

**THE EFFECTS OF SINGLE PARENTING ON CHILD HEALTH: A CASE STUDY OF
KWABRE EAST DISTRICT.**

by

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DECLARATION

I declare that this thesis submitted herein is an original work I have personally undertaken under supervision except where due acknowledgement has been made in the text.



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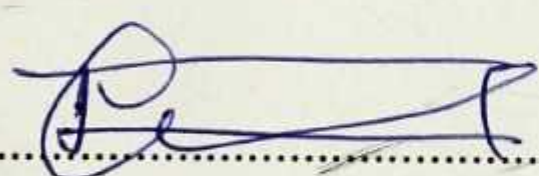
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DEDICATION

This work is dedicated to my mother, Madam Lucy Anning who has been behind me throughout my education.

Also to my brother (Vincent Oduro) who single handedly sponsored my postgraduate education and my siblings: Theresa, Veronica, Oscar, Augustina and Emmanuel.



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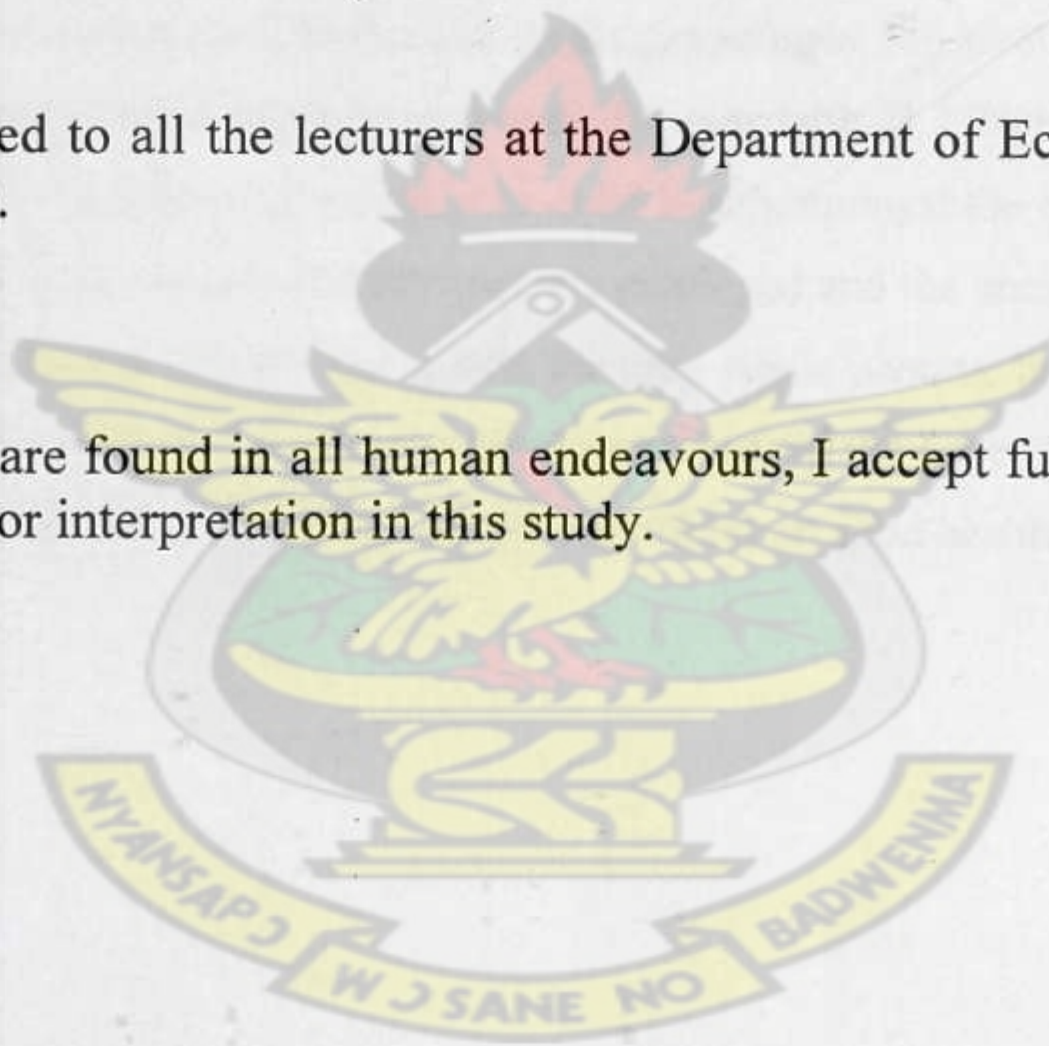
I am most grateful to the almighty God for His guidance and protection throughout my life and for making this thesis a success.

