# Knowledge, Attitude and Practice of Gambians towards the Novel Coronavirus (COVID-19) Pandemic in The Gambia: A cross-sectional study

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## Summary

**INTRODUCTION**

The on-going global health threat of the respiratory disease recently named by the World Health Organization (WHO) as a novel Coronavirus (COVID-19) in December 2019 has spread across many parts of the world [1]. Reaching the African continent through travellers returning from hotspots in Asia, Europe, and the United States, Africa's first COVID-19 case was recorded in Egypt on the 14th of February, 2020. Since then, it has spread across many countries in the African continent. Nigeria reported the first COVID-19 case on the 28th of February, 2020 making it the first confirmed case in sub-Saharan Africa. In The Gambia, the first suspected COVID-19 case was reported on the 15th March 2020 involving a 28-year-old Gambian female arriving from London, UK. This article, aims at shedding light on the peoples' knowledge, attitude, and practices towards COVID-19 in The Gambia.

**MATERIALS AND METHODS**

This study was a cross sectional web-based survey, conducted among the general population of residents (aged 18 years and above) in The Gambia from August 24, 2020 to October 10, 2020. Four hundred and twenty-eight residents of The Gambia were asked 27 questions regarding their knowledge, attitude and practice (KAP) towards COVID-19.

**RESULTS**

Among a total of 428 participants, the overall achieved score regarding COVID-19 knowledge towards the disease was 75.86%. Also, an overall score of 72% showed a positive attitude regarding the knowledge of the mode of transmission and groups at higher risk of COVID-19. There was no significant difference in mean knowledge, attitude and practice scores with respect to other demographic variables, but, it is worth mentioning that sufficient COVID-19 knowledge scores, positive attitude, and adequate practice were found among the respondents.

**The multiple logistic regression results revealed two demographic factors i.e. qualification and occupation had association with knowledge towards COVID-19.**
**CONCLUSION**
**Our findings suggest that The Gambian population showed decent knowledge, appropriate practice, and positive attitude towards COVID-19 even though the government needs to do more in terms of COVID-19 education.**

# Introduction

The ongoing global health threat of the respiratory disease recently named by the World Health Organization (WHO) as a novel Coronavirus (COVID-19) in December 2019 has spread across many parts of the world [1].

Coronaviruses are a family of viruses that causes illnesses such as respiratory diseases or gastrointestinal diseases. "They belong to the family *Coronaviridae,* the members of which infect a broad range of hosts, producing symptoms and diseases ranging from a common cold to severe and ultimately fatal illnesses" [2, 3].

In December 2019, a novel coronavirus (COVID-19) was identified as the cause of a cluster of pneumonia cases with its origin in Wuhan, a city in the Hubei Province of China. It spread rapidly, resulting in an epidemic in China, followed by an increasing number of cases in other parts of the world. On the 11th of February, 2020, the World Health Organization (WHO) announced the official designation for disease as "COVID-19", which stands for Coronavirus Disease 2019. The virus that causes COVID-19 was designated as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2); previously referred to as 2019-nCoV" [4, 5]. Following the first reported case from Wuhan, China, the disease spread worldwide. Cases were reported in over 200 countries with

more than 20 million confirmed cases of COVID-19 reported globally[5].

Due to the severity of this pandemic and the potential of spreading on an international scale, on January 30, 2020, the WHO declared the COVID-19 pandemic a public health emergency of international concern. Subsequently, on March 11[th,] 2020, a pandemic situation was declared to emphasize the gravity of the situation and urge all countries to take action in detecting infection and preventing spread.

Evidence to date suggests that COVID-19 is primarily transmitted between people through respiratory droplets and contact routes, although indirect transmission via contaminated surfaces is also possible [6, 7,8, 9, 10].

Reaching the Africa continent through travellers returning from hotspots in Asia, Europe, and the United States, Africa's first COVID-19 case was recorded in Egypt on the 14th of February, 2020. Since then it spread across many countries in the African continent. Nigeria reported the first COVID-19 case on the 28th of February, 2020 making it the first confirmed case in sub-Saharan Africa. In The Gambia, the first suspected COVID-19 case was reported on the 15th March 2020 involving a 28-year-old Gambian female arriving from London, UK. She did not show any of the symptoms of

COVID-19 but was confirmed positive at Medical Research Council of the The Gambia (MRCG) on the 17th March 2020 [4, 11].

