

Study on the knowledge of women on the effect of alcohol consumption on the fetus in Elmina-Ghana

Irene Kafui Vorsah Amponsah, Boso Foli, Hammond R. D. Nii Ayitey

Abstract— The study seeks to find out women's knowledge on alcohol consumption and its effects on the fetus. Women in Elmina who have children or currently pregnant within ages of 15-45 years were interviewed. The snowball sampling identified 200 respondents who were mostly artisans/traders, co-habiting/single, and lived in a family/rented house with basic education. The study revealed that women (60%) confirmed they were told not to take in alcohol during pregnancy and were also educated on FASDs. None-the-less, women in the Fertility Age drunk alcohol for fun or as a stimulant averagely for 4 to 6 years and they took 2 bottles/tot per day. Female children with signs of FASDs were most affected. Further tests revealed that there was a significant statistical difference between alcohol consumption and age group of women. Also, there was an association between the age group and knowledge on effect alcohol on the fetus. Women knew of the dangers of FASDs yet they still drink alcohol during pregnancy. Laws on consumption of alcohol may be the only deterrent to ensure effective implementation.

Index Terms— Alcohol consumption, FASDs, Pregnancy, Behavioral Change, Women, Fetus

1 INTRODUCTION

DRINKING of alcohol by expectant mothers during pregnancy has been associated with birth defects or Foetal/Fetal Alcohol Syndrome (FAS). Having a drink containing alcohol during pregnancy or upon pregnancy recognition is termed as alcohol use. Knowledge on FAS refers to one's understanding of the detrimental effects of alcohol use during pregnancy and outcomes on the foetus. FAS is a permanent brain damage and physical birth defects that occurs in the offspring of women who drink alcohol during pregnancy (Villa 2018).

Some effects of alcohol (Ervalahti et al, 2007) on the foetus are:

- Distinctive facial features
- Growth problem
- Learning and behaviour problem
- Birth defects
- Problem with bonding and feeding as a newborn

There are other disorders or illnesses whose symptoms mimic that of FASD so it is only a medical officer or practitioner that can diagnose the FAS disorder. Some factors that increase a baby's chance of getting foetal alcohol syndrome are:

- Unplanned pregnancy
- Failure to recognize early pregnancy and continuing to drink
- Alcoholism
- Lack of knowledge about the risks of drinking while pregnant
- Advanced maternal age
- Low socioeconomic status

Despite the aforementioned negative effects on the foetus, women all over the world (Ordinioha and Brisibe, 2015; Nykjaer et al, 2014; Kitsantas et al, 2014; Bhuvaneshwar, et al, 2007; May and Phillip, 2011; Walker et al, 2011), and some communities in Ghana are no exception (areas in coastal Ghana, studies in James Town, Bosomtwe District of the Ashanti Region-Ghana), continue to indulge in alcohol use during

pregnancy. Evidently, women (in developed countries) who are literate, knowledgeable about the effects of alcohol and the foetus and are above the average class may be confused now about on-going research (which is suggesting minimal use of alcohol is ok) on whether to take/or not to take alcohol and which volume of alcohol might be enough to drink during pregnancy (Ford, 2008; LeWine, 2013; Kirby, 2017). Other women in the low literate class whose main source of information is through radio, TV, the midwife and their immediate family and friends, a especial case of some communities in Ghana, continue to abuse alcohol during pregnancy (Lekettey et al, 2017; Tampah-Naah and Amoah, 2015; Adusie-Poku et al, 2013). Societal continuous approval for regular alcohol consumption has contributed to increasing (Kunateh, 2007) rates of risky alcohol use among women especially when the women are the lead characters in the adverts telecast. Research has also shown that the chance of a woman drinking during pregnancy is strongly associated with drinking prior to pregnancy (Chang and Nilsen, 2011; Knudsen, 2014) and so is spousal abuse and depression (Tan et al, 2015; Amaro et al, 1990). Generally, some women (and the society at large) have the perception that, drinking alcohol during pregnancy makes the baby active and strong. Secondly, there is a belief (though no proof) that violation of cultural, traditional or religious norms can cause a child to be born with physical and/or mental problems. Aside knowledge above contributing factors, why will a woman still drink prior to and during pregnancy when they know the dangers associated with it? Is it a misconception, lack of knowledge or inadequate knowledge, total disregard for advice given by health workers, and/or women are just not convinced about the serious effect of alcohol use during pregnancy? Should there be policy change and law enforcement?