I also wish to express my profound and heartfelt gratitude to my Supervisor, Dr. (Sr.) Eugenia Amporfu whose constructive criticisms, comments, suggestions and guidance have made this thesis a standard one.

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I am also indebted to all the lecturers at the Department of Economics and to all my course mates.

Lastly, as errors are found in all human endeavours, I accept full responsibility for any error of fact or interpretation in this study.



ABSTRACT

Parenthood is challenging even under the best of conditions. With one parent, the challenges are multiplied. Single parenthood in Ghana is on ascendency according to recent demographic and health surveys and 2000 Population Census Report. About 80, 000 children do not live to celebrate their fifth birthday every year in Ghana. Most of these children die from preventable causes such as malaria, diarrhea etc (Ghana's Integrated Child Health Campaign 2006). Children depend on parents for their basic human needs and living arrangements. Thus information on parenting is essential for planning for the welfare of children. The paper used 440 randomly sampled respondents from the Kwabre East District in the Ashanti Region to find the effects of single parenting on child health using maternal rated overall child health as a measure of child health and ordered probit model as the empirical method of estimation. The paper found an inverse relationship between child health and single parenting at 5% level of significance. It also revealed that about 88.83% of single parents were females with 11.17% being males. The paper could not produce any evidence of variation in child health amongst the educated single parents and the uneducated single parents and between the employed and the unemployed single parents at 5% level of significance. Finally using data for only single parents, the paper sought to find out the effects of the causes of single parenting identified by the paper on child health. It was revealed that the causes did not have any significant effects on child health.

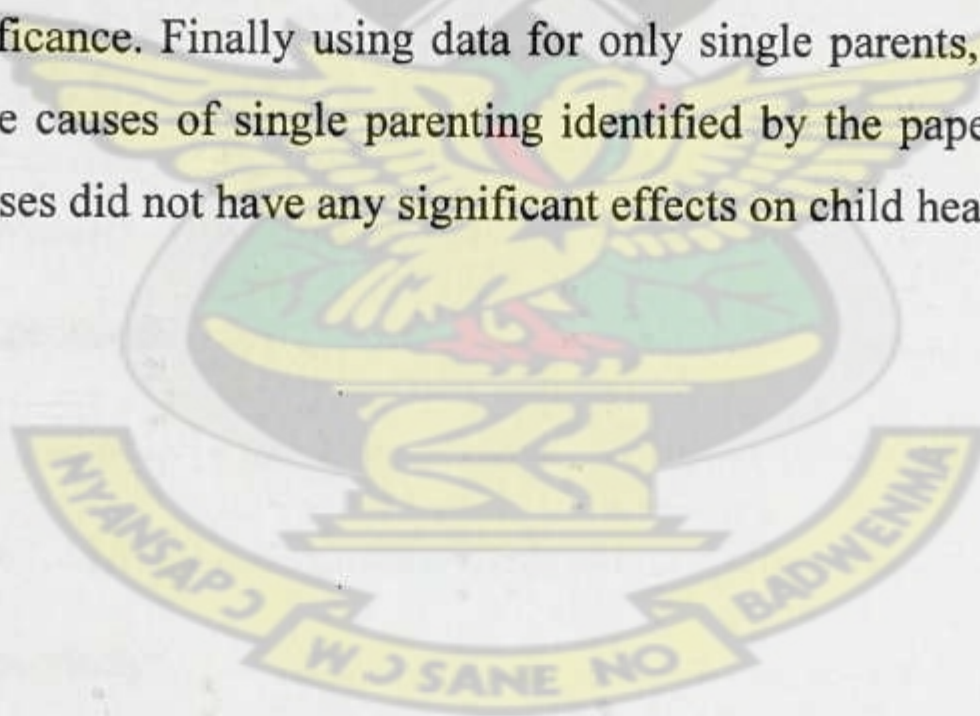


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CHAPTER ONE

INTRODUCTION

1.0 General Overview

A child is a person below the age of 18 years (UN Convention on the Rights of the Child and Ghana's 1992 Constitution). Childhood is the early formative part of a person's life after birth; the period when the individual learns fundamental values and basic skills of life; and when the foundations of physical, mental, emotional and cultural growth and development of the individual are laid. Childhood experiences can therefore influence and determine the adulthood of the individual (Afenyadu, 2010).