According to the Ministry of Health in The Gambia as of the 8th January, 2021, there were 3,838 COVID-19 positive cases confirmed out of which, 125 COVID-19 death cases were reported in The Gambia [12]. Despite the unprecedented national measures in combating the COVID-19 outbreak, the success or failure of these efforts was largely dependent on public behaviour or adherence, largely influenced by the populace knowledge, attitudes, and practices (KAP) towards the disease (COVID-19). This article, therefore, aims at shedding light in this regard. The main aim of this paper is to make a baseline assessment of peoples' knowledge and attitude towards COVID-19 in The Gambia and to confirm the perception of residents in The Gambia regarding COVID-19.

# Materials and Methods
## Study Design

A cross-sectional study was carried out from August 24, 2020 to October 10, 2020. The survey was online using a Google Forms and was distributed through "WhatsApp" to residents in The Gambia above eighteen years of age. This form was widely distributed to various known work-place WhatsApp groups as well as to friends and family members who were also encouraged to send it to as many WhatsApp groups as possible.

Dagnelie 1998 formula was used to determine the sample size. The estimation of the sample size was done by assuming a minimum prevalence of 50%, confidence level = 95%, and d (margin of error) = 0.05. The calculated sample size of this study was 384 participants, and with design effect = 1.1 reaching a sample size of nearly 428 participants. The objectives and purpose of this study was explained to the participants and those who agreed to participate in the study were asked to complete the questionnaire by clicking on the link. Participants had to answer a yes or no question to confirm their willingness to participate voluntarily. After confirmation of the question, the participant where instructed to complete the questionnaire.

## Inclusion/ Exclusion Criteria

Residents in The Gambia 18 years old and above and owned a smart phone were the target for this work. Only participant who voluntarily participated in the study were captured.

## Questionnaires and Data Processing

The questionnaire as explained by [20, 21] was adopted and was made up of two parts. The first part of the questionnaire covered demographic information of the participants and the second part contained questions for KAP assessment. Demographic variables included age, gender, and religion [21]. The KAP questionnaire comprised 12 questions regarding knowledge, 8 for attitude, and 7 for practice.

## Statistical Analysis

The frequencies of correct knowledge responses and various attitudes and practices were described using Microsoft word. Multivariate linear regression analysis using all demographic variables as independent variables and the knowledge score as the outcome variable was performed to identify factors associated with knowledge. Similarly, binary logistic regression analysis was used to identify factors associated with attitudes and practices. Data analyses were performed using STATA version 15.0. The level of statistical significance was established at p <0.05.

## Ethical Approval

The study proposal was evaluated and approved by the Ethics Committee, School of Arts and Sciences, University of The Gambia. The study was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from each participant before their participation and confidentiality were kept.

# Results

## Socio-Demographic Characteristics

A total of 428 study participants were enrolled in this study. These comprised of 28% male and 72% female participants, as presented on table 1 in the appendix.

## Knowledge on COVID-19

Almost all patients (99.5%) had heard about the COVID-19 pandemic. Eighty nine percent knew that COVID 19 was deadly, 8% said it was not deadly and 3% didn't have any idea whether it is harmful or not.

Majority of the respondents (93%) with knowledge on COVID-19 said a virus caused the disease while 2% said that it was caused by immune deficiency and 5% didn't have an idea what caused COVID 19.

Concerning awareness of the symptoms, cough and fever were the most (93%) known/reported symptoms followed by sore throat, headache and body pain. Diarrhoea or constipation was the least (19%) known symptoms of COVID-19 (Figure 1). Eighty eight percent of the participants had knowledge that the incubation period of COVID-19 is between 3 to 14 days.