2 RESEARCH OBJECTIVES

Due to the constant referral cases from some communities in Elmina to the Central Regional Teaching Hospital (Confidential) on issues of alcohol use prior and during pregnancy by women of childbearing age, this research seeks to assess women's knowledge on the effects of alcohol consumption during pregnancy on the foetus and why they still consume alcohol during pregnancy. Specifically we would want breakdown our research objective into the following:

Research Questions

- Do women know about the effect of alcohol on the foetus?
- Were women told by health workers not to drink alcohol during pregnancy?
- Do women know about the Fetal/Foetal Alcohol Syndrome Disorders (FASDs)?

Research Hypothesis

- Is there an association between women age-group and their knowledge on FAS

Is there a significant statistical difference in alcohol consumption across age-group of women?

3 MOTIVATION AND RATIONAL

The motivation for this study is to ascertain if indeed the target population are adequately aware of dangers of alcohol use during pregnancy and if they are adhering to not drinking alcohol during pregnancy and why? Related literature has confirmed the disregard for advice on alcohol use and the fact that some women still claim they are not aware of this knowledge. Are there issues of attitudinal change or the women are just not convinced about the damage that will be cause

in using alcohol during pregnancy and even before getting pregnant? Some studies in Ghana (Lekettey et al, 2017; Adu-sie-Poku et al, 2013) and the world over consistently confirm alcohol use among pregnant women.

Le Roux (2013) conducted a research to assess pregnant women's perception and knowledge regarding alcohol use during pregnancy. A sample size of 211 respondents administered through a self questionnaire. Overall, this study found that pregnant women from various backgrounds have limited knowledge of the harms caused by alcohol use during pregnancy.

Homenyo (2016) researched into knowledge of foetal alcohol syndrome among pregnant women. He used interviewer-administered questionnaires for 380 respondents. Simple random sampling technique was used in selecting respondents. Chi square and binary logistic regression tests were used to analyze the data. Findings from the study revealed that majority of the participants did not know about FAS. Also the participants admitted that alcohol consumption during pregnancy could be harmful to the unborn child.

In the same light this study was carried out in Elmina, with a sample size of 200 women (mothers who drink - pregnant women or/and mothers with children with FAS) between the ages of 15-49years. A non-probabilistic sampling using snow-ball sampling technique and systematics sampling technique (a probability sampling) was employed to administer questionnaires to our respondents. General descriptive statistics, Chi square test of association and one way ANOVA tests were used as the main statistical tools for the study.

4 PRELIMINARY ANALYSIS

Analysis of information on the 200 women sampled from a fishing community in Elmina revealed majority of women interviewed were Christian (95%) and most are co-habiting (49.5%) and just a few (15%) married (see Appendix B1 and B2). The age distribution (15-45 years) comprise mainly (74%)

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of age-groups 15-24 and 25-35 (highest) and they either live in a family house (42%) or a rented house (42%). Majority (68%) of the women had basic education and are mainly artisans (47%) with the rest either being farmers or fisherwomen (all results are in Appendix B3, B4, B5 and B6).

The distribution of number of pregnancy had in the past and their respective number of children they currently have is depicted in Figure 1 and Figure 2 respectively.