Children in many developing countries suffer from profound deficits in nutrition, health, fine and gross motor skills, cognitive development, and socio-emotional development. Early Childhood Development (ECD) outcomes are important markers of the "welfare" of children in their own right. In addition, the deleterious effects of inadequate development at early ages can be long-lasting.

Childhood mortality rates in general and infant mortality in particular are often used as broad indicators of social development or as specific indicators of a population's health status. One of the targets of the Millennium Development Goals is a two-thirds reduction in infant and child mortality by the year 2015.

According to the 2008 Demographic and Health Survey (DHS, 2008), under-five mortality in Ghana is 80 deaths per 1,000 live births. This means one in every thirteen Ghanaian children dies before the fifth birthday. Infant mortality is 50 deaths per 1,000 live births and child mortality is

31 deaths per 1,000 children age one year. Neonatal mortality is 30 deaths per 1,000 live births and post-neonatal mortality is 21 deaths per 1,000 live births. Neonatal deaths account for 60 percent of the deaths in infancy.

Infant and child mortality rates are the result of high levels of poverty and deprivation, malnutrition, poor access to basic education, the spread of HIV/AIDS and the resurgence of malaria and tuberculosis as well as unhealthy conditions during the time of birth. Malaria alone accounts for an average of 22 percent of all mortality cases among children under-five years (Asante and Asenso-Okyere, 2003).

Malnutrition places children at increased risk of morbidity and mortality and has also been shown to be related to impaired mental development. According to the 2006 Multiple Indicator Cluster Survey (MICS, 2006) about one in five children was stunted or short for his/her age. Again, 5.4% of the children were classified as wasted or thin, which is a condition that indicates failure to receive adequate nutrition. About 20% of the children were underweight, reflecting the effect of acute and chronic malnutrition. The results of Ghana Demographic and Health Surveys (GDHS) carried out over the past two decades indicate that the health and nutritional status of the average Ghanaian child is poor.

Single-parent families can be defined as families where a parent lives with dependent children, either alone or in a larger household, without a spouse or partner (International Encyclopaedia of Marriage and Family, 2003). Single parenthood may occur for a variety of reasons. It could occur as a result of divorce, adoption, artificial insemination, surrogate motherhood, child neglect or abandonment by the absentee biological parent. There are also "natural circumstances"

where either the father or mother may die, leaving the child or children with the other surviving parent (GNA, 2010).

Parenthood is challenging even under the best of conditions. With one parent, the challenges are multiplied. Coping with childrearing for single parents becomes more difficult because of responsibility overload, when one parent makes all the decisions and provides for all of the family needs; task over-load, when the demands for work, housework, and parenting can be overwhelming for one person; and emotional overload, when the single parent must always be available to meet both their own and their children's emotional needs. Alone or in combination these result in problems for the single parent, including loneliness, anxiety, and depression (International Encyclopaedia of Marriage and Family, 2003).

The quality of the relationship between parents matters to child well-being. Children who grow up in married families with high conflict experience lower emotional well-being than children who live in low-conflict families, and they may experience as many problems as children of divorced or never-married parents. Research indicates that marital conflict interferes with the quality of parenting. Furthermore, experiencing chronic conflict between married parents is inherently stressful for children, and children learn poor relationship skills from parents who are not able to solve problems amicably. When parents have a highly discordant relationship, children are often better off in the long run if their parents divorce (Parke, 2003).

Research show that, on average, children living with single parents are disadvantaged compared to children of married-parent families in the area of educational achievement. In 1994, McLanahan and Sandefur, using evidence from four nationally representative data sets, compared the outcomes of children growing up with both biological parents, with single parents,

and with step-parents. The study found that children who did not live with both biological parents were roughly twice as likely to be poor and to have behavioural and psychological problems (Parke, 2003).

According to McLanahan and Sandefur, low incomes and sudden drops in income are the most important reasons that children in single-mother families fare worse than other children. Of course, not all children in single-parent families will experience these negative outcomes. Afenyadu (2010) shows that single parenting among other factors contribute to child labour in Ghana.

