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# ASSESSMENT OF ADHERENCE BEHAVIOR WITH COVID-19 PREVENTIVE MEASURES: A GENDER PERSPECTIVE

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# Assessment of Adherence Behavior with Covid-19 Preventive Measures: A Gender Perspective

# A REPORT BY ADDIS ZEYBE



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# Abstract

**Introduction:** The COVID-19 pandemic has taken the lives of millions of people across the world. On March 11, 2020, the World Health Organization (WHO) declared it a pandemic. Public health and social measures to control COVID-19 have been employed worldwide. Hand hygiene, physical distancing, mask use, and movement restrictions are among them (WHO, 2020). Yet, the effectiveness of these measures hinges on widespread public compliance. A number of studies showed that women are more likely than men to take COVID-19 measures seriously and cooperate with the mitigation efforts. The goal of this study is to assess how well men and women participants have stuck to these preventive measures in the Ethiopian context. Understanding health-related behavior will be crucial in tailoring public health communications accordingly in the future.

**Methodology:** A community-based cross-sectional study was conducted among 385 participants residing in Debre Berhan town, Ethiopia, from September 10 - 14, 2021. The survey instrument is adapted and based on the evaluation of previously published materials. COVID-19 prevention practice was measured using yes/no questions; these inquiries mainly focused on the current COVID-19 preventive measures such as regular hand washing, averting of gatherings, avoiding handshaking and high-density places, utilization of alcohol sanitizer, and so on. Overall, public adherence to COVID-19 preventive measures is assessed with 11 questions. The data is transferred from a Google form to an excel spreadsheet and analyzed with STATA 14 data management and statistics software.

**Results:** Women showed higher adherence with COVID-19 preventive measures (mean score of 8.89 with an SD of 1.55). This difference is statistically significant with a P-value of <0.01.

**Conclusion:** Our results showed that women's adherence to COVID-19 preventive measures was higher than men's. This finding suggests that the health information and communication strategies must be tailored to meet different sections of society.

Gender must be considered as a significant aspect while designing and implementing health information and communication strategies.

# 1. Introduction

The COVID-19 pandemic has claimed the lives of millions of individuals across the world, with the World Health Organization (WHO) labeling it a pandemic on March 11, 2020 (Staff, 2021). In response to the pandemic, WHO urged governments to employ standard measures and actions to combat the virus's effects (WHO, 2020). By far, the current pandemic is the worst public health crisis the world has seen in the last 75 years (United Nations Ethiopia 2020). The public health and social measures to control COVID-19 have been employed worldwide. These include hand hygiene, physical distancing, the use of masks, and movement measures (WHO, 2020). Yet, the effectiveness of these public health measures hinges on widespread public compliance.

Research conducted on 21,649 men and women who are resident in eight countries such as, Australia, Austria, France, Germany, Italy, New Zealand, the United Kingdom, and the United States shows women are more likely to view COVID-19 as a major health problem (Pietrangelo, 2020). Women are more likely than men to take COVID-19 seriously and cooperate with the mitigation efforts, according to a study published in the Proceedings of the National Academy of Sciences of the United States of America (Pietrangelo, 2020).

The pandemic has highlighted the long-standing inequalities in societies everywhere in the world. These inequities have a particularly negative impact on disadvantaged groups in society, particularly in developing countries like Ethiopia. The first confirmed case in Ethiopia was reported on 13th March 2020 (WHO, 2020). The government has taken measures such as proclaiming a state of emergency and issuing mass communication information about social distancing, hand hygiene, and the usage of masks (Zewdneh Shewamene et al., 2021). Men account for the majority (63.3 percent) of cases, according to the Royal Society of Tropical Medicine and Hygiene, which has been recorded in all nine regions and two city administrations across the country as of

June 2020. (Deribe, 2020). This increased number of occurrences among men could be due to a variety of factors.

The goal of this study is to see how well men and women participants stick to preventive measures since understanding health-related behavior is crucial in tailoring public health communications.