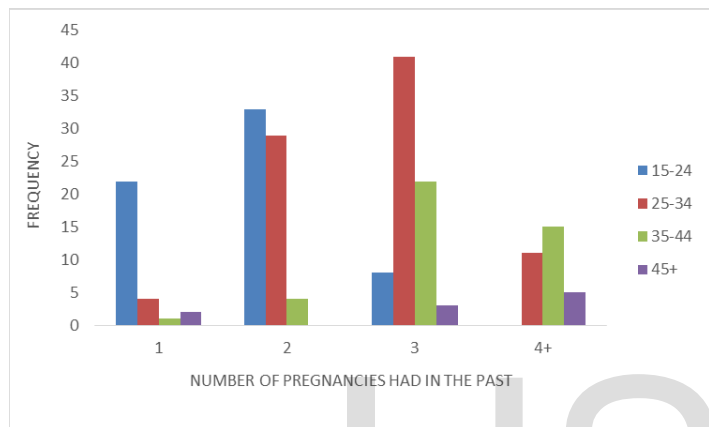


Figure 1: Distribution of Respondent's number of pregnancies in the past

Figure 1 showed that respondents in the age group 15-24 years who had 2 pregnancies in the past recorded 52.4% followed by 34.9% with one pregnancy and 12.7% had 3 pregnancies. Respondents of age group 25-34 years with three pregnancies in the past represented 48.2%, followed by 34.1% with two pregnancies and those with four or more pregnancies represent 12.9% and lastly those with only one pregnancy is 4.7%. Respondent of age group 35-44 years with three pregnancies in the past represented 52.4%, followed by 35.7% with four or more pregnancies and those with two pregnancies represent 9.5% and lastly those with only one pregnancy is 2.4%. For 45 and over respondents, 50% had four or more pregnancies, followed by 30% with three pregnancies and 20% had only one

pregnancy.

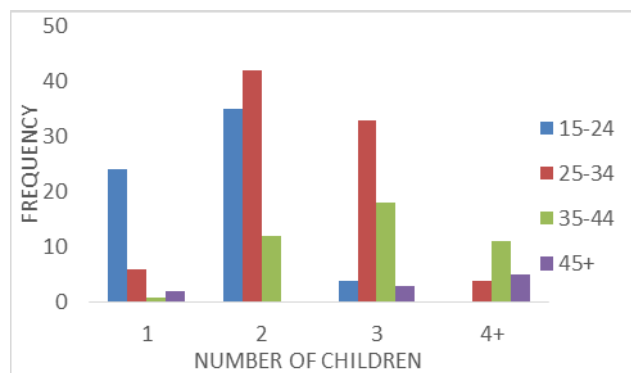


Figure 2: Distribution of Respondent's number of children

Also, the distribution of respondent's number of children showed that respondents in the age group 15-24 years have mostly one or two children representing 93.7%. Also 25-34 years age group have two or three children representing 88.2%. Respondents in 35-44 years age group recorded 42.9% with three children, 28.6% with two children and 26.1% with four children. However respondents in 45 years and above indicated that 50% had four or more children, followed by 30% with three children and 20% had only one child.

The aforementioned classification shows that women are mostly mothers and are actively engaged in childbearing. The research continued to investigate women's drinking habit within the fertility period. Figure 3 shows that four out of ten (42.9%) respondents' alcohol use span from 4 to 6 years, while those below 4 years represent 40.8%. Long use (7 years and above) of alcohol was recorded among some (16.6%) appreciable number.

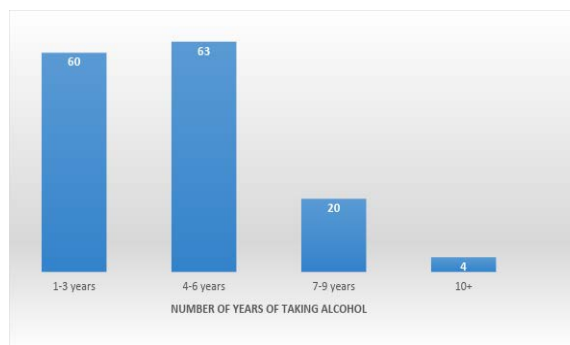


Figure 3: Distribution of Respondent's number of years of drinking alcohol

Clearly, there seems to be evidence of habitual alcohol use among the target population and the research continued to find out how many tot/bottles they drunk per sitting (largely per day) and more than half take 2 bottles/tots representing 55.7%, followed by those who took 3bottles/tots representing 32.7%, followed by those who take one bottle/tot which constituted 9.5% and lastly those who take 4 bottles/tots represented 2.1% (see Figure 4).

