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A Correlational Analysis of the Role of Income on Maternal Lifestyle among Pregnant Women: An Explanatory Study of Kwabre East District (Asonomaso Government Hospital)

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Abstract
Maternal health is one of the top most priorities for the United Nations, the World Health Organization, the United Nations Children Fund and most Governments and institutions around the world. As a result many attempts have been made in order to improve maternal health but it seems many countries in the world especially, Sub- Saharan African countries including Ghana might not be able to attain the millennium development goal target of improving maternal health, thereby reducing maternal mortality ratio by ¾ in 2015 (Report from Ghana Millennium Development Goals, 2008). The study used a quantitative data analysis; with the help of inferential statistics tool such scatter plot and spearman rank correlation coefficient the field data was analyzed. The study used a sample size of 200 pregnant women. The study employed both purposive and random sampling technique in taking the data. Purposively the area under study was selected in order to get the required respondents at Kwabre East District: Asonomaso Government Hospital. But in selecting the pregnant women in the study area a simple random sampling techniques was used. The study found out that, there was a positive correlational relationship between income and drinking lifestyle, smoking lifestyle, used of mosquito net, regular exercise and visitation of antenatal care among pregnant women. The study recommends that the Government of Ghana and all other stakeholders which include NGOs, Ghana Health service should provide mosquito treated net to the pregnant women and those in the low income group since they are less likely to buy or use a mosquito treated net. The study recommends that stakeholders of maternal health should prescribe the use of the physiotherapy department for the pregnant women and also subsidize its accessibility for the pregnant women to make it affordable for the low income earners. This will enables them to do regular physical exercises in order to invest into their health stock.
Keywords: Maternal mortality, maternal morbidity, maternal lifestyle, income, pregnant women, health stock and maternal health

1.0: INTRODUCTION

Maternal health is one of the top most priorities for the United Nations, the World Health Organization, the United Nations Children Fund and most Governments and institutions around the world. As a result many attempts have been made in order to improve maternal health but it seems many countries in the world especially, Sub- Saharan African countries including Ghana might not be able to attain the millennium development goal target of improving maternal health, thereby reducing maternal mortality ratio by ¾ in 2015 (Report from Ghana Millennium Development Goals, 2008). According to the World Health Organization (WHO), ‘‘maternal health refers to the health of women during pregnancy, childbirth, and the postpartum period. It encompasses the health care dimensions of family planning, preconception, prenatal, and postnatal care in order to reduce maternal morbidity and mortality’’(World Health Organization, 2011). Maternal health continues to be an important priority to the Government of Ghana in its attempt to accomplish the millennium development goal (MDG) of recuperating maternal health in order to trim down maternal mortality. According to World Health Organization report in 2010, maternal mortality is a solemn predicament for where about 1000 women die from pregnancy or childbirth-related complications around the world every day. Also in 2008, about 358 000 women died during the period of pregnancy and time of giving birth. Almost all of these deaths occurred in developing countries, and most could have been prevented (World Health Organization, 2010). The Government of Ghana and other institutions have recognized the importance of maternal health in curbing maternal mortality and have since recognized the millennium development authority to carry out the millennium development goals in which the 5th goal is to improve maternal health.

In the light of the problem above, this study seeks to bring to the notice of the government of Ghana on the influence of income on the life style of pregnant women’s and hence on their maternal health, which would therefore transmit signals to the various stakeholders on how to prioritize the working and earning condition of pregnant women in order to brawl against maternal mortality.

2.0: LITERATURE REVIEW

This section now tries to look at why lifestyles (smoking, drinking alcohol, regular physical exercises, usage of a

treated mosquito net, and attending antenatal regularly) chosen by the study are key when it comes to maternal health or the health of pregnant women.

According to Slowik (2011) smoking in pregnancy is linked with premature birth and low birth weight, as well as higher rates of illness (colds, bronchitis, ear infections, etc.), problems with breathing and sudden infant death syndrome (SIDS). Birth deformities of the heart, brain, and face are also more seen among children born to mothers who smoke. Children whose mothers smoked during pregnancy tend to be physically smaller than children of non-smokers, and may continue to have higher levels of respiratory illness, such as asthma, for many years.