Furthermore, 35% of respondents said symptomatic therapy can be used to cure COVID-19, another 18.9% said antibiotics could be used to treat COVID -19 and 46.5% said there was no cure to COVID 19 (table 2).
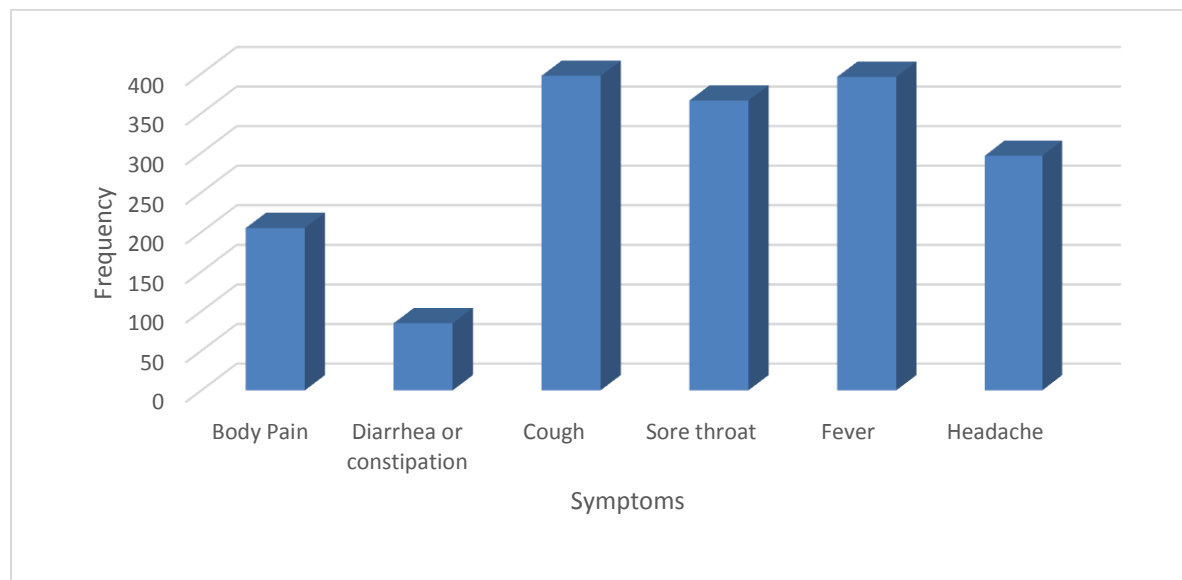


*Figure: 1 Awareness of COVID-19 Symptoms Reported by Respondents in The Gambia, 2020 (n=428).*

## Attitude/Perception towards COVID-19 Prevention

Four hundred and eleven (96%) of the participants said that early detection of COVID-19 disease could help in treatment. 366 (85.51%) believed that COVID-19 could be avoided if proper precaution was taken (table 3).

## Level of COVID-19 Prevention Practice

Four hundred participants believed that, COVID-19 could be prevented if they avoided unnecessary vacations. Another 404 participants avoided handshaking, hugging and kissing in order to prevent the spread of COVID-19. Others believed that the virus could be prevented if The Gambian government closed its borders to COVID-19 hot spot countries (table 4).

## Discussion

After the virus emerged in China, it is believed that information on COVID-19 was suppressed and erroneous. China originally reported that the novel virus showed no evidence of human to human transmission [13, 14, 15, and 18]. Our findings show the knowledge, attitude and practice of Gambians towards the Novel Coronavirus Pandemic in The Gambia. To the best of our knowledge, this is the first study to report knowledge, attitude and practice of residents in The Gambia towards COVID-19. Hence, this study is very important to predicting KAP behaviour towards the pandemic to design appropriate implementation plans.

We found that, during the COVID-19 pandemic, 99% had heard about COVID-19 and 75.86% of the participants had wide knowledge of COVID-19. This result is similar to the findings of [16, 17, 19, 23, 24, and 27] that showed that respondents had good knowledge (99.5%) of COVID-19 and this knowledge was gained mainly through the use of social media and Television.

The majority of the respondents (72%) had positive attitudes toward the adherence of WHO measures such as practicing social distancing/self-isolation, improved personal hygiene, and using face masks among others. These results are again in agreement with [23, 25, 26] who reported that above 79.5% of its respondents had a positive attitude towards COVID-19 in North central Nigeria and Peshawar, Pakistan respectively. This study also confirms the finding of [27] who explained that, 62.6% of Gambians were worried about COVID-19 and as such developed a positive attitude towards COVID-19. However, there was no significant difference in mean knowledge, attitude and practice scores with respect to other demographic variables, but it is worth mentioning that sufficient COVID-19 knowledge scores, positive attitude, and adequate practice were found among the respondents.

The multiple logistic regression results revealed that two demographic factors, that is qualification and occupation were associate with knowledge towards COVID-19 and this was generally consistent with previous studies on COVID-19 by [22, 25, 20].

Subsequently, health promotion activities are vital in improving KAP towards COVID-19 in The Gambia, and it is recommended to conduct interventional studies using the results of this study. Certainly, in the near future, The Gambia will be able to curtail COVID-19 through joint efforts of the government of The Gambia and all residents in The Gambia.

## Limitations

The key limitation of the present study is that the sample sizes was small and this was due to the fact that, most Gambians didn't believe in the existence of COVID-19 in The Gambia and others simply didn't want to talk about it anymore. This observation was as result of many non-respondents or refusal to participate in the survey.