Subsequently, the research continued to find out among the sampled mothers whether they had children with symptoms of FAS and this data was classified according to gender of babies and age-group of mothers in Figure 5.

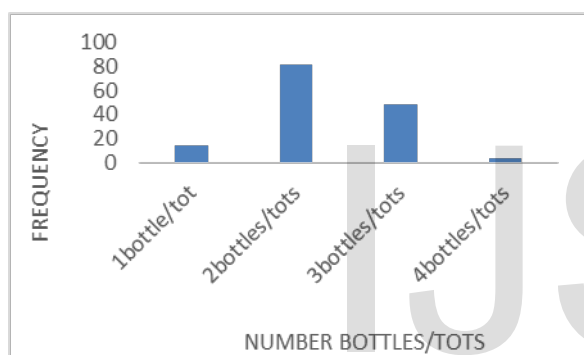


Figure 4: Distribution of Respondent's number of bottles/tots drunk/per day

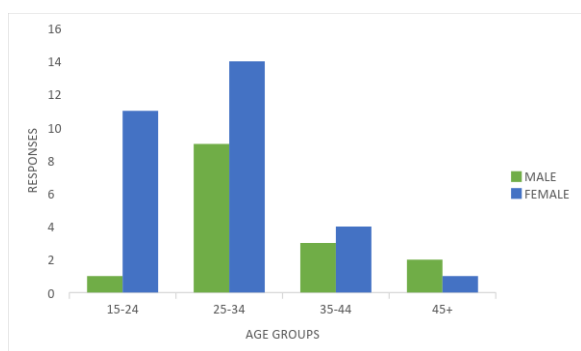


Figure 5: Distribution of Gender of babies with signs and age groups

Every 1 child out of 5 children born to mothers sampled had signs of FAS and Figure 5 indicated that the age group 25-34 recorded the highest males (9) and females (15) children with signs of FAS, followed by the age group 35-44 recording males

(3) and females (4) children, followed by the age group 45+ with males (2) and female (1) with the symptoms. Age-group 15-24 recorded the lowest with a male (1) and more females (11). Generally, there are more female babies with symptoms than males.

Table 1: Age groups of women and their knowledge about FAS

Have you been told that taking alcohol when pregnant can affect the development of the baby			
Age groups	Yes	No	Total
15-24	27	36	63
25-34	55	30	85
35-44	27	15	42
45+	6	4	10
Total	115	85	200

The following disturbing revelations stirred up the question of whether mothers were told not to take alcohol during pregnancy. Interestingly, majority (59%) confirmed they knew (which is depicted in Figure 6 and they (57.5%) also confirmed they were aware of the effects of alcohol on the unborn foetus as depicted in Table 1.

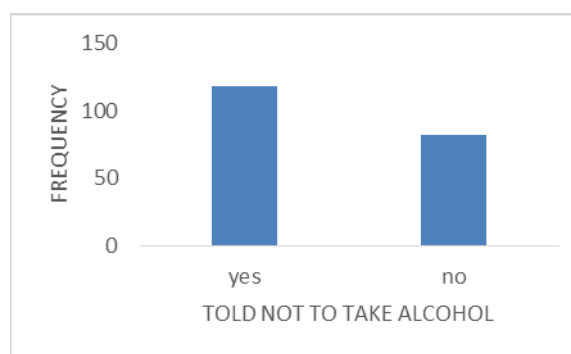


Figure 6: Distribution of Respondents on whether they were told not to take alcohol while pregnant

Therefore, one may ask why then do women still consume alcohol after such knowledge of effect of alcohol on their un-

born baby? Respondents' responses as shown in Figure 7 varied from taking alcohol for fun (59%), alcohol increases their appetite for food (32%) while the remaining respondents take it to increase their libido for sex, to make them bold to face certain situations or to make them feel high.