Theoretically, there is a negative effect of drinking alcohol during pregnancy on maternal health. According to Slowik (2011), drinking of alcohol during pregnancy is the leading cause of birth deformities. Drinking during pregnancy can lead to Fetal Alcohol Syndrome (FAS) which is a combination of defects that may include any combination of reduced growth (before or after birth), a small head (likely related to reduction of brain size), abnormal behavioral development and facial defects.

According to Kakkilaya (2011), the usage of mosquito treated net especially during pregnancy is very important because pregnant women form the main adult risk group for malaria and 80% of their mortalities which occurs in Africa is due to malaria. He further argued that, among the pregnant women the morbidity due to malaria includes anaemia, fever illness, hypoglycemia, cerebral malaria, pulmonary edema, puerperal sepsis and mortality. The defects in the new born include low birth weight, prematurity, and mortality.

Also with regard to seeking regular antenatal care, hospital delivery and postnatal care, medical Practitioners have confirmed that, proper care during pregnancy and childbirth is important to the health of mother and child. Antenatal care forms an integral part of comprehensive maternal health care (2007 Ghana Maternal Health Survey). Antenatal care helps the detection and treatment of problems during pregnancy and provides an avenue to inform and educate pregnant women and their families, about their health and the danger signs associated with a pregnancy. Also, early and regular contact with a qualified health care provider during pregnancy and child birth can contribute to timely and effective use of services during and after delivery or in the event of an obstetric complication. It is during an antenatal care visit that screening for complications and advice on a range of maternity-related issues take place (2007 Ghana Maternal Health Survey).

3.0: MATERIALS AND METHODS

The study employed primary source of data through the help of questionnaires administration. The study used a sample size of 200 pregnant women. The study employed both purposive and random sampling technique in taking the data. Purposively the area under study was selected in order to get the required respondents at Kwabre East District: Asonomaso Government Hospital. But in selecting the pregnant women in the study area a simple random sampling techniques was used. The study used the simple random sampling techniques because each pregnant woman at Hospital in the district stood an equal chance of being included or excluded in the sample. Closed-ended questionnaires were administered but were centred on the number of times pregnant women smoke, drink alcohol, use mosquito treated nets, do regular physical exercises and also the number of times pregnant women attend antenatal care (i.e. clinics/hospitals). Also pregnant women were asked to provide their employment and income level. SPSS and Minitab were used to analysis the field data with the help of scattered and spearman's rank correlation coefficient techniques to see the relationships between the income status of the pregnant and their maternal lifestyle (i.e. maternal health).

3.1: Conceptual Framework of Scatter Plot Diagram Correlation

A scatter diagram is a dot of points diagram showing the relationship between two variables. Each pair of values is plotted as a point on the graph. A scatter diagram enables the researcher to see whether there exists a relationship between paired values (i.e. income and other maternal lifestyle). The points plotted on a scatter diagram show a definite pattern, this suggests that there exist a relationship between the variables. This relationship is called correlation between the variables. The stronger the relationship, the higher the degree of correlation and the higher degree of correlation the more confidently we can predict values of one variable, given values of the other. This study makes use of the three types of correlation under scatter plotting; positive, negative and zero. Thus, if the band of points plotted slope upwards across the diagram, then the relationship is positive and this shows a positive correlation between the variables. However, if the band of points plotted slope downwards across the diagram, then the relationship is negative and this shows a positive correlation between the variables. Lastly, if the band of points plotted exhibited no pattern across the diagram, then the relationship is zero and this shows a zero or no correlation between the variables.

3.2: Conceptual Framework of Spearman's Rank Correlation Coefficient

Rank Correlation Coefficient is one of the alternative methods of measuring correlation, based on the ranks of the sizes of item values. The measure of rank correlation most commonly used is known as the Spearman's rank

correlation coefficient. Given a set of paired data (x, y) for where the "**x**" represents the income level of the pregnant women and the "y" value represent maternal lifestyles. The spearman's rank correlation coefficient denoted as "r_s", is obtained by ranking the x's among themselves usually from high to low and also ranking the y's among themselves from high to low. Then, the next step is to find the differences between the ranks of the values for "x" and "y" which is denoted by (***d***). Then the difference in the ranks is squared (d^2) as seen the formula. The theoretical formula of spearman's rank correlation coefficient is given as:

$r_s = 1 - \frac{6\sum d^2}{n(n^2-1)}$, Where ***d***= the difference in ranks for each pair of values and ***n***= the number of pairs of data (i.e. sample size).