Single parenting has become a common phenomenon in Ghana. According to the Ghana News Agency (2010) report, sources at the Domestic Violence and Victim Support Unit (DOVVSU) of the Ghana Police Service in Accra indicated that between January and March 2011, 526 cases of child neglect were reported to the Unit, out of which 485 were females. According to the 2000 housing and population census, 54% of female household heads in Ghana were unmarried as against 41% in 1960. The 2006 Multiple Indicator Cluster Survey shows that, Fourteen percent (14%) of all children are not living with a biological parent. Eight percent (8%) of all children have one or both parent's dead. Sixty percent (60%) of children are living with both parents; 21 percent of these children live with only their mothers, 4 percent live with only their fathers, and 15 percent live with neither parents. Thus, approximately forty percent (40%) of children are living with single parents either with the mother alone or the father.

Given the above background of child health and single parenting and the role played by families in the upbringing of the child one wonders if the current poor status of child health in Ghana could be as a result of rising single parenthood.

1.1 Statement of the Problem

“Every year in Ghana, about 80,000 children do not live to celebrate their fifth birthday. Most of these children die from preventable causes. Malaria is hyper-endemic in Ghana and claims one-quarter of all under-five deaths every year. Acute respiratory infection is responsible for 18 per cent of under-five deaths, and diarrhoea for another 18 per cent. Malnutrition is the underlying cause of death in half of all under-five deaths” (Ghana’s Integrated Child Health Campaign, 2006).

Over the last five years, national infant mortality and under-five mortality rates in Ghana have not improved, startling evidence that children continue to die needlessly. This has hindered the country’s ambition of reducing to two-thirds the under five and infant mortality rates as enshrined in the Millennium Development Goals (MDG).

In Ghana, studies have identified household structure and socio-economic factors as prime determinants of children’s economic and social well-being (Avogo and Agadjanian; Gyimah, 2005). However, little is known about the influences of parenting on child health.

The importance of parenthood and child outcomes in national public health and social policies has been well documented in developed countries (MacLanahan and Sandefur, 1994; Curie, 2008). Because children depend largely on their parents to meet their basic human needs, information on parenthood is essential for planning for the welfare of children.

Given the rising trend of single parenting as shown by the 2000 Population Census Report and cases of child neglect (Ghana News Agency, 2010) in Ghana and the crucial roles played by parents in the upbringing and rearing of children, the paper sought to find out if the poor status of child health in Ghana could be ascribed to the rising trend of single parenting.

1.2 Study Objectives

The general objective of the study was to assess the effects of single-parenting on child health.

The specific objectives of the study were:

- ❖ To assess if child health varies across employed single parents and unemployed single parents.
- ❖ To assess whether child health varies across educated single parents and uneducated single parent.
- ❖ To assess the effects of other socio-economic characteristics of parents on child health.
- ❖ To find out the gender of single parents.
- ❖ To find out the effects of the causes of single-parenting on child health.

1.3 Study Hypothesis

The study seeks to test the following empirical hypothesis

H_0 : Single-parenting **does not** adversely affect child health.

H_1 : Single-parenting adversely affects child health

1.4 Justification of the Study

Health is a “capacity” that affects production of a wide range of future capacities (Heckman 2007). Poor child health is likely to affect future health, which in turn can affect labour supply

and productivity. There is a great deal of evidence that socioeconomic status is related to health more generally (Paxson et al, 2005) and that poor health in childhood is related to poorer future adult health.

Research also shows that individuals who experience health problems in childhood tend to consume more health care in adulthood (Curie et al. 2008). This could increase the cost of health care in the near future which can adversely affect the sustainability of the National Health Insurance Scheme.

Thus, adverse health outcomes during childhood are likely to have both immediate and long-term implications for children and the economy as a whole. Poor health during childhood may interfere with important developmental stages, perhaps preventing children from attending school regularly which could be detrimental to national development.

In view of the positive relationship between childhood health and young adult outcomes and economic growth as shown by theoretical and empirical studies, it calls for an insight into the extent to which single-parenting affects child health.

The study is also expected to help policy makers in the review and making of health and social policies.

1.5 Methodology and data analysis

Structured questionnaires and interviews were used to elicit respondent's demographic and health information such as age, employment status, expenditure, level of education, sex, marital status, number of children. The study employed Maternal (Parental) Rated Overall Child Health

to elicit child health information. Maternal-rated overall child health (measured through a question such as “Overall, how would you rate your child’s health? Excellent, very good, good, fair or poor?”), is one of the most commonly-used measures of children’s health in social science research. Maternal ratings of child health have been found to predict levels of paediatric health care utilization (Cafferata & Kasper, 1985), and are often used as indicators of child health status in clinical care settings as well as in research.

Convenience sampling was employed by the study to select respondents in the study area. Descriptive and quantitative methods were used for data analysis. The study used ordered probit regression model as the empirical method of estimation under quantitative method.

