of the study to the study participants before the start of data collection.

Orders of interview and intervals of selection were according to their ANC clinic entry. The objective of the study, how they are selected, and voluntary participation was clarified. The interview was conducted after routine services were given in ANC.

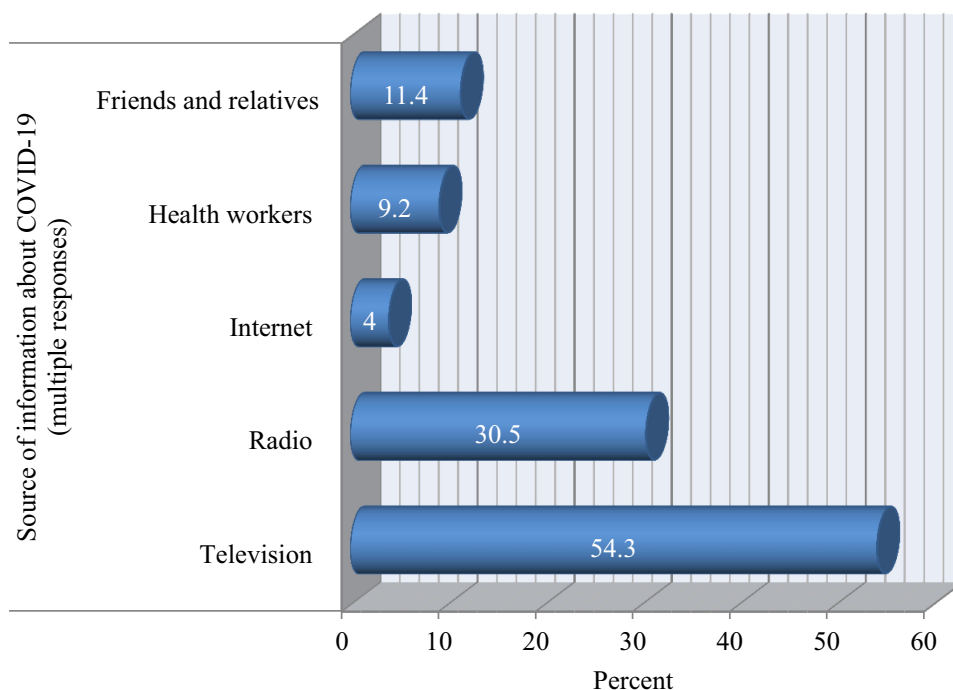
## Data Collection Tools and Technique

An interviewer-administered based questionnaire on the practice and knowledge of coronavirus infection preventive measures were used for data collection. The questionnaires were developed following a review of the literature and WHO recommendations on the measures to prevent human-to-human transmission of COVID-19 infection.

The questionnaires have an 8-item scale for knowledge assessment questions and an 8-item scale for practice questions. The scoring system of women's knowledge and practice of preventive measures were either 1 (for correct answer) or 0 (for incorrect answer). The minimum score was 0, whereas the maximum score was 8 for each of knowledge and practice component of the questionnaire. The reliability of the questionnaire was checked by conducting a pretest among pregnant women in Saint Lukas hospital antenatal clinic, by taking 20 clients, which was 5% of the total sample size.

## Variables

COVID-19 preventive measure practice and knowledge were the dependent variables, and socio-demographic characteristics (age, parity, marital status, permanent residence, occupation, participant's level of education, and husband's level of education) and media exposure to



**Figure 2** Source of information about COVID-19 preventive measure practices and knowledge of pregnant women in Guraghe zone hospitals, Wolkite, September 2020 (N=403).

access information about the coronavirus infection pandemic (Radio, Television, Smart phone for social media, route for broacher and tracts) were the independent variables.

## Operational Definitions

Good practice: Women who scored 100% on the practice of COVID-19 preventive measures questionnaire, and poor practice: Women who scored <100% on the practice of COVID-19 preventive measures questionnaire.<sup>32</sup>  
Adequate knowledge: Participants who scored  $\geq 65\%$  on knowledge of COVID-19 preventive measures questionnaire, and inadequate knowledge: Women who scored <65% on knowledge of COVID-19 preventive measures questionnaire.<sup>32</sup>

## Data Quality Control

The principal investigators checked the completeness and consistency of questionnaires filled by the data collectors to ensure the quality of data. To check the clarity, skipping pattern and order of questions, the questionnaire will be pre-tested before the start of the actual data collection.