## Conclusion

To conclude, our findings suggest that, residents in The Gambia showed a decent knowledge, appropriate practice, and positive attitude towards COVID-19 and this was an encouraging attribute in preventing and controlling COVID-19.

## Recommendation

Based on the findings of this study, we would like to recommend that, ongoing awareness programs regarding COVID-19 to be maintained by The Gambian government and its stakeholders. This will help in curbing the menace posed by COVID-19.

## Conflict of Interest

The authors report no conflict of interest

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## Author Contributions

AK: Concepts, design, literature search, data acquisition, data analysis, statistical analysis, manuscript preparation, manuscript review, and guarantor; PAM and EJ: Design, literature, search, data analysis, statistical analysis, manuscript preparation, manuscript editing, manuscript review; BJJJ, BC, SAM and BC: Definition of intellectual content, data acquisition, manuscript preparation.

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# Appendix

*Table 1: Socio-Demographic Characteristics*

| Characteristics | | Number | Percentage |
|---|---|---|---|
| **Gender** | Male | 120 | 28% |
| | Female | 308 | 72% |
| **Age** | 11-20 | 57 | 13.32% |
| | 21-30 | 190 | 44.39% |
| | 31-40 | 124 | 28.97% |
| | >40 | 57 | 13.32% |
| **Qualification** | Informal/Madarassa | 3 | 0.7% |
| | Secondary | 44 | 10.28% |
| | Tertiary | 378 | 88.32% |
| | None | 3 | 0.7% |
| **Occupation** | Banker | 6 | 1.4% |
| | Civil servant | 108 | 25.23% |
| | House wife | 6 | 1.4% |
| | Security | 5 | 1.17% |
| | Student | 175 | 40.89% |
| | Teacher | 68 | 15.89% |
| | Trader | 7 | 1.64% |
| | Others | 53 | 12.38% |
| **Marital status** | Married | 209 | 48.83% |
| | Single | 213 | 49.77% |
| | Divorced | 3 | 0.70% |
| | Widower | 3 | 0.7% |
| **Region** | Banjul | 44 | 10.28% |
| | Kanifing | 109 | 25.47% |
| | West Coast Region | 214 | 50% |
| | Central River Region | 15 | 3.5% |
| | North Bank Region | 18 | 4.21% |
| | Upper River Region | 20 | 4.67% |
| | Lower River Region | 8 | 1.87% |

*Table 2: Results of the Knowledge Survey (n=428).*

| S/N | Knowledge Questions | Frequency (n) | | |
| --- | --- | --- | --- | --- |
| | | Yes | No | I don't Know |
| 1 | Have you heard about COVID-19? | 426 (99.5%) | 2 (0.5%) | - |
| 2. | Is it a deadly disease? | 381 (89.02%) | 34 (7.94%) | 13 (3.04%) |
| 3. | Body pain is a symptom of COVID-19 | 205 (48.13%) | 139 (32.48%) | 82 (19.39%) |
| 4. | Headache is a symptom of COVID-19 | 295 (68.93%) | 80 (18.69%) | 53 (12.38%) |
| 5. | Diarrhea or constipation is a symptom of COVID-19 | 83 (19.39%) | 265 (61.92%) | 80 (18.69%) |
| 6. | Cough is a symptom of COVID-19 | 397 (92.76%) | 16 (3.74%) | 15 (3.5%) |
| 7. | Sore throat is a symptom of COVID-19 | 365 (85.28%) | 25 (5.84%) | 38 (8.88%) |
| 8. | Fever is a symptom of COVID-19 | 396 (92.52%) | 13 (3.04%) | 19 (4.44%) |
| 9. | Which of the following is the cause of COVID-19? | Virus 398 (92.99%) Immuno-deficiency 9 (2.10%) No opinion 20 (4.67%) Parasite 1 (0.23%) | | |
| 10. | How long is the incubation period of the disease? | Less than 2 days 7 (1.64%) 2 to 5 days 6 (1.4%) 3 to 14 days 377 (88.08%) No opinion 38 (8.88%) | | |
| 11. | Which of the following is the treatment for COVID-19? | Symptomatic therapy 148 (34.58%) Antibiotics 81 (18.93%) No treatment 199 (46.5%) | | |
| 12. | In which age group is the disease more dangerous? | 15 to 30 years 4 (0.93%) 30 to 50 years 26 (6.07%) Above 50 years 382 (89.25%) No opinion 16 (3.74%) | | |