Decision Rule for the Spearman's Rank Correlation Coefficient Analysis is given below;

1. If the value of the spearman's rank correlation coefficients falls between 0.0 and 0.2, then the relationship implies weak or negligible correlation very
2. If the value of the spearman's rank correlation coefficients falls above 0.2 but below 0.4, then the relationship implies weak or low correlation
3. If the value of the spearman's rank correlation coefficients falls above 0.4 but below 0.7, then the relationship implies moderate correlation
4. If the value of the spearman's rank correlation coefficients falls above 0.7 but below 0.9, then the relationship implies stronger or high or marked correlation
5. If the value of the spearman's rank correlation coefficients falls above 0.9 but below or equal to 1.0, then the relationship implies very strong or very high correlation

4.0: EMPIRICAL RESULTS

4.1: Scattered Diagram and Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of Smoking

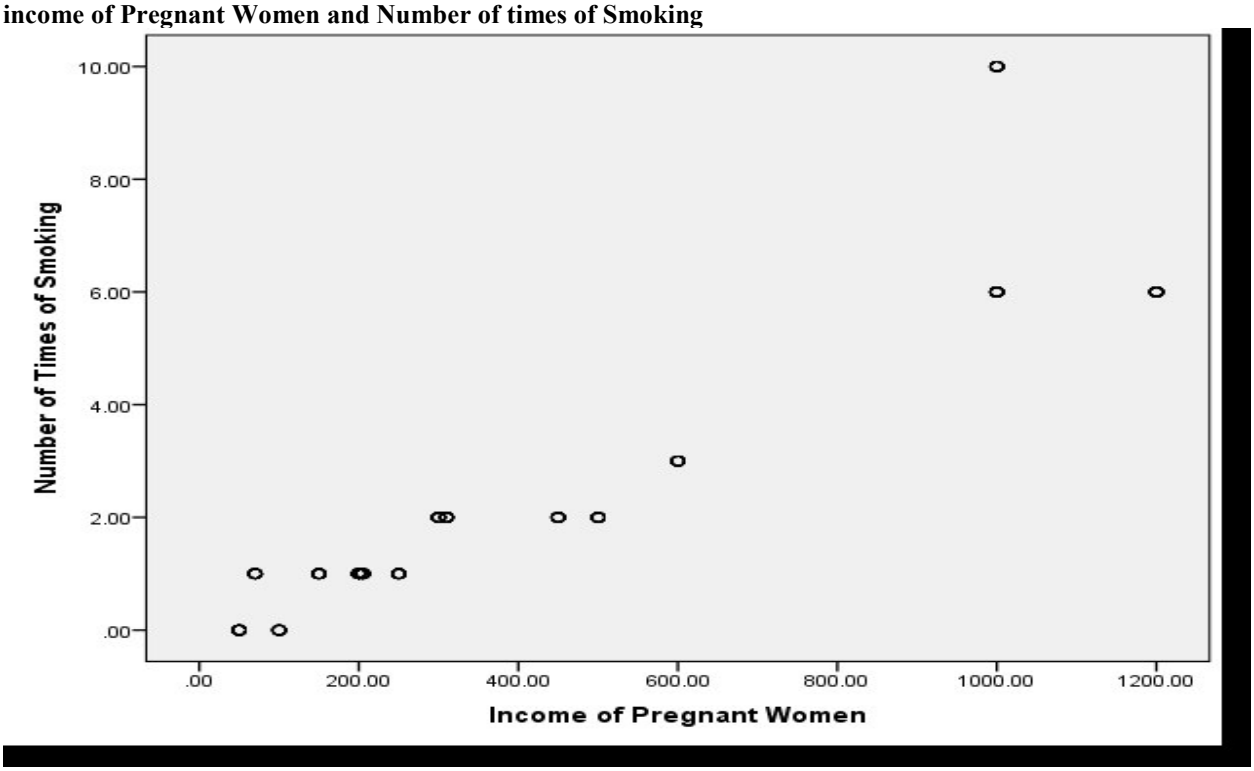

Figure 1: Scattered Plot Diagram showing the correlational relationship between income of Pregnant Women and Number of times of Smoking. ***Source: Field data,*** *February****, 2016***