All questionnaires and interviews were personally administered by the researcher. All data analysis was carried out by using STATA 11.

1.6 Scope of the study

This study conceptually, finds the effects of single-parenting on child health. The sample population of the study was limited to the inhabitants of the Kwabre East District in the Ashanti Region. The choice of this district was due to the proximity to the study and resource constraint and the researcher’s familiarity with the district. A 440 sample population was used by the study. In order to be consistent with Ghana’s definition of a child; the paper defined a child as a person below the age of 18 years.

1.7 Organization of the study

The study was organised into five main chapters with each chapter further divided into sections and sub-sections. The first chapter deals with the general introduction to the study. Chapter two reviews the theoretical and empirical literature related to the study. Chapter three focuses on the methodology and the specification of the empirical model used for the study. The results of the data collected for the study were analysed and discussed in the fourth chapter. The fifth chapter presents the summary of findings, policy implications, recommendations and conclusion of the study.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The scientific study of the relationship (commonly referred to as the 'gradient') between socioeconomic status (SES) and health dates back at least as far as the 19th century, when researchers investigated differences in health outcomes among royalty, the landed elite, and the working class in Europe. Since then, measures of SES have come to appear regularly in analyses of the determinants of health and mortality. Given that a variety of socioeconomic variables including income, education, occupation, race, and ethnicity, among others exhibit similar associations with health, many researchers have come to agree that "a broader underlying dimension of social stratification or social ordering is the potent factor" (Adler et al. 1994), so that the various SES variables primarily serve as indicators, or 'markers,' of this underlying dimension (Cutler et al. 2008).

Circumstances in early life play a crucial role in determining the co-evolution of socioeconomic status and health throughout adulthood. This chapter reviews the theoretical and empirical literature on parenting and parental socio-economic status on child health and child development.

2.1 Theoretical review on child health, parenting and socio-economic status of parents

The household production model of Becker (1965) provides a useful framework for analyzing family behaviour. The basic idea of the Becker theory is that an individual (family) derives satisfaction not from market produced goods but through the consumption of goods produced at

home using their own time and market goods as inputs. This framework has been used by many researchers to analyze the production and demand for health and health inputs.

Cunha and colleagues (Cunha, Heckman et al. 2006; Cunha and Heckman 2007) developed a model that links skills or capability (education, cognitive, emotional and behavioural attributes that underlie economic success) formation in children to parental capabilities and parental investments in child development. The model highlights the importance of the household environment on the development of children and the compelling evidence that a child's relationship with his or her care giver is important in determining the development of the brain. Based on this model of human development, the stability of the home and parental mental health can have notable impacts on skill development in children that may affect the stock of human capital in adults (Heckman 2007).

Grossman (1999) in his model of the human capital model of the demand for health postulates health as a durable stock of capital that yields output of healthy time. According to this model the individual inherits an initial amount of this stock which depreciates with age and increases with investment. Like Becker, the human capital model uses a household production function model of consumer behaviour to account for health as output and medical care as one of the many inputs into its production. The model assumes that an individual maximizes utility with respect to his/her own health and consumption of other goods subject to some constraints (possibly income and time constraints).

The household production function is analogous to the firm's production function in economics. Each relates a specific output or a vector of outputs to a set of inputs. Since goods and services

are inputs into the production of commodities, the demand for these goods and services is a derived demand for a factor of production. That is, the demand for medical care and other health inputs is derived from the basic demand for health. Consumers produce commodities with inputs of market goods and services and their own time. For example, they use sporting equipment and their own time to produce recreation, travelling time and transportation services to produce visits.

According to the human capital model, health is a choice variable because it is a source of utility (satisfaction) and because it determines income or wealth levels. That is, health is demanded by consumers for two reasons. As a consumption commodity, it directly enters their preference functions. As an investment commodity, it determines the total amount of time available for market and nonmarket activities. Gross investments are produced by household production functions that relate an output of health to such choice variables or health inputs as medical care utilization, diet, exercise, cigarette smoking, and alcohol consumption. In addition, the production function is affected by the efficiency or productivity of a given consumer as reflected by his or her personal characteristics and socioeconomic status.

In the case of the child, investment in health is done by parents. The parents produce output of child health with inputs of their own time and market goods and services subject to income and time constraints.