After pre-test, questions have revised, edited, and those found to be unclear have been modified. The questionnaire was prepared in English language and then translated to Amharic and Guragigna (local) languages by native speakers of the languages. Two trained midwives who can speak both Amharic and Guragigna language have been participated in the data collection in each hospital. Guragigna and Amharic questionnaires were used for data collection and have been used according to the skills of the clients. The questionnaire will then be refined accordingly for final use.

## Data Entry and Analysis

Data were checked manually for completeness. Data marked as complete were entered in to Epi Data version 3.1 software. For further analysis the data were exported to the statistical package for social sciences version 24.0 software. Descriptive statistics were carried out as a frequency and percentage. Bivariate and multivariate analysis were used to see the effect of independent variable over COVID-19 preventive measure practice and knowledge. Variables which will be significant on bivariate analysis at a *P*-value less than 0.25 were taken to multivariate analysis. The fitness of model have been checked by Hosmer and Lemeshow test with the value 0.11. In multivariate analysis *P*-value of less than 0.05

and 95% confidence level was used as a cut-off point for the presence of association. Finally, results were compiled and presented using tables, graphs, charts, and texts.

## Results

A total of 403 study subjects participated in this study making the response rate of 100%. In this study the maximum age of the participant was 41 and the minimum age was 18 with the mean and standard deviation of 27.11

**Table 2** Knowledge Assessment on COVID-19 Preventive Measure Practices and Knowledge of Pregnant Women in Guraghe Zone Hospitals, Wolkite, September 2020 (N=403)

Variables	Category	Frequency	Percent
Aware of ongoing COVID-19	Yes	396	98.3
	No	7	1.7
COVID-19 is contagious	Yes	385	95.5
	No	18	4.5
Symptoms of COVID-19 (multiple responses)	Fever	357	88.58
	Cough	340	84.37
	Difficulty of breathing	132	32.84
	Headache	224	55.58
	I do not know	2	0.5
Measures, if there are symptoms (multiple responses)	Stay at home	133	33
	Wear face mask	97	24.07
	Visit health facility	327	81.1
	I do not know	14	3.5
Worst on older people	Yes	365	90.6
	No	38	9.4
Worst on people with chronic disease	Yes	356	88.3
	No	47	11.7
Vaccine available	Yes	28	6.9
	No	375	93.1

±5.24. From the participants more than two thirds of the participants were multipara and most of them have married status (Table 1).

### COVID-19 Preventive Measure Information Source of the Participants

From the total participants 312 (77.4%) have television or radio in their home, whereas 91 (22.6) of them have no television or radio. On the other hand, about 109 (27%) of the participants have access to print media and 294 (73%) of them have not. Similarly 102 (25.3%) have access to the internet and 301 (74.7%) have not. More than half of the participants have heard about COVID-19 on television (Figure 2).

### COVID-19 Preventive Measure Knowledge of the Participants

From the total participant almost all of the participants were aware of COVID-19 except 18 (4.5%) of them. In

the same manner, 28 (6.9%) participants were responding that this virus have vaccine (Table 2). Most of the participants listed washing hands with soap and water as a preventive measure (Figure 3).

From the total participants, 221 (54.84%) of them have adequate knowledge (Figure 3). Almost all of the participants have awareness of the ongoing pandemic (Table 3). Knowledge assessment questions with multiple responses were categorized as correct response if they respond above or equal to the mean of listed answers (Table 3).

### COVID-19 Preventive Measure Practices of the Participants

From the total participants, 307 (76.2%) of them have good practice on prevention of COVID-19 (Figure 4). Most of the participants (365, 90.6%) are obeying government restrictions due to the pandemic (Table 4).