Figure 1 is talks about a scattered plot diagram showing the correlational relationship between income of pregnant women and number of times of smoking. From the data obtain from the field, the band of points plotted between the income of pregnant women and the number of times of these pregnant women smoked stretches upward from left to right, which exhibited a positive relationship between income of pregnant women and number of times of smoking. This implies that, per the data obtain from the field there exist a positive correlation between the income of pregnant women and number of times of smoking. In effect among the smokers' pregnant groups as their income level goes up, it increases their purchasing power to buy more of the items for smoking. Most of the pregnant women were addicted to it, and they argued that their only source of

appetizers is to smoke for them to eat well. 30% of the respondents reveal that, they became addicted to smoking at school through peers and boy-friends relationship.

Table 1: Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of Smoking

Correlations

			Income of Pregnant Women	Number of Times of Smoking
Spearman's rho	Income of Pregnant Women	Correlation Coefficient	1.000	.941**
		Sig. (2-tailed)	.	.000
		N	200	200
	Number of Times of Smoking	Correlation Coefficient	.941**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, February, 2016

In relation to table 1, the spearman rank correlation coefficient established a correlational relationship between income of pregnant women and number of times of smoking. The field data results a spearman's rank correlation coefficient value of 0.941 which is above 0.9 but below 1.0. This implies that there exists a very strong positive correlation between the income of pregnant women and the number of times of smoking.

4.2: Scattered Diagram and Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of Drinking Alcohol

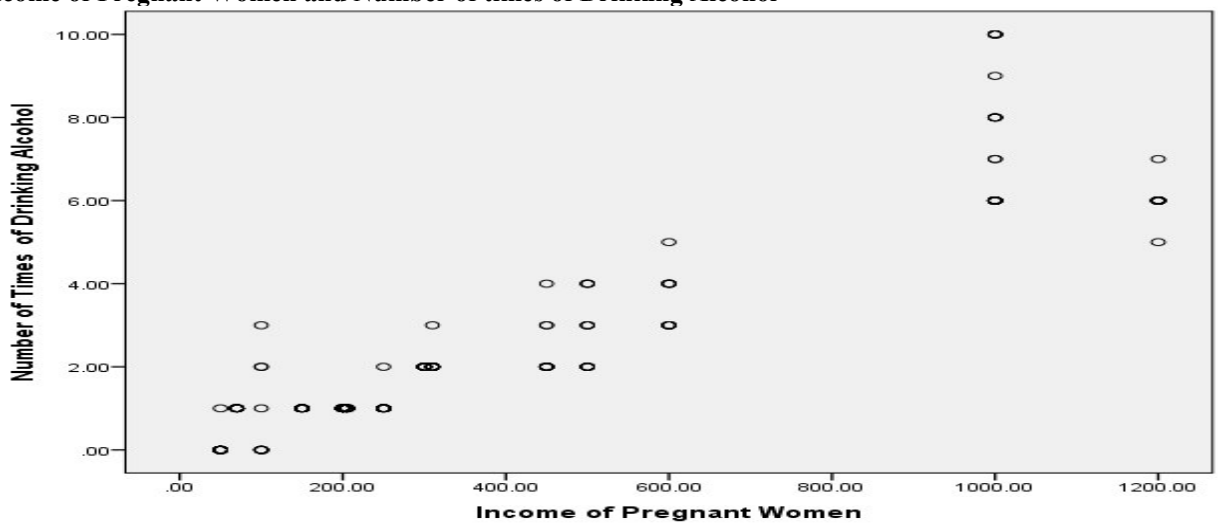

Figure 2: Scattered Plot Diagram showing the correlational relationship between income of Pregnant Women and Number of times of Drinking Alcohol. *Source: Field data, February, 2016*

Figure 2 takes into accounts a scattered plot diagram showing the correlational relationship between income of pregnant women and number of times of drinking alcohol. From the data obtain from the field, the band of points plotted between the income of pregnant women and the number of times of these pregnant women drinks alcohol stretches upward from left to right, which exhibited a positive relationship between income of pregnant women and number of times they drink alcohol. This implies that, per the field data there exist a positive correlation between the income of pregnant women and number of times of drinking alcohol. In effect among the drinkers' pregnant groups as their income level goes up, it increases their purchasing power to buy more of the alcohol as they became addicted to them. From the survey, 80% of the pregnant women were addicted to alcohol, and they argued that it is their only source of appetizers for them to eat well during the period of pregnancy.