# 2. Methodology

## 2.1. Study Design & Study Populations

A community-based cross-sectional study was conducted to determine adherence to COVID-19 preventive measures among the adult population in Debre Berhan town, Ethiopia. This design is selected due to its appropriateness to our objectives. Our study population is adult (aged between 18-35) men and women members of the society, who live permanently in Debre Berhan town, Ethiopia.

## 2.2. Study Area and Period

The study was conducted in Debre Berhan town from September 10 - 14, 2021. Debre Berhan town is the capital city of North Shewa Zone of the Amhara Regional State, about 130 kilometers far from Ethiopia's capital, Addis Ababa (Eshetu & Jinfessa, 2019). It has 10 kebeles with an estimated total population of 103,450 (Fikire, 2021).

## 2.3. Sample size

The sample size was determined using Cochran's Formula with a 5% point margin of error and a 95% confidence interval. The final calculated sample size is 385.

## 2.4. Sampling technique

Attributed to the fact that we use Purposive Sampling technique, Debre Berhan town is selected particularly for the study. The first stage was selecting one kebele from the 10 kebeles in Debre Berhan using a lottery method (simple random sampling). From the selected kebele we picked 385 eligible households as our sampling unit.

### 2.5. Tool development

The Survey instrument is adapted based on the evaluation of previously published materials (Bante et al., 2021). COVID-19 prevention practice was measured using yes/no questions. These inquiries mainly focused on the current COVID-19 preventive measures such as regular hand washing, averting of gatherings, handshaking and swarmed places, utilization of liquor/sanitizer, and so on. Overall, public adherence to COVID-19 preventive measures was assessed by 11 questions.

### 2.6. Data Collection process

The data is collected by 15 trained data collectors, conducted by interviewing the respondents. Verbal informed consent had been issued before each interview. Respondents were also briefed about the purpose of the study. We used a Google form to collect the data from the field. The link was sent to each data collector's Android phone, having the provision of the required internet connection. Ethical approval was obtained from Amhara N.R.S Health Bureau, Debre Berhan town Woreda Health Office.

### 2.7. Study Variables and Measurements

The community's adherence to COVID-19 preventive measures is the outcome variable for this study. A higher adherence score indicates adherence with COVID-19 preventive measures.

### 2.8. Statistical Analysis

The data was transferred from the Google form to an excel spreadsheet and analyzed with STATA 14. For continuous data, descriptive statistics such as median, mean, and interquartile range (IQR) were obtained, and for categorical variables, frequency and percentage were computed and presented in text, table, and graphs. T-test was conducted to test our hypothesis; the mean Adherence score of the women respondents is different from men respondents (Ha; $\mu$ women $\neq$ $\mu$ men) and a two-sided test with a P-value of $< 0.05$ was considered throughout our analysis.

# 3. Findings

## 3.1. Socio-demographic characteristics

The study had a total of 385 participants (224 men and 161 women). The mean age of our respondents was 27 years, with an SD of 4 years. Government employees account for 162 (30.13 percent) of the study participants (69.83 of male participants and 30.17 percent of women participants), while daily laborers account for 41 (10.65 percent) (68.29 percent of the men participants and 31.71 percent of women participants).

A large number of participants reported they have been wearing a mask because of the government's regulation, "No mask No service" (50% of men participants and 33.54% of women participants). Whereas 22% (6.25% of men respondents and 4.97 % of women respondents) of people thought COVID-19 is a government-created scheme that is inexistent. Surprisingly, only 31.95 percent of our subjects (25 percent of men and 41.61 percent of women) reported that they follow COVID-19 prevention measures because they are afraid of the disease.