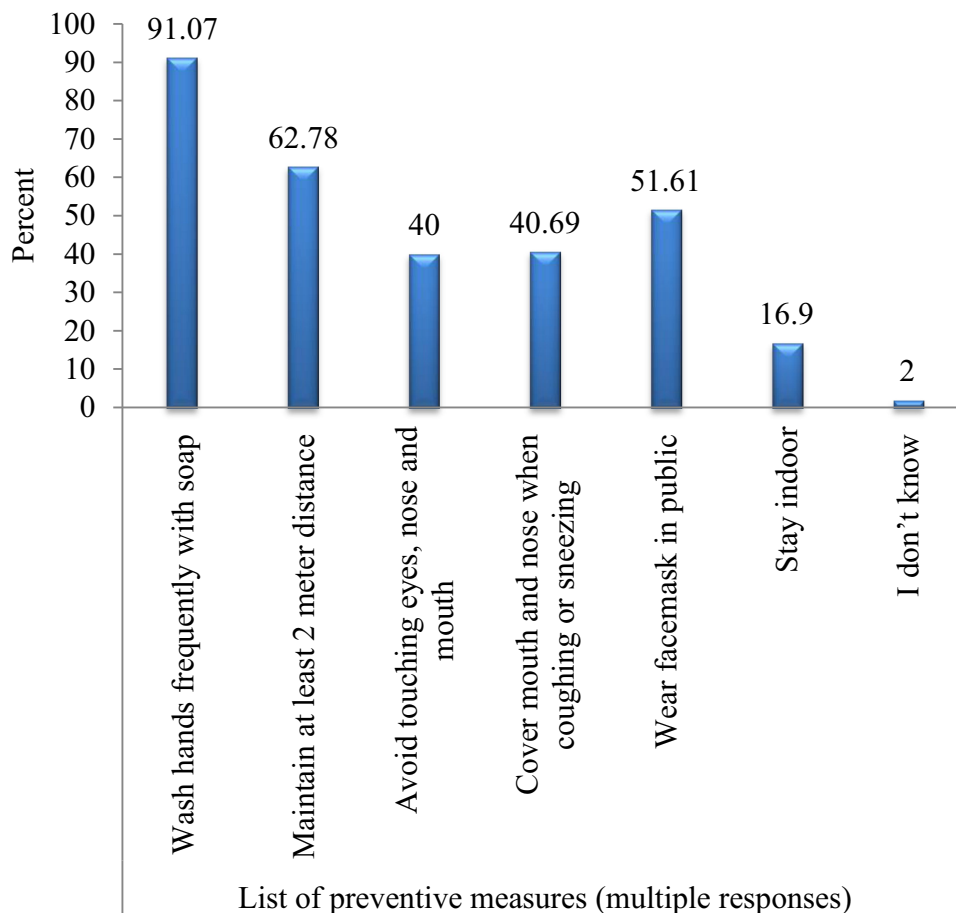


Figure 3 Participants knowledge on list of COVID-19 preventive measure practices and knowledge of pregnant women in Guraghe zone hospitals, Wolkite, September 2020 (N=403).

**Table 3** Categorized Knowledge Assessment on COVID-19 Preventive Measure Practices and Knowledge of Pregnant Women in Guraghe Zone Hospitals, Wolkite, September 2020 (N=403)