Table 2: Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of Drinking Alcohol

Correlations

			Income of Pregnant Women	Number of Times of Drinking Alcohol
Spearman's rho	Income of Pregnant Women	Correlation Coefficient	1.000	.917**
		Sig. (2-tailed)	.	.000
		N	200	200
	Number of Times of Drinking Alcohol	Correlation Coefficient	.917**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, February, 2016

In relation to table 2, the spearman rank correlation coefficient established a correlational relationship between income of pregnant women and number of times of drinking alcohol. From the data obtained from the field, the result of spearman's rank correlation coefficient value is 0.917 which is above 0.9 but below 1.0. This implies that there exists a very strong positive correlation between the income of pregnant women and the number of times they drink alcohol.

4.3: Scattered Diagram and Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of Visiting Antenatal Care

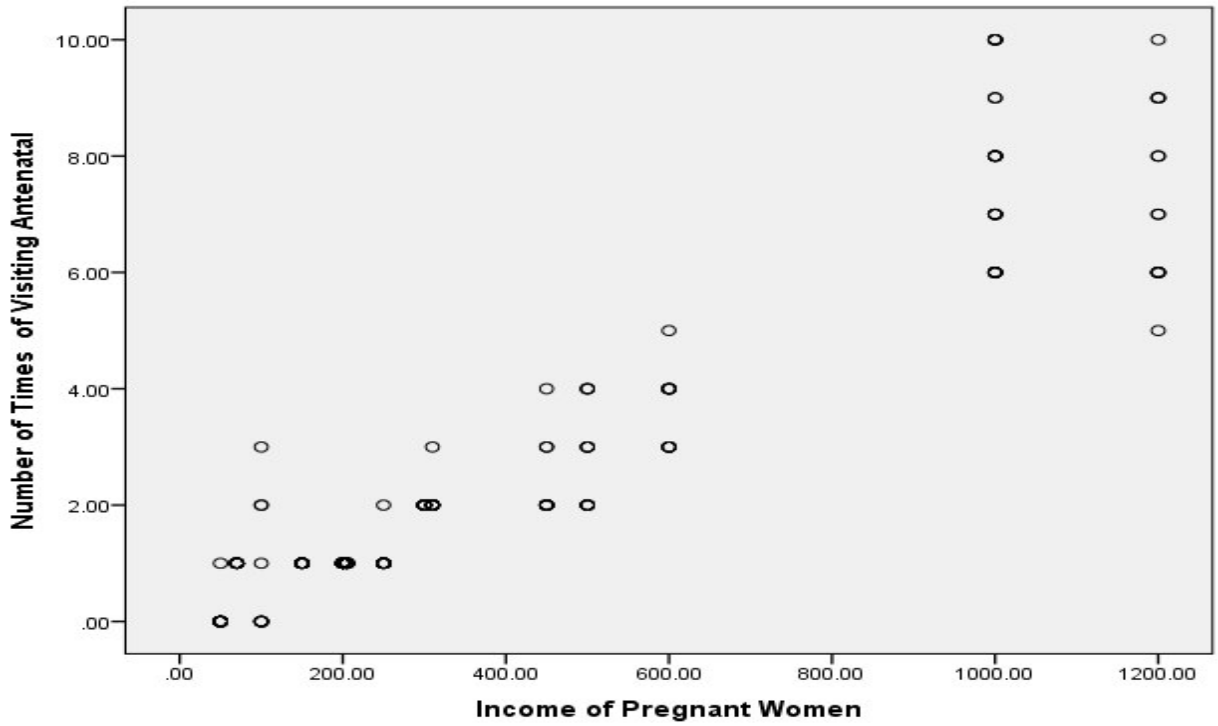

Figure 3: Scattered Plot Diagram showing the correlational relationship between income of Pregnant Women and Number of times of visiting Antenatal Care. ***Source: Field data,*** *February****, 2016***