*Table 1 socio-demographic characteristics of study participants (N=385)*

| | | **Men 224 (58.2%)** | **Women 161(41.8%)** | **Total 385(100%)** |
|---|---|---|---|---|
| **Age** | Mean (SD) | 27.42(3.75) | 26.46 (3.72) | 27.06 (3.76) |
| **Occupation** | Student | 14 (51.85) | 13 (48.15) | 27 (7.01) |
| | Government employee | 81 (69.83) | 35 (30.17) | 116(30.13) |
| | Private employee | 87 (55.41) | 70 (44.59) | 157(40.78) |
| | Daily labor | 28 (68.29) | 13 (31.71) | 41 (10.65) |
| | Housewife | 0 (0.00) | 17 (100) | 17 (4.42) |
| | Unemployed | 14 (51.85) | 13 (48.15) | 27 (7.01) |
| **Marital status** | Single | 83 (37.05) | 66 (40.99) | 149(38.70) |
| | Married | 131(58.48) | 90 (55.90) | 221(57.40) |
| | Other | 10 (4.46) | 5 (3.11) | 15 (3.90) |
| **Educational status** | Unable to read and write | 7 (46.67) | 8 (53.33) | 15 (3.90) |
| | Primary | 10 (43.48) | 13 (56.52) | 23 (5.97) |
| | Secondary | 65 (60.75) | 42 (39.25) | 107(27.79) |
| | College and above | 142(59.17) | 98 (40.83) | 240 (62.34) |

| | | | | |
|---|---|---|---|---|
| **Chronic disease** | Yes | 33 (14.73) | 16 (9.94) | 49 (12.73) |
| | No | 191(85.27) | 145(90.06) | 336(87.27) |
| **Why precautionary measures** | Fear of COVID-19 | 56 (25.00) | 67 (41.61) | 123(31.95) |
| | No mask No service | 112(50.00) | 54 (33.54) | 166(43.12) |
| | Pressure from | 42 (18.75) | 32 (19.88) | 74 (19.22) |
| | It's a government scheme | 14 (6.25) | 8 (4.97) | 22 (5.71) |

### 3.2. Distribution of Adherence Score

The distribution of the Adherence score is shown in figure 1: below. It shows that there is a notable variation in the adherence score between men and women participants. Men participants had a mean score of 3.49, while women had an average score of 8.89.

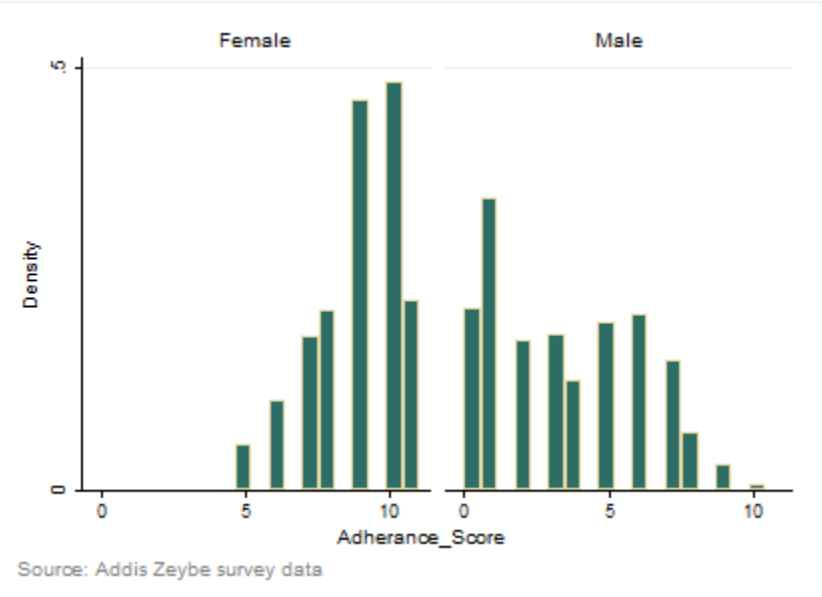


*Figure 1 Distribution of Adherence Score*

A standardized adherence score by an attitude towards COVID-19 disease among men and women participants is presented in figure 2: below. Among men respondents, those who reported that they are following COVID-19 preventive measures because of the "*No mask No service*" regulation showed a 0.2SD higher compared to the respondents who follow preventive measures because they fear the disease and a 0.28SD higher than those who follow preventive measures for the reason of pressure from family or friends. Women respondents who follow preventive measures for all three reasons exhibit a similar score whereas those who believe COVID-19 is a government-created scheme

has a score of 1.6SD lower than those who follow preventive measures due to other reasons.