**Table 3: Results of the Attitude Survey (n=428).**

| S/N | Attitude towards COVID-19 | Frequency (n) | | |
|-----|---------------------------|-----|-----|-----|
| | | Yes | No | I don't Know |
| 1 | It is my opinion that early detection of COVID-19 can improve treatment and outcome. | 407 (95.09%) | 14 (3.27%) | 7 (1.64%) |
| 2. | It is my opinion that health education can help prevent COVID-19. | 410 (95.79%) | 12 (2.8%) | 6 (1.4%) |
| 3. | It is my view that COVID-19 is a serious disease | 405 (94.85%) | 13 (3.04%) | 9 (2.11%) |
| 4. | It is my belief that COVID-19 can be avoided by proper percussion | 366 (85.51%) | 35 (8.18%) | 27 (6.31%) |
| 5 | It is my opinion that COVID-19 is a curable disease | 218 (50.93%) | 146 (34.11%) | 64 (14.95%) |
| 6 | It is my opinion that the awareness considering COVID-19 disease in society is sufficient | 156 (36.45%) | 243 (56.78%) | 29 (6.78%) |
| 7 | It is my opinion that COVID-19 disease results in death in all cases | 68 (15.89%) | 333 (77.8%) | 27 (6.31%) |
| 8 | It is my opinion that authorities should restrict travel to and from COVID-19 disease areas to prevent contamination. | 390 (91.12%) | 21 (4.91%) | 17 (3.97%) |

**Table 4: Results of the Knowledge Survey (n=428).**

| S/N | Practice to prevent covid-19 | Frequency (n) | | |
|-----|------------------------------|-----|-----|-----|
| | | Yes | No | I don't Know |
| 1 | In order to prevent contracting and spreading COVID-19, I avoid going out of my home | 269 (62.85%) | 140 (32.71%) | 19 (4.44%) |
| 2. | In order to prevent contracting and spreading COVID-19, I avoid unnecessary vacations | 400 (93.46%) | 20 (4.67%) | 8 (1.87%) |
| 3. | In order to prevent contracting and spreading COVID-19, I avoid consuming outdoor food | 241 (56.31%) | 148 (34.58%) | 39 (9.11%) |
| 4. | In order to prevent contracting and spreading COVID-19 I avoid handshaking, hugging and Kissing | 404 (94.39%) | 18 (4.21%) | 6 (1.40%) |
| 5. | In order to prevent contracting and spreading COVID-19, I avoid public transportations (taxi, bus, Geli geli) | 106 (25.77%) | 291 (67.99%) | 31 (7.24%) |
| 6. | In order to prevent contracting and spreading COVID-19, I frequently wash my hands | 412 (96.26%) | 14 (3.27%) | 2 (0.47%) |
| 7. | In order to prevent contracting and spreading COVID-19, when do you use facial masks? | Never 8 (1.87%) Only in public & crowded places 283 (66.12%) Most of the time 76 (17.76%) Always 61 (14.25%) | | |

*Table 5: Factors Associated with Knowledge on COVID-19 among Residents in The Gambia in a Multivariable Logistic Regression Analyses*

| Variables | Coef | P -value | CI |
|---|---|---|---|
| **Knowledge Score** | | | |
| Location | | | |
| Banjul | Ref | | |
| Kanfing | 0.03 | 0.18 | 0.07-0.12 |
| West coast region | 0.03 | | 0.06-0.13 |
| Central River Region | 0.13 | | 0.03-0.28 |
| North river Region | 0.05 | | 0.10-0.19 |
| Upper River Region | 0.08 | | 0.07-0.22 |
| Lower River Region | 0.20 | | 0.12-0.01 |
| Occupation | | | |
| Banker | Ref | 0.03* | |
| Civil Servant | 0.10 | | 0.12-0.31 |
| House wife | 0.09 | | 0.21-0.40 |
| Others | 0.15 | | 0.07-0.38 |
| Student | 0.48 | | 0.16-0.79 |
| Security | 0.09 | | 0.13-0.32 |
| Teachers | 0.15 | | 0.08-0.37 |
| Traders | 0.03 | | 0.32-0.27 |
| Age | | | |
| 11-20 | Ref | 0.20 | |
| 21-30 | 0.04 | | 0.12-0.05 |
| 31-40 | 0.03 | | 0.13-0.08 |
| >40 | 0.05 | | 0.07-0.17 |
| Marital status | | | |
| Married | Ref | 0.92 | |
| Single | 0.00 | | 0.07-0.68 |
| Divorced | 0.10 | | 0.21-0.40 |
| Widower | 0.05 | | 0.26-0.35 |
| Qualification | | | |
| Informal | Ref | 0.00* | |
| Secondary | 0.32 | | 0.64-0.00 |
| Tertiary | 0.44 | | 0.76-0.13 |
| None | 0.24 | | 0.68-0.19 |
| Notes: *Significant at p< 0.05; Abbreviations:  CI, confidence interval | | | |