Figure 3 reveals a scattered plot diagram on the correlational relationship between income of pregnant women and number of times of visiting antenatal for healthcare consumption. From the data obtain from the field, the band of points plotted between the income of pregnant women and the number of times of these pregnant women visited antenatal for healthcare consumption depicted an upward sloping from left to right, which exhibited a positive relationship between income of pregnant women and number of times they visited antenatal to access healthcare. This implies that, per the field data there exist a positive correlation between the income of pregnant women and the frequency pregnant women visited antenatal for healthcare consumption. In effect among the pregnant women as their income level goes up, it increases their purchasing power and ability

to afford transportation and access the antenatal healthcare facilities. About 95% of the pregnant women pay frequent visit to the healthcare facility (i.e. Asonomaso Government Hospital) to access antenatal care. As these populations of antenatal care users increases, it will go a long way to reduce maternal morbidity and mortality among pregnant women overtime.

Table 3: Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of visiting Antenatal Care

Correlations

			Income of Pregnant Women	Number of Times of Visiting Antenatal
Spearman's rho	Income of Pregnant Women	Correlation Coefficient	1.000	.918**
		Sig. (2-tailed)	.	.000
		N	200	200
	Number of Times of Visiting Antenatal	Correlation Coefficient	.918**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, February, 2016

In relation to table 3, the spearman rank correlation coefficient established a correlational relationship between incomes of pregnant women and number of times pregnant women visited antenatal. From the data obtained from the field, the result of spearman's rank correlation coefficient value is 0.918 which is above 0.9 but below 1.0. This implies that there exists a very strong positive correlation between the income of pregnant women and the number of times pregnant women seeks for antenatal care.

4.4: Scattered Diagram and Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of doing Aerobic Exercise (i.e. visiting the Gym centres)