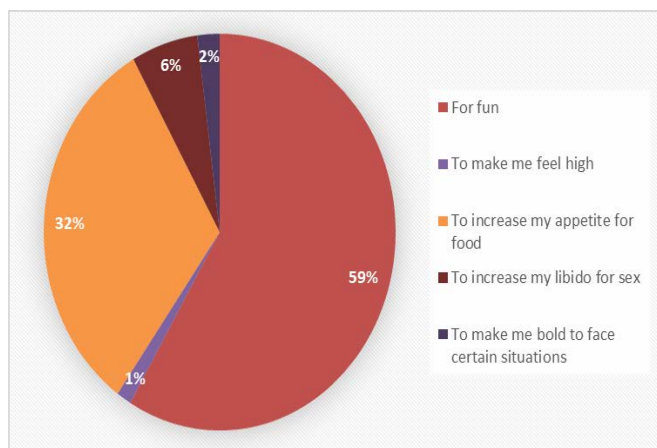


Figure 7: Distribution of Respondent's reasons for drinking alcohol

Descriptive analyses so far has confirmed that every six out of ten women are aware about the dangers of alcohol use during pregnancy and they have also been told not to drink alcohol during pregnancy across age-groups of sampled women of fertility age. The study further wishes to find out if there exists a significant association between women age-group and their knowledge on FAS and subsequently if there exists a significant statistical difference in alcohol consumption across age-group of women?

5 FURTHER ANALYSIS

Our hypothesis will be as follows:

Test of association:

H_0 : There is no association between women's knowledge about alcohol effect on the foetus across age-group.

H_1 : There is association between women's knowledge about alcohol effect on the fetus across age-group

Test of significant difference

H_0 : There is no significant difference between alcohol consumption for age groups of women

H_1 : There is a significant difference between alcohol consumption for age groups of women.

The Chi square test of independence in Table B1 (Appendix B) showed that P-value is 0.043 which is less than alpha-value of 0.05. We reject the null hypothesis and hence we conclude that, there is enough evidence to say that, there is an association between women's knowledge on alcohol effect on the unborn child across age-group. This suggested that knowledge of effect of alcohol use during pregnancy is related to a woman's age and possibility to have a child with FASDs. Then, it will be of use to get all women to avoid alcohol before and during pregnancy especially in the fertility age. Further, regarding if significant differences exists in alcohol consumption among women sampled, Table B2 (in Appendix B) showed that P-value is 0.003 which is less than alpha-value 0.05. We reject the null hypothesis; even at 0.01 significant level, we still reject the null hypothesis and hence we concluded with a 99% confidence that, there is enough evidence to say that, there is a statistical significant difference in alcohol consumption across the age-groups of women. Since the overall ANOVA test is significant, we then need to conduct a further test to look at the effect size and which age-group is causing the differences.

The post-hoc test in Table B3 (Appendix B) indicated that there was statistical significant difference between age group

15-24 and 25-34 age group, and also between age group 15-24 and age group 45+. Thus, the most fertile and youthful age-group (15-24) has the tendency to abuse alcohol more than the remaining age-groups.

Despite reaching statistical significance, the actual difference in mean scores between the age groups was medium (practical significance is medium- which makes our point more meaningful). In details, the effect size, calculated using eta squared, was 0.09. Post-hoc comparison using the Tukey HSD test indicated that the mean score for age group 15-24 ($M= 2.00$, $SD= 0.535$) was significantly different from age group 25-34 ($M= 2.36$, $SD= 0.685$) and age group 45+ ($M= 2.86$, $SD= 0.690$). Age group 35-44 ($M= 2.29$, $SD= 0.579$) did not differ significantly from any of the other age groups. Age group 15-24 ($M= 2.00$, $SD= 0.535$) did not differ significantly from age group 45+ ($M= 2.86$, $SD= 0.690$).

CONCLUSIONS

The findings of this study showed from the preliminary analyses that there is evidence of alcohol use among the women of the fertile age-group in Elmina although they have adequate knowledge on effects of alcohol on the foetus and was also educated not to take alcohol during pregnancy. The female children were mostly noticed with signs of alcohol-related diseases or FAS than the male children. In addition, the level of alcohol consumption across age-groups of women was significantly and practically different. Finally, it can also be concluded that, there is an association between women's knowledge on effect of alcohol on the unborn child across age-

group.