2.2 Empirical review on child health, parenting and socio-economic status of parents

It is generally acknowledged that the health and the intellectual development of children are largely determined by their family characteristics and individual endowments. Researchers from a variety of disciplines have produced a number of studies that have measured the impact of such factors as family income, household composition and parental education on variety of measures of child health and wellbeing with mixed findings.

Monette et al. (2006) used a sample of 2045 children aged 17 months from the Quebec Longitudinal Study of Child Development (QLSCD, Round 1999) to determine the validity of mother's perception as an indicator of child overall health status by asking mothers questions like "In general, would you say that your child's health is excellent, very good, good, fair, or poor?". Maternal perception of the child's health status was examined as a function of a series of children's health indicators, namely the presence of acute health problems (last 3 months), asthma attacks since birth, presence of chronic problem and hospitalizations during the previous 12 months. Confounding influences of both maternal and child-related characteristics were controlled in the analyses. Sequential logistic regressions indicated that maternal perception was strongly associated with the different health indicators even after controlling for confounding variables. The analyses confirmed that the mother's perception of the health status of her 17-month-old child corresponded with the actual health status of the child. The study concluded that mothers were good respondents when assessing their child's health.

Worobey et al. (1988) used Hispanic Health and Nutrition Examination Survey (Hispanic HANES) and the National Health and Nutrition Examination Survey (NHANES) to examine the effects of a mother's marital status on her report of child health for Mexican-American, Black and Non-Hispanic white children aged 6 months to 11 years. The study found that single mothers

reported poorer overall physical health for their children than did mothers in intact marriages due to depression of single mothers. The paper also concluded that an increasing proportion of children would grow up in female-headed households and as a result would live in poverty during their primary socialization period. Again disproportionately numbers of single mothers were young and were more likely to give birth to premature infants.

"The education of parents notably that of the mother, appears to be an omnibus. It affects the choice of mates in marriage. It may affect the parents' preferences for children. It assuredly affects the earnings of women who enter the labour force. It evidently affects the productivity of mothers in the work they perform in the household, including the rearing of their children. It probably affects the incidence of child mortality, and it undoubtedly affects the ability of parents to control the number of births." Theodore W. Schultz (Schultz, 1973 p. 8-9)

Blunch (2004) using the fourth round of the Ghana Living Standard Survey (GLSS 4) examined the impact of mothers' literacy and numeracy skills and schooling on the production of children's health in Ghana. The analysis considered child health inputs and outputs, examining the determinants of pre-natal and post-natal care, vaccinations and mortality. The study indicated that literacy and numeracy skills were largely not important once schooling was controlled for but at the same time also indicated a positive association between adult literacy course participation and child health.

Chou et al. (2007) using birth certificates and infant death certificates for the years 1978 through 1999 examined the effects of parental education on child health. The study found that in Taiwan increases in compulsory education from six to nine years, coupled with an aggressive school building program led to increases in parental schooling that were associated with an 11 percent

decline in the infant mortality rate. Yuyu and Li (2006) examined the effects of mother's education on child health. Their use of the Chinese Children Survey (CCS) conducted by the National Bureau of Statistics of China indicated that mother's education was an important determinant of child health after controlling for income, the number of siblings, health environment and other socioeconomic variables.

It must be noted that a large literature has provided overwhelming evidence that mother's education is more important, but few studies have examined the relationship between father's education and child health (Case et al. 2001). This may be due to the fact that fathers devote less time to child care and thus the relationship between child health and father's education may be tenuous.

Andrzejewski (2005) conducted a study in Ghana using a focus group discussion in 2003 in the coastal regions. The study examined the people's knowledge about the causes, prevention and treatment of three serious child illnesses: malaria, diarrheal disease, and respiratory infection? The study found that while some focus group discussions participants were quite knowledgeable about the causes, prevention and treatment of the three illnesses, there was certainly no consensus among participants. Participants cited many etiological routes to each of these illnesses, disagreed as to whether these illnesses could be prevented, and listed a variety of treatments for each illness many of which were bio-medically inappropriate preventive and treatment measures.

Paxson et al. (2006) explored the relationship between family income, home environments, and child mental health outcomes (and cognitive test scores) at age three using the Fragile Families and Child Wellbeing Study. The study showed that all of the measures examined (which

included measures of parenting skills as well as physical aspects of the home) were highly related to income. Moreover, controlling for these measures reduced the effects of income on outcomes considerably. This suggests that income affects child mental health via its effects on observable health inputs. Riggs et al. (2006) also examined a cohort of children born in the U.K. in the early 1990s. The study concluded that income has little direct effect on child health, although the mother's own health and events in the mother's early life matter more.