*Table 6: Factors Associated with Practice on COVID-19 among Residents in The Gambia in a Multivariable Logistic Regression Analyses*

| Practice  Score | | | |
|---|---|---|---|
| **Variables** | **Coef** | **P -value** | **95% CI** |
| Location | | | |
| Banjul | Ref | 0.35 | |
| Kanfing | 0.04 | | 0.05-0.13 |
| West coast region | 0.05 | | 0.04-0.14 |
| Central River Region | 0.01 | | 0.16-0.14 |
| North river Region | 0.10 | | 0.04-0.24 |
| Upper River Region | 0.05 | | 0.19-0.09 |
| Lower River Region | 0.06 | | 0.25-0.14 |
| Occupation | | | |
| Banker | Ref | 0.46 | |
| Civil Servant | 0.02 | | 0.19-0.23 |
| House wife | 0.01 | | 0.30-0.28 |
| Others | 0.07 | | 0.15-0.28 |
| Student | 0.16 | | 0.14-0.46 |
| Security | 0.05 | | 0.16-0.27 |
| Teachers | 0.08 | | 0.13-0.29 |
| Traders | 0.10 | | 0.39-0.18 |
| Age | | | |
| 11-20 | Ref | 0.91 | |
| 21-30 | 0.01 | | 0.09-0.68 |
| 31-40 | 0.00 | | 0.10-0.1 |
| >40 | 0.03 | | 0.14-0.8 |
| Marital status | | | |
| Married | Ref | 0.85 | |
| Single | 0.02 | | 0.08-0.04 |
| Divorced | 0.06 | | 0.23-0.35 |
| Widower | 0.07 | | 0.36-023 |
| Qualification | | | |
| Informal | Ref | 0.17 | |
| Secondary | 0.06 | | 0.37-0.24 |
| Tertiary | 0.14 | | 0.44-0.16 |
| None | 0.25 | | 0.67-0.16 |
| Notes: *Significant at p< 0.05; Abbreviations:  CI, confidence interval | | | |

*Table 7: Factors Associated with Attitude on COVID-19 among residents in The Gambia in a Multivariable Logistic Regression Analyses*

| | Attitude Score | | |
|---|---|---|---|
| **Variables** | **Coef** | **P -value** | **95% CI** |
| **Location** | | | |
| Banjul | Ref | 076 | |
| Kanfing | 0.02 | | 0.06-0.10 |
| West coast region | 0.02 | | 0.06-0.10 |
| Central River Region | 0.07 | | 0.06-021 |
| North river Region | 0.03 | | 0.10-0.15 |
| Upper River Region | 0.07 | | 0.06-0.19 |
| Lower River Region | 0.07 | | 0.25-0.10 |
| **Occupation** | | | |
| Banker | Ref | 0.37 | |
| Civil Servant | 0.06 | | 0.13-0.25 |
| House wife | 0.11 | | 0.15-0.37 |
| Others | 0.07 | | 0.13-0.26 |
| Student | 0.23 | | 0.06-051 |
| Security | 0.06 | | 0.13-0.24 |
| Teachers | 0.08 | | 0.12-0.26 |
| Traders | 0.12 | | 0.37-13 |
| **Age** | | | |
| 11-20 | Ref | 0.55 | |
| 21-30 | 0.04 | | 0.03-0.12 |
| 31-40 | 0.03 | | 0.06-0.12 |
| >40 | 0.06 | | 0.04-0.16 |
| **Marital status** | | | |
| Married | Ref | 0.27 | |
| Single | 0.00 | | 0.06-0.06 |
| Divorced | 0.19 | | 0.07-0.45 |
| Widower | 0.18 | | 0.44-0.08 |
| **Qualification** | | | |
| Informal | Ref | 0.07 | |
| Secondary | 0.25 | | 0.52-0.02 |
| Tertiary | 0.31 | | 0.57-0.04 |
| None | 0.34 | | 0.71-0.03 |
| Notes: *Significant at p< 0.05; Abbreviations: CI, confidence interval | | | |