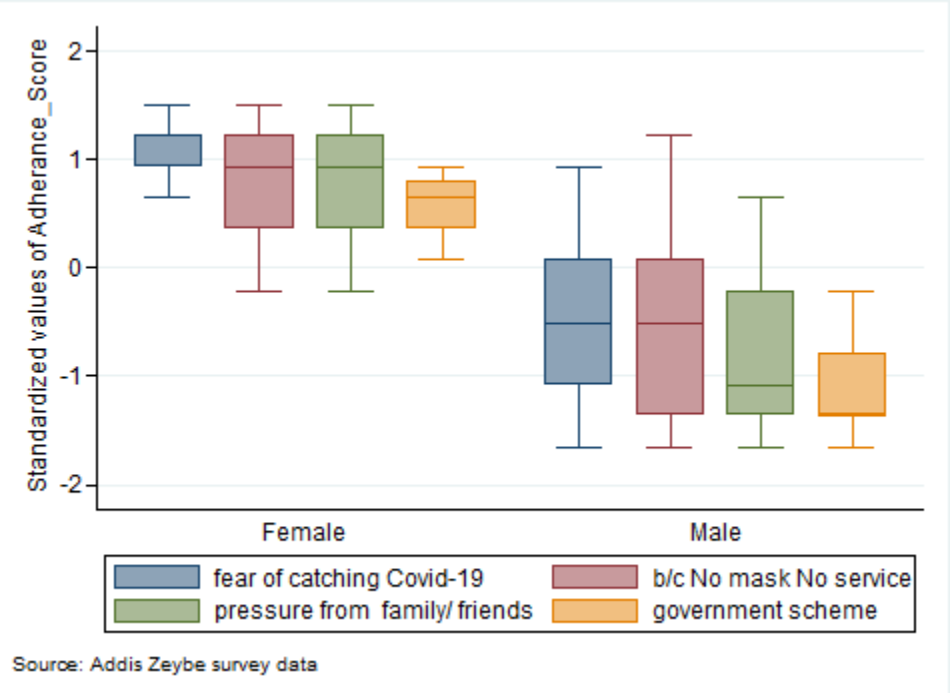


*Figure 2 adherence score by Sex and Reason for following preventive measures*

The summary statistics of adherence with COVID-19 preventive measures among men and women is presented below. Our findings show that only 46.4 percent of men use a face mask when they are going outdoors, while the majority of women (82.6 percent) do. Using sanitizers is practiced by 29% of men and 85.7% of women. Avoiding going to a crowded place was the least practiced preventive measure among both groups (10% of men and 65.2% of women).