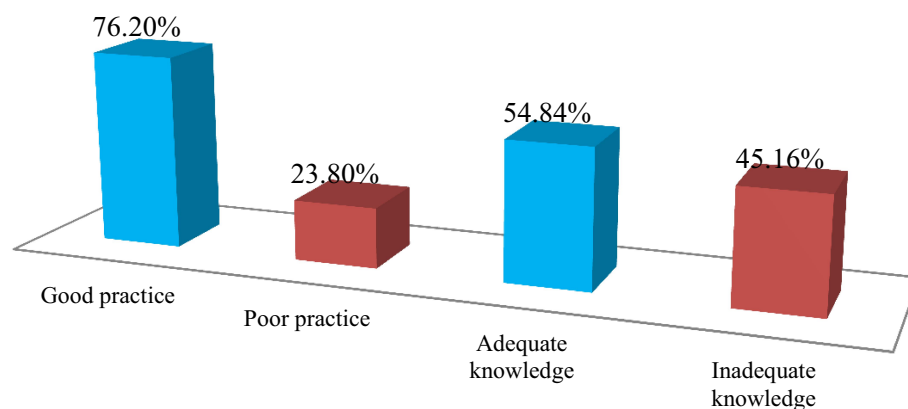
Variables	Category	Frequency	Percent	Correct Response	Correct Percent
Aware of ongoing COVID-19	No	7	1.7	Yes	98.3
	Yes	396	98.3		
COVID-19 is contagious	No	18	4.5	Yes	95.5
	Yes	385	95.5		
List symptoms answered more than mean	No	205	50.9	Yes	49.1
	Yes	198	49.1		
List actions answered more than mean	No	256	63.5	Yes	36.5
	Yes	147	36.5		
List preventive measure answered more than mean	No	150	37.2	Yes	62.8
	Yes	253	62.8		
Worst on older people	No	38	9.4	Yes	90.6
	Yes	365	90.6		
Worst on people with chronic disease	No	47	11.7	Yes	88.3
	Yes	356	88.3		
Vaccine available	No	28	6.9	No	6.9
	Yes	375	93.1		

### Factors Associated with COVID-19 Preventive Measure Practices

On bivariate analysis age, place of residence, educational status, presence of television/radio at home, access to internet, worst on older people, worst on

people with chronic disease, and vaccine available were candidates for multivariate analysis. On multivariate analysis, age, place of residence, and worst on people with chronic disease were statistically significant (Table 5).

Practice and knowledge of preventive measures



**Figure 4** COVID-19 preventive measure practices and knowledge of pregnant women in Guraghe zone hospitals, Wolkite, September 2020 (N=403).

**Table 4** COVID-19 Preventive Measure Practices of Pregnant Women in Guraghe Zone Hospitals, Wolkite, September 2020 (N=403)

Questions	Responses				Correct Responses	Percent Correct
	Yes		No			
	N	%	N	%		
Are you obeying government restriction on COVID-19 prevention strategies?	365	90.6	38	9.4	Yes	90.6
Have you stop going to public or crowded place after the COVID-19 pandemic confirmed in Ethiopia?	346	85.9	57	14.1	Yes	85.9
Did you wash your hands frequently with soap and water or alcohol-based sanitizers?	373	92.6	30	7.4	Yes	92.6
Did you maintaining at least 2 meter distance between yourself and others?	369	91.6	34	8.4	Yes	91.6
Did you avoid touching eyes, nose, and mouth with hands?	351	87.1	52	12.9	Yes	87.1
Did you wear face mask in public?	355	88.1	48	11.9	Yes	88.1
Did you stay in-door if it is not must to get out?	354	87.8	49	12.2	Yes	87.8
In order to prevent contracting and spreading COVID-19 do you avoid handshaking, hugging and kissing?	344	85.4	59	14.6	Yes	85.4

Being aged 20–24 (AOR=1.22, 95% CI=1.15–22.24), 25–29 (AOR=1.32, 95% CI=1.20–20.25), and aged 30–34 (AOR=2.57, 95% CI=2.32–43.38) were more likely to practice COVID-19 preventive measures practices compared to participants age greater or equal to 35. Residing in an urban area (AOR=2.16, 95% CI=1.24–3.77) were more likely to practice COVID-19 preventive measures compared rural residence. Perceiving COVID-19 have a poor prognosis on people with chronic disease (AOR=5.12, 95% CI=1.73–15.17) were more likely to practice COVID-19 preventive measures compared to those who perceive chronic disease as having no difference on the prognosis (Table 5).

## Discussion

This study presents COVID-19 preventive measure practices and knowledge of pregnant women, visiting hospitals in Guraghe Zone, Southern Ethiopia. Factors which have a significant effect on COVID-19 preventive measure were identified using multivariate logistic regression analysis. On the multivariate analysis only three variables were found to be statistically significant from the eight variables that were significant in bivariate analysis. Those factors statistically significant in the final model were discussed accordingly in comparison with other studies and possible authors' justification on the nature of this specific study.