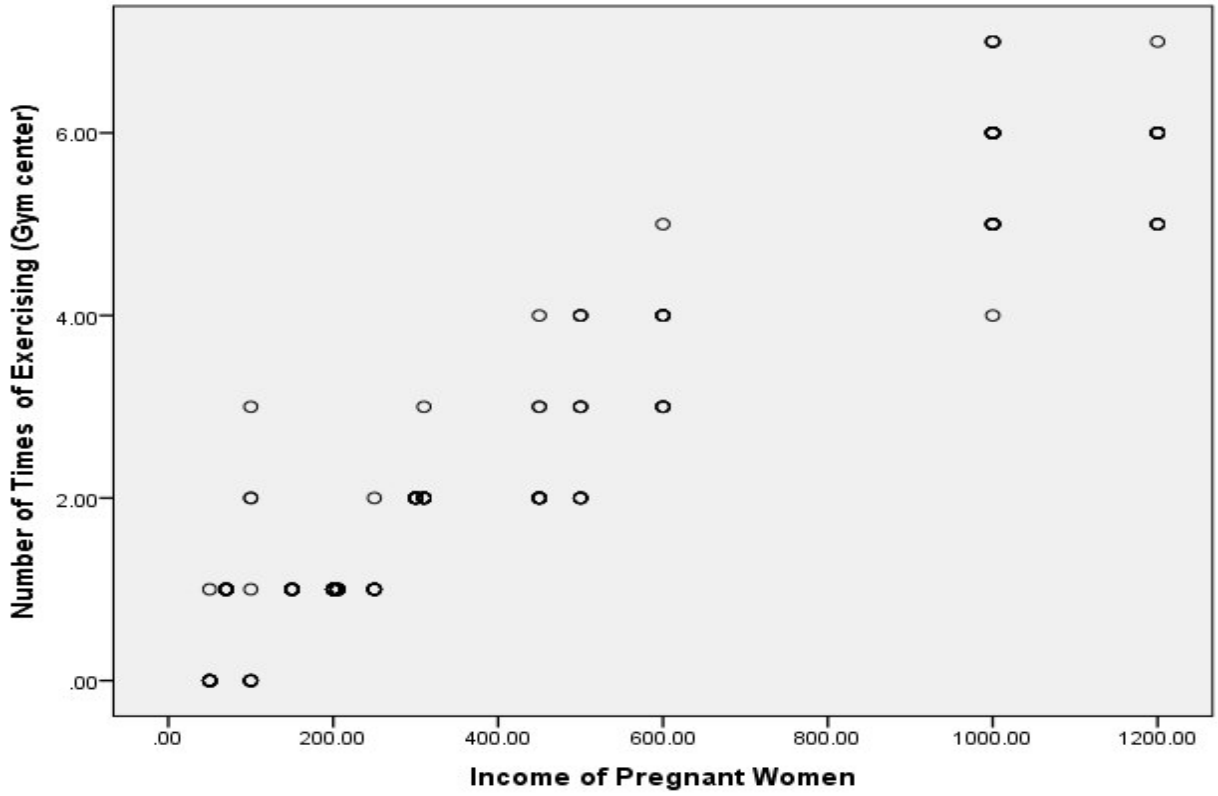

Figure 4: Scattered Plot Diagram showing the correlational relationship between income of Pregnant Women and Number of times of Exercising (i.e. visiting Gym Centre). *Source: Field data, February, 2016*

Figure 4 shows s a scattered plot diagram on the correlational relationship between income of pregnant women and number of times of visiting gym centres (i.e. doing regular exercise). From the data obtain from the field, the band of points plotted between the income of pregnant women and the number of times of these

pregnant women visited the gym centres for regular exercise depicted an upward sloping trend from left to right, which implies a positive relationship between income of pregnant women and number of times they visited gym centres to invest into their health stock. Per the field data, there exist a positive correlation between the income of pregnant women and the frequency for which pregnant women will visit the gym centres for health stock investment. In effect, among the pregnant women as their income level goes up, it increases their purchasing power and ability to afford transportation and even access the various gym facilities or the healthcare physiotherapy centre. About 65% of the pregnant women pay frequent visit to the gym centre (i.e. do regular exercise) to invest into their health stock. As these populations of gym users increases, it will go a long way to reduce maternal morbidity and mortality among pregnant women overtime.

Table 4: Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of doing Aerobic Exercise (i.e. visiting the Gym centres)

Correlations

			Income of Pregnant Women	Number of Times of Exercising (Gym center)
Spearman's rho	Income of Pregnant Women	Correlation Coefficient	1.000	.919**
		Sig. (2-tailed)	.	.000
		N	200	200
	Number of Times of Exercising (Gym center)	Correlation Coefficient	.919**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, February, 2016

In relation to table 4, the spearman rank correlation coefficient established a correlational relationship between incomes of pregnant women and number of times pregnant women visited gym centre (i.e. do regular exercise). From the data obtained from the field, the result of spearman's rank correlation coefficient value is 0.919 which is above 0.9 but below 1.0. This implies that there exists a very strong positive correlation between the income of pregnant women and the number of times pregnant women seeks for regular exercise (i.e. visiting gym centres).

4.5: Scattered Diagram and Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of Using the Treated Mosquito Net