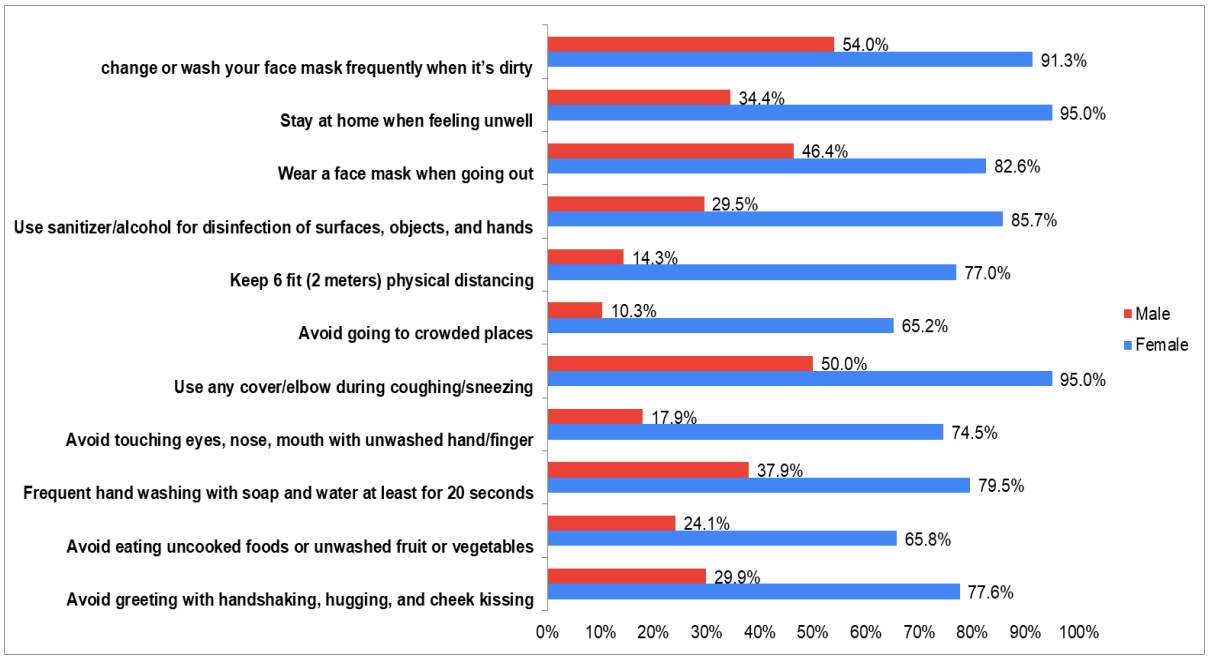


*Figure 3 Summary statistics of Adherence with COVID-19 preventive measures*

### 3.3. Difference in Adherence score among male and female

The statistical difference between men and women in terms of mental health scores is shown in table 2: below. The men's mean Adherence score (3.49) was less than the women's mean adherence score (8.89), and this difference was statistically significant with a P-value of <0.01. Thus we can reject the Null hypothesis of no difference between the adherence score of men and women participants α=5% and a 95% confidence interval.

*Table 2 Two-sample t-test with equal variance*

| | | Obs. | Mean | Std. Err. | Std. Dev. | P-value |
|---|---|---|---|---|---|---|
| Adherence score | Men | 224 | 3.49 | 0.17 | 2.60 | 0.00 |
| | Women | 161 | 8.89 | 0.12 | 1.55 | |

## 4. Discussion

COVID-19 is an ongoing global public health emergency. Public adherence to the existing COVID-19 preventative measures is essential in order to alleviate the problem.

Our research aimed to see the trend of current adherence with covid-19 preventive measures in comparison among men and women samples.

Our research revealed that women have higher scores for adherence with COVID-19 preventive measures (mean of 8.89 and SD of 1.55) compared to men having a mean of 3.49 and SD of 2.6 showing less adherence with COVID-19 preventive measures. And this finding is statistically significant with a P-value of <0.01. Similarly, a study conducted in North Gondar city residents showed that women were 2.39 times more likely than men to comply with COVID-19 mitigation measures (Azene et al., 2020). These results also agree with the New York University and Yale University researchers report in Behavioral Science & Policy that women comply with preventive strategies such as physical distancing, mask-wearing, and maintaining hygiene to a greater extent than men ("Women more likely to embrace behaviors aimed at preventing the spread of COVID-19," 2020).

Furthermore, we segregated the responses for adherence questions by sex (see Figure 3). Our findings revealed that most women (77.6%) avoided handshakes, hugging, and cheek kissing, while only 29.9% of men avoided handshakes, hugging, and cheek kissing. With regard to physical distancing, a strikingly small number of men participants (14.3%) kept six feet (2 meters) distance. Sanitizers are also used by 85.7 percent of women and just 29% of men to disinfect surfaces, objects, and hands. The overall findings of the research show women follow preventive measures more strictly than men.

These findings are supported by a study that included eight countries. The compliance index showed women were more compliant than men in all eight countries and as well as in the first and second wave of COVID-19 (Galasso, 2020).

Therefore understanding gender differences is crucial in the mitigation and control of the COVID-19 pandemic. The findings have public health implications, and gender variations must be considered when adopting health information communication strategies.

## 5. Conclusion

COVID-19 pandemic has claimed the lives of individuals all across the world. The public health and social measures to control COVID-19 have been employed worldwide. Our study concluded that women have higher adherence with COVID-19 preventive measures than men. In general, men's adherence to COVID-19 preventive measures is low in Debre Berhan town. Finally, we recommend that COVID-19 preventive measures and the country's regulations associated with it must be strengthened so that the spread of the disease can be under control. In addition, gender and behavioral differences must be taken into consideration in designing and implementing health information and communication strategies.

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