Interestingly, the study has also shown that for women sampled, four out of ten did not know about FASDs and has not been told not to take alcohol during pregnancy. One may be forced to think if education and awareness on the part of health worker and the media is not effective. Thus, our way or approach of handling issues on alcohol use before and after pregnancy for women in the fertility age-groups must change? Another angle on this matter is whether irrespective of women's education on the subject, they are just not ready to change their behaviour in these matters.

RECOMMENDATIONS

A comprehensive, multi-faceted approach is required to reduce drinking during pregnancy. This includes population-based strategies, such as awareness-raising campaigns and consistent health professional advice to women, and targeted individual-level strategies, to ensure effective support and treatment for those women at greatest risk of having an alcohol-exposed pregnancy.

From the analyses above, we therefore came out with the following recommendations;

- Ghana Organization on Fetal/Foetal Alcohol Syndrome - (**GOFAS**) should side with the ministry of health to pass a law to discourage women of child-bearing age from drinking alcohol before and during pregnancy.
- The general public should be educated on habits that will expose them to alcohol drinking.
- Opinion leaders such as chiefs, queen mothers, stakeholders, and the church leaders should join in active campaign to fight against the mental and physical defect caused by prenatal alcohol consumption. In addi-

tion, staff capacities should be strengthened to undertake research and implement policies to prevent control and monitor alcohol related diseases and Fetal Alcohol Syndrome - (FAS).

How do we achieve the above recommendations?

◆ A consistent message must be given to all women of childbearing years and their partners that:

- a prudent choice for women who are pregnant or who are considering pregnancy is to abstain from alcohol;
- reducing or stopping alcohol use at any time during pregnancy will reduce the harmful effects of alcohol.

◆ Physicians/midwives engage with other health care professionals in basic strategies to prevent FAS in their practices

- Identify communities that are prone to alcohol use and intensity awareness on FAS
- constantly monitor women and encourage them.

◆ Given the risk of recurrence is high for women (couples) who have had an FAS child, they should be counselled in recognizing and changing their alcohol use patterns in order to reduce impairments and disabilities in future children.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

DEPARTMENT OF STATISTICS

RESEARCH QUESTIONNAIRE

TOPIC:

STUDY ON KNOWLEDGE OF WOMEN ON THE EFFECT
OF ALCOHOL CONSUMPTION ON THE FOETUS.

(CASE STUDY- ELMINA)

INTRODUCTION

This research is being conducted to assess the knowledge and perception of women on the effect of alcohol on the foetus in Elmina. It would be appreciated if you will help by spending some of your time to answer these questions. Any information provided will be treated confidential and for academic purpose only.

Kindly read through the questions and answer to the best of your knowledge. Please tick (✓) where necessary.

TARGET GROUP: Pregnant or/and women with children.

SECTION A: BACKGROUND OF RESPONDENT

1. Age group

A. 15 -24 [] C.35 -44 []

B. 25- 34[] D.45 and over []

2. Religion

A. Christian [] B Muslim []

C. Traditionalist [] D. Others []

3. Ethnic group

A. Fante [] B. Ewe [] C. Asante []

D. Ga [] E.Others.....

4. Marital status

A. Single [] B. Married []

C. Divorced [] D. Co-habiting [] E.

others.....