This study shows that 54.84% (95% CI=50.1–59.6) of the participants have adequate knowledge. Result of this

study on knowledge of COVID-19 preventive measure were lower than studies conducted in Ghana which state that knowledge of women following antenatal care were 62.7%,<sup>33</sup> in Uganda knowledge of COVID-19 among mothers following antenatal care were 69%,<sup>34</sup> and in Nigeria knowledge of pregnant women visiting medical centers were 60.9%.<sup>35</sup>

Contrarily, this result was higher than a study done in Debre Tabor town (46.8%).<sup>36</sup> Moreover, knowledge of preventive measure among Jimma university medical center visitors was 41.3%.<sup>37</sup>

This difference might be due to the time of the studies conducted in which information delivery and awareness creation programs about the pandemic are ongoing and improving from time to time. For this reason practices were expected to be low in the beginning of the pandemic. The other reason might be those who have better information source and urban residencies were intended to practice prevention methods than their counterparts.

In the other hand this study shows that COVID-19 preventive measure practices were 76.2% (95% CI=72.0–80.4). A study in southern Ethiopia reports that 47.6% of the participants have good practice.<sup>36</sup>

This difference might be due to effective interventions measures taken by the government and health institution; which was accepted by the healthcare provider to carry out the rules and regulations. Because of this, practices of the community on the preventive measure were increasing.



**Table 5** Factors Associated with COVID-19 Preventive Measure Practices of Pregnant Women in Guraghe Zone Hospitals, Wolkite, September 2020 (N=403)

Variables	Category	Prevention Practice		COR (95% CI)	AOR (95% CI)
		Good N (%)	Poor N (%)		
Age category	≤19	40 (13)	8 (8.3)	1.00 (0.27–3.72)	1.02 (0.75–16.06)
	20–24	110 (35.8)	30 (31.2)	1.36 (0.43–4.29)	<b>1.22 (1.15–22.24)*</b>
	25–29	99 (32.2)	28 (29.2)	1.41 (0.45–4.45)	<b>1.32 (1.20–20.25)*</b>
	30–34	38 (12.4)	26 (27.1)	3.42 (1.05–11.18)	<b>2.57 (2.32–43.38)**</b>
	≥35	20 (6.5)	4 (4.2)	1	1
Place of residence	Urban	209 (68.1)	43 (44.8)	2.63 (1.65–4.19)	<b>2.16 (1.24–3.77)**</b>
	Rural	98 (31.9)	53 (55.2)	1	1
Educational status	No formal education	69 (22.5)	30 (31.2)	2.32 (1.01–5.32)	0.74 (0.25–2.19)
	Primary	121 (39.4)	35 (36.5)	1.54 (0.69–3.45)	0.52 (0.18–1.46)
	Secondary	69 (22.5)	22 (22.9)	1.70 (0.72–4.01)	1.12 (0.42–2.99)
	College and above	48 (15.6)	9 (9.4)	1	1
Have television/radio	Yes	244 (79.5)	68 (70.8)	1.59 (0.95–2.68)	0.73 (0.37–1.45)
	No	63 (20.5)	28 (29.2)	1	1
Have access to internet	Yes	89 (29)	13 (13.5)	2.61 (1.38–4.92)	2.24 (0.99–5.13)
	No	218 (71)	83 (86.5)	1	1
Worst on older	Yes	293 (95.4)	72 (75)	6.97 (3.44–14.16)	2.27 (0.71–7.23)
	No	14 (4.6)	24 (25)	1	1
Worst on people with chronic disease	Yes	290 (94.5)	66 (68.8)	7.75 (4.04–14.89)	<b>5.12 (1.73–15.17)**</b>
	No	17 (5.5)	30 (31.2)	1	1
Vaccine available	Yes	18 (5.9)	10 (10.4)	0.54 (0.24–1.20)	0.72 (0.26–1.99)
	No	289 (94.1)	86 (89.6)	1	1

**Notes:** \*P≤0.05, \*\*P≤0.05, bold = statistically significant.

Since this disease could not be defeated without efficiently sticking with preventive measure practices, the results of this study are not good enough. Pregnant women visiting hospitals in Guraghe Zone are expected to practice more than the stated value. Therefore it's not conclusive to state practices of COVID-19 preventive measures among those women were higher.