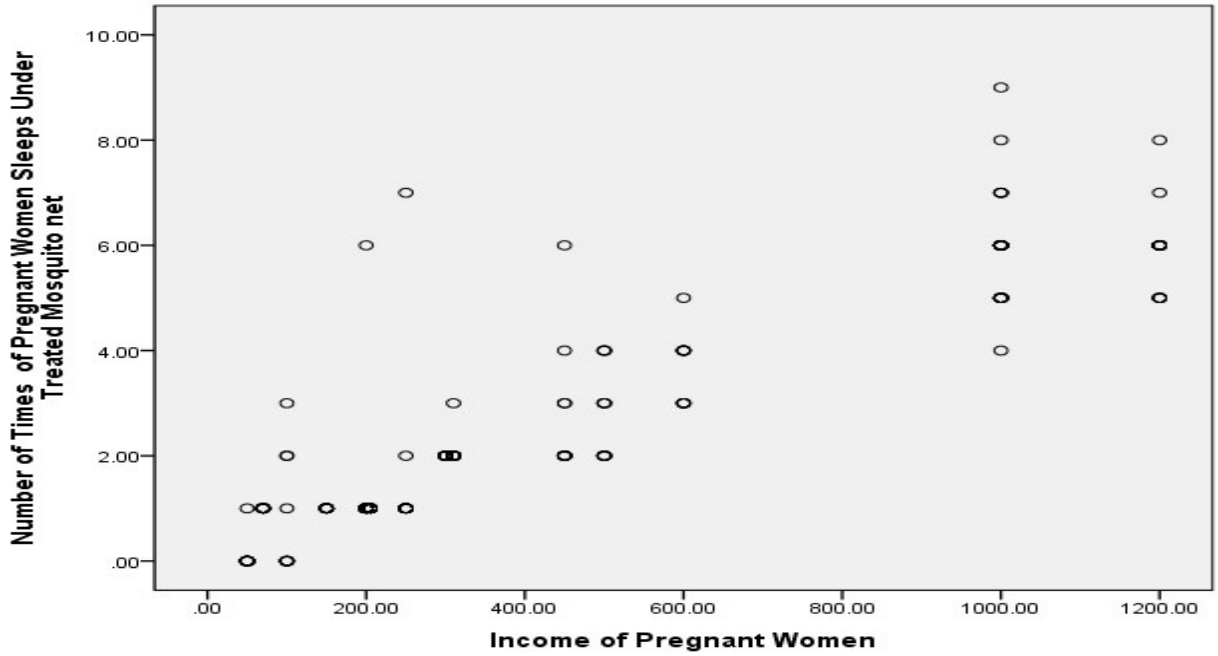

Figure 5: Scattered Plot Diagram showing the correlational relationship between income of Pregnant Women and Number of times of using treatment Mosquito net. *Source: Field data, February, 2016*

Figure 5 shows s a scattered plot diagram on the correlational relationship between income of pregnant

women and number of times these pregnant women slept under treated mosquito net during the night. From the data obtain from the field, the band of points plotted between the income of pregnant women and the number of times of these pregnant women slept under treated mosquito net depicted an upward sloping trend from left to right, which implies a positive relationship between income of pregnant women and number of times the pregnant women adhered to the use of treated mosquito net during the night. Per the field data, there exist a positive correlation between the income of pregnant women and the frequency for which pregnant women will sleep under treated mosquito net in order to protect their health status from maternal morbidity and mortality during the period of pregnancy and child delivery. In effect, among the pregnant women as their income level goes up, it increases their purchasing power and ability to afford treated mosquito nets from the various sales points. About 98% of the pregnant women slept under treated mosquito net. As these populations of treated mosquito nets users' increases, it will go a long way to reduce maternal morbidity and mortality among pregnant women overtime.

Table 5: Spearman's ranks correlation coefficient analysis on the relationship between income of Pregnant Women and Number of times of Using the Treated Mosquito Net

Correlations

			Income of Pregnant Women	Number of Times of Pregnant Women Slept Under Treated Mosquito net
Spearman's rho	Income of Pregnant Women	Correlation Coefficient	1.000	.902**
		Sig. (2-tailed)	.	.000
		N	200	200
	Number of Times of Pregnant Women Slept Under Treated Mosquito net	Correlation Coefficient	.902**	1.000
		Sig. (2-tailed)	.000	.
		N	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, February, 2016

In relation to table 5, the spearman rank correlation coefficient established a correlational relationship between incomes of pregnant women and number of times pregnant women slept under treated mosquito net. From the data obtained from the field, the result of spearman's rank correlation coefficient value is 0.902 which is above 0.9 but below 1.0. This implies that there exists a very strong positive correlation between the income of pregnant women and the number of times pregnant women sleeps under treated mosquito net.

5.0: CONCLUSION AND POLICY RECOMMENDATION

1. The study recommends that the Government of Ghana and all other stakeholders which include NGOs, Ghana Health service should provide mosquito treated net to the pregnant women and those in the low income group since they are less likely to buy or use a mosquito treated net.
2. The study recommends that stakeholders of maternal health should prescribe the use of the physiotherapy department for the pregnant women and also subsidize its accessibility for the pregnant women to make it affordable for the low income earners. This will enables them to do regular physical exercises in order to invest into their health stock.
3. The study recommends that the government should subsidize antenatal service for the pregnant women or making it free, in order to entice them to visit the health care facilities regularly. In doing this will reduce the maternal mortality rate and morbidity among pregnant women.
4. The study recommends that, all stakeholders should engage the mass media (i.e. radio stations, television and internet) massively, to campaign on the relevance of prenatal care, post natal care, and hospital delivery, in order to reduce maternal death during delivery.

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