5. Residential status

A. Own house[] B. Rented house[]

C. Family house [] D. Others.....

6. Educational background

A. Basic /JHS [] B. secondary / SHS []

C. Tertiary [] D. Others []

7. What is your occupation?

A. Farming [] B. Fishing []

C. Student [] D. Artisan []

E. Trader [] F. Government work []

SECTION B. ACCESSING WOMEN'S KNOWLEDGE ON ALCOHOL RELATED DISEASES

8. How many pregnancies have you had in the past?

A. 1 [] C. 3 []

- B. 2 [] D. 4 or more [] A. Daily [] B. Every other day []
9. How many children do you have? C. Once a week []
- A. 1 [] C. 3 [] D. Only at functions []
- B. 2 [] D. 4 or more []
10. Are you currently pregnant? 16. Why do you take alcohol? (Tick all that are applicable)
- A. Yes [] B. No [] A. For fun []
11. Do you drink at all? B. To make me feel 'high' []
- A. Yes [] B. No [] C. To increase my appetite for food []
- (If YES, Continue with questions 12, if NO, skip to question 17)* D. To increase my libido for sex []
12. Which of the following drinks do you usually take? E. To make my bold face certain situations []
- (Tick all that are applicable) 17. Have you ever been told not to take alcohol while pregnant?
- A. Minerals: Fanta, Malta Guinness, etc. [] A. Yes [] B. No []
- B. Guinness Stout [] C. Beer [] 18. Have you also been told that taking alcohol when pregnant can adversely affect the development of the developing baby?
- D. Akpeteshie (Local) [] E. Others A. Yes [] B. No []
- If you tick any alcoholic drink in question 12 above, answer question 13 to 16.
13. How long have you been taking alcohol? *Please use this information to answer question 19.*
- A. 1-3 yrs. [] C. 7-9 yrs. [] The following are signs that may be seen in a child born to a mother who takes alcohol when pregnant.
- B. 4-6yrs. [] D. 10 or more []
14. How much alcohol do you take any time you sit to drink? ➤ Flat face, small head, and narrow eye opening
- A. 1 bottle / tot [] ➤ Growth problem (they are smaller than other children of same age)
- B. 2 bottles / tots [] ➤ Learning and behavior problem (low IQ)
- C. 3 bottles / tots [] ➤ Small upturned nose with depressed nasal bridge
- D. 4 bottles / tots [] ➤ Unusual crease patterns in the palm
15. How often do you take alcohol? ➤ Limited joint movement

- Baby looks shriveled
 - Temporary hairiness of the face
19. Did you notice any of these signs in your previous births?
- A. Yes [] B. No []
20. If YES, in question 19 above, what is the Gender of your child with these signs?
- A. Males [] B. Females []
21. Have you notice any of these signs in the new- born child of a relative or friend?
- A. Yes [] B. No []
22. If YES in 12 above, did your relative/friend take alcohol when she was pregnant?
- A. Yes [] B. No []