Duncan et al (2004) used pooled data consisting of 18,471 child observations taken from 10,997 children living in 7,631 single-parent families in the United States of America. The study found a mixed effect of family income on school achievement. In particular, income effects were positive and significant for the youngest group of children. But for children in middle childhood and adolescence, the study found no significant effects of income on child achievement

Paxson and Schady (2008) used the randomized introduction of a new social program in rural Ecuador to assess the impact of cash transfers on child health and cognitive development. The study found that the cash transfer program had positive, although modest effects on the physical, cognitive and socio-emotional development of children with substantially effects for poorer children.

Anderson et al. (2002) examined a causal relationship between maternal employment and childhood overweight. Using matched mother/child data from the National Longitudinal Survey of Youth (NLSY) in the USA, the paper showed that a child was more likely to be overweight if his/her mother worked more hours per week over the child's life. Analyses by subgroups showed that it was higher socioeconomic status mothers whose work intensity was particularly deleterious for their children's overweight status. Mukherjee (2009) used data on a panel of children aged four through fifteen of the National Longitudinal Survey of Youth (NLSY) in the

USA to explore the effect of maternal employment on a child's mental health outcomes. Using ordinary least squares and fixed effects estimates, the paper found that mothers who spent more time at home had children with fewer emotional problems: they were also less likely to be frequently unhappy or depressed. Ruhm (2002) reviewed literature on parental employment and concluded that there is the potential for parental employment especially maternal employment to adversely affect child health.

Ruhm (1998) examined the effects of parental leave on child health. The study used annual aggregate data covering the years 1969 through 1994 for nine developed nations: Denmark, Finland, Germany, Greece, Ireland, Italy, Norway and Sweden. The paper found that parental leave improved child health and that parental leave was negatively related to infant mortality. He ascribed his findings to the fact that parental leave enables parents especially the mother to devote much time to the child especially at the early stage of breastfeeding.

Varga et al. (1984) examined the effects of maternal age on the well-being of children, using data from hospital records and from home interviews with a sample of low-income, black and Hispanic women and their firstborn children 2.5 to 4 years after delivery in the USA. The study found little variation in the well-being of children by age of mother and few significant differences. The paper's findings did not support the hypothesis that adolescent maternity per se leads to negative effects on the well-being of children or to low levels of mother-child interaction. Saha et al. (2009) used a sample of singleton children drawn from the US Collaborative Perinatal Project to examine the relationship between paternal age and child health (neurocognitive ability). The paper found that the offspring of older fathers showed subtle impairments on tests of neurocognitive ability during infancy and childhood.

Avogo and Agadjanian (—) examined household structures and the living arrangements of children and its effects on child mortality using data pooled from the 1993, 1998 and 2003 Ghana Demographic and Health Surveys (GDHS). Using discrete-time hazard models the study found that socio-economic, bio-demographic and maternal health utilization factors of children in nuclear family arrangements had lower odds of child mortality than those in three generational and laterally extended households. Results from rural and urban areas suggested that while household structure significantly predicted childhood mortality in rural areas, the same significant effect was not found in urban areas, where education and standards of living significantly predicted child mortality.

Gyimah (2005) using data from the 1998 and 2003 Ghana Demographic and Health Surveys assessed the effects of polygamy on child survivorship. Using multivariate analyses, the paper revealed that children in polygamous marriages were consistently found to be at a higher risk of death compared to those in monogamous families. In models with interactions, the effect of polygamy was also found to be time-dependent with the effect being more pronounced in the later childhood. The paper concluded that residing in a polygamous household was associated with lower child survival probabilities regardless of parental and household resources.

Buka et al. (2009) explored the role of maternal stress in affecting offspring outcomes. The study comprised a prospective survey of 55,908 pregnancies between 1959 and 1965 across 12 cities in the USA. The paper showed that poor mothers had elevated levels of the stress hormone cortisol and that exposure to elevated cortisol in-utero negatively affected the cognition, health and educational attainment of their offspring. Meara et al. (2009) used the National Longitudinal Survey of Youth (NLSY), 1979 cohort in the USA to examine the impact of maternal depression and substance abuse on the cognitive and behavioural development of children during their early

school years. The study found that after controlling for mother's early life circumstances symptoms of maternal depression or alcohol abuse primarily influenced behavioural outcome in children rather than cognitive outcomes.