Participants aged 20–24, 25–29, and 30–34 were more likely to practice COVID-19 preventive measures practice compared to participants whose age was greater or equal to 35. Consistently, a study conducted in Debre Tabor town shows that participants aged 15–24 were more likely to practice COVID-19 preventive measures.<sup>38</sup>

This might be due to information access to younger participants being better. This study also shows most younger participants have access to print media, internet, television, and radio. In another way younger participants have a better educational level, and another study has shown participants with a higher level of education have better preventive practices.<sup>38</sup> Results of this study also show that younger participants have a better educational status when compared to older participants.

Urban residents were more likely to practice COVID-19 preventive measures compared to rural residents. Consistently a study conducted in India shows urban residents was more likely to practice COVID-19 preventive measures.<sup>39</sup>

This might be due to urban residents in Ethiopia having better access to different types of communication media carrying messages about the pandemic. Additionally people living in an urban area of Ethiopia were relatively surrounded by educated people who would have the chance to obtain information informally like in transport, in neighborhood, and informal social meetings.

Participants who perceive that COVID-19 has a poor prognosis on people with chronic disease were more likely to practice COVID-19 preventive measures compared to those who perceive that COVID-19 has no difference on people with chronic diseases. Consistently, a study conducted in Addis Zemen Hospital, Northwest Ethiopia reports that participants practicing better on preventive measures responded that the pandemic was worst among people with chronic diseases.<sup>40</sup>

This might be due to those peoples having better knowledge on the characteristics of COVID-19 because they were responding to the right answer, unlike their counterparts. Similarly clients with chronic disease have the chance to visit health service facilities during their follow-up appointment, and could get information from their health provider to develop their knowledge about the pandemic in relation with their disease.

## Conclusion

COVID-19 preventive measure practice and knowledge among mothers in Guraghe zone hospitals were low compared to other studies.

Participants aged 20–24, 25–29, and 30–34 were more likely to practice COVID-19 preventive measures practices compared to participants age greater or equal to 35. Residence of urban area was more likely to practice COVID-19 preventive measures compared rural residence. Those perceiving COVID-19 has a poor prognosis on people with chronic disease were more likely to practice COVID-19 preventive measures compared to those who perceive chronic disease to have no difference on the prognosis.

Therefore:

- COVID-19 preventive measure practices and knowledge among pregnant women in the rural part of Guraghe zone needs to be supported by Guraghe zone health office.
- Pregnant women aged  $\geq 35$  in Guraghe zone hospitals need to be counseled by the healthcare providers about the preventive measures practices.

## Ethical Considerations

Ethical clearance was obtained from Wolkite University College of medicine and health science institutional review board (IRB) with a reference number RCSUILC043/2013. Permission was obtained from Guraghe zone health office and each hospital medical directors office; oral informed consent, which was approved by IRB of Wolkite University, was obtained from participants, and this study was conducted in accordance with the Declaration of Helsinki. Confidentiality and anonymity were ensured, and participants were informed that their participation was voluntary.

## Acknowledgment

When the world is in terrible planning to be a part of solution is remarkable decision. Wolkite University was in charge of this decision, and those who facilitate conditions accordingly in hierarchy of their position to conduct research need to be acknowledged. This work would not be as good as it is now without friends, whose support and advice made this article viable, thank you for your time. My wife, you are kind, patient, and closest friend ever, I see you can hear me even when I am silent; thank you my sweet and I love you. My subjects, pregnant women-visiting hospitals in Guraghe zone who were included in this study; this research couldn't have happened without you, many thanks dear clients.

## Author Contributions

All authors have substantial contributions to conception, study design, acquisition of data, analysis, and interpretation of data. YF have drafted and YF, AY, TM, MM, WA, MA critically reviewed the article. All authors have agreed on the journal to which the article will be submitted. We have reviewed and agreed on all versions of the article before submission, during revision, the final version accepted for publication, and any significant changes introduced at the proofing stage. YF agree to take responsibility and be accountable for the contents of the article.

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## Disclosure

The authors declare that there is no conflict of interest.

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