Figure B1: Distribution of Religion of Respondents

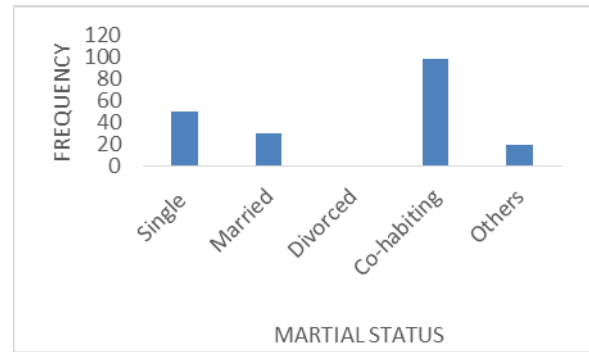


Figure B2: Distribution of marital status of Respondents

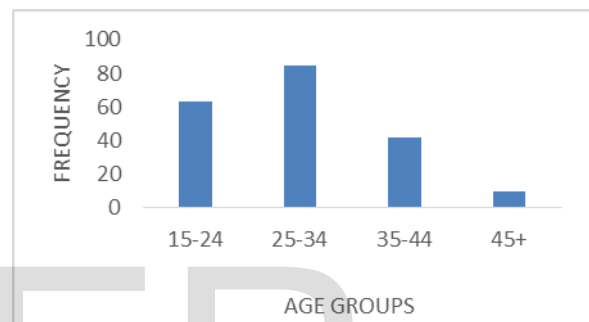


Figure B3: Distribution of the Ages of Respondents

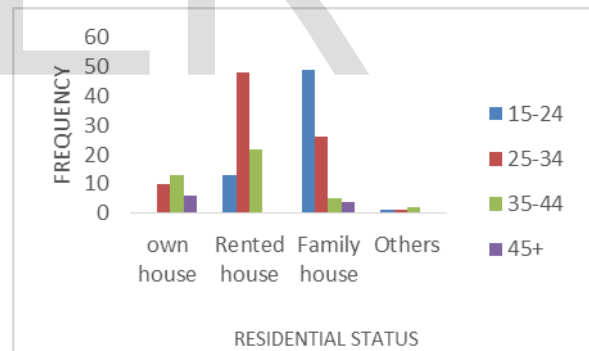


Figure B4: Distribution of Age groups and Residential status of Respondents

APPENDIX B

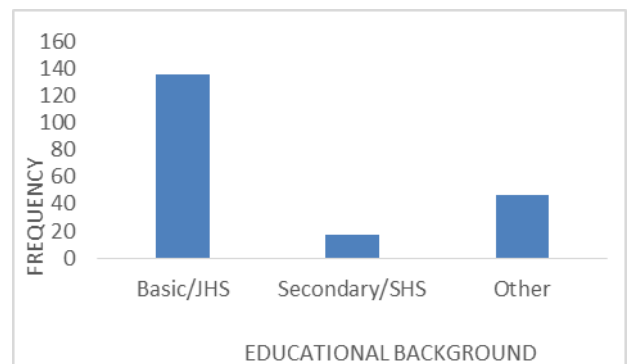
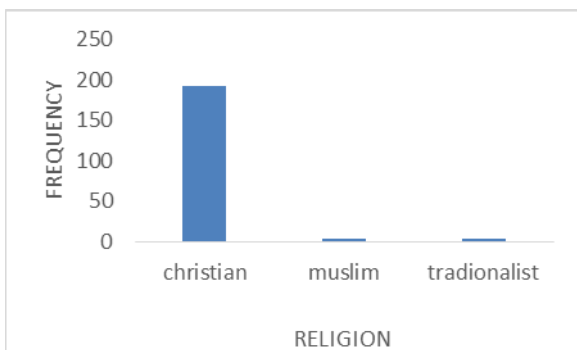


Figure B5: Distribution of Educational background of Re-

spondents

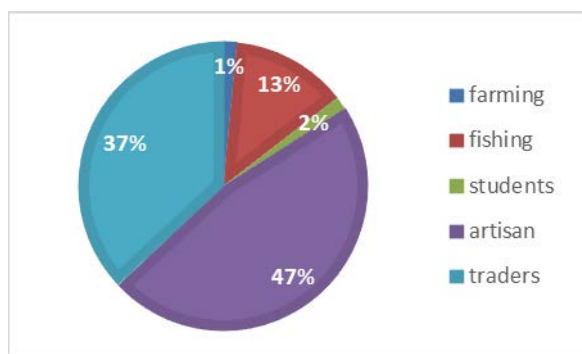


Figure B6: Distribution of Respondent's Occupation

Table B1: Contingency Table Analysis Test for Age groups of women and their knowledge on alcohol effect on the unborn child.

Age-Group (Years)	Yes	No	Total
15-24	27	36	63
	36.1	26.8	
25-34	55	30	85
	48.9	36.1	
35-44	26	15	42
	24.2	17.9	
45+	6	4	10
	5.8	4.3	
Total	115	85	200

Chi-square value = 8.151 P-value = 0.043

Table 6: One-way ANOVA for Alcohol consumption amongst age groups of women

Source of variation	Df	Sum of squares	Mean sum of square	F	P-value
Alcohol consumption	3	5.628	1.876	4.803	0.003
Error	143	55.858	0.3906		
Total	146	61.486			

Table B3: Post-hoc test

Pairwise Comparisons

(I) Age group	(J) Age group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
15-24	25-34	-.362	.129	.029	-.70	-.03
	35-44	-.294	.150	.208	-.68	.10
	45 +	-.857	.259	.006	-1.53	-.18
25-34	15-24	.362	.129	.029	.03	.70
	35-44	.068	.131	.954	-.27	.41
	45 +	-.495	.249	.197	-1.14	.15
35-44	15-24	.294	.150	.208	-.10	.68
	25-34	-.068	.131	.954	-.41	.27
	45+	-.563	.260	.139	-1.24	.11
45+	15-24	.857	.259	.006	.18	1.53
	25-34	.495	.249	.197	-.15	1.14
	35-44	.563	.260	.139	-.11	1.24

* The Mean Difference Is Significant At The 0.05 Level