Kaestner et al. (1995) estimated the impact of child health and family inputs on child cognitive development using the youth cohort of the National Longitudinal Survey of Labour Market Experience in the USA. The paper found a weak relationship between child health and child cognitive development. Additional maternal schooling was also found not to improve child cognitive achievement. Mother's labour force participation had a positive impact on child cognitive achievements. The paper argued that educated mothers tend to participate in labour force and therefore spend little time with their children. However, their participation in labour force augments their income and is therefore able to purchase health improving goods.

Fabricius et al. (2011) reviewed literature on parenting time, parent conflict, parent-child relationships and children's physical health and concluded that what matters to child physical health is the quality of parenting time. However, the quantity improves the child-parent relationship. Paxson and Schady (2005) examined the relationship between early cognitive development, socio-economic status (SES), child health, and parenting in a developing country. Using a sample of over 3000 preschool age children from Ecuador, the paper analyzed determinants of children's scores on a widely used test of language ability. The paper found that children from wealthier households and with more educated parents had higher scores. This was especially true for older children. Child health and parenting quality were associated with test scores, and accounted for a portion, although not the majority, of the association between SES and cognitive development.

Curie et al. (2008) using a unique data set based on public health insurance records for 50,000 children born between 1979 and 1987 in the Canadian province of Manitoba examined the relationship between child health and young adults outcome. The study revealed that health problems, and especially mental health problems in early childhood were significant determinants of outcomes linked to adult socioeconomic status.

Sonia (2006) investigated the extent to which the decline in child mortality over the last three decades could be attributed to economic growth using the second round of the National Family Health Survey conducted in 1998/9 and data on GDP in India. The main conclusion was that, while growth did have a significant impact on mortality risk, growth alone could not be relied upon to achieve the goal.

Angrist and Lavy (1996) used a large cross-section from the School Enrollment Supplement to the October 1992, Current Population Survey (CPS) in the USA to examine the effect of maternal age at birth and single parenthood on children's disability status and school progress. The paper found a little association between maternal age at birth and children's disability. The paper also found that having a father in the household was associated with lower disability prevalence and fewer grade repetitions. The paper concluded that many of the effects of single parenthood on disability appeared to be explained by higher incomes in two parent families.

The above theoretical and empirical literatures give cognizance of the tremendous role played by parents in the upbringing and development of the child. This tremendous role of parents becomes difficult especially when one parent takes the responsibility (McLanahan and Sandefur, 1994). Using Ordered Probit regression model, the paper sought to find out if the poor status of child health in Ghana could be ascribed to the rising trend of single parenting.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter spells out the conceptual framework of the model employed by the study. It also explores the methodology used to elicit child health information and the demographic and socio-economic characteristics of parents. The study employed descriptive and quantitative methods for the data analysis. Ordered probit regression model was employed under the quantitative method by the study as the empirical estimation method.

3.1 Background of the Study Area

Kwabre East District was carved out of the former Kwabre Sekyere District in 1988. The district is located almost in the central portion of the Ashanti Region. It is within latitudes 6° 44' North and longitudes 10° 33' to 10° 44' West. The district shares common boundaries with Afigya Sekyere District to the North; Kumasi Metropolitan Area to the South; Ejisu Juaben District to the Southeast; Atwima District to the West and Offinso District to the Northwest. The district has a total land area of 246.8 square kilometres constituting about 1.01% of the total land area of Ashanti Region. Kwabre District is part of the greater Kumasi City Region, which is made up of Kumasi Metropolitan Area and the surrounding districts. The district capital, Mampong, is approximately 14.5 kilometres from Kumasi to the Northeast. The district has 86 settlements, 2 parliamentary constituencies, 11 Area Councils and 42 District Electoral Areas.

The climate of the district is the Wet Semi-Equatorial type. The predominant vegetation types found in the district are Moist Semi-Deciduous Forest and isolated grassland. The major types of

rocks formed in the district are Biotite, Granites and Granodiorites. Weathering products of these Granite rocks contain substantial amount of resistant quartz, which has given granitic soils their characteristic gritty texture.

The district currently has a population density of over 600 persons per sq. km. The standard of living for about 85% of its people is within the poverty zone. Farming covers about 70% of the productivity ratio, "kente" weaving 9%, trading 15% and wood carving about 1%, sand and stone winning about 5%. The district is the home of "kente" and other traditional cloth weaving. Adanwomase can be singled out for its popularity in the weaving industry. Ahwiaa is also noted for wood carvings and Ntonso for its famous Adinkra Industry. Antoa and Abira are also noted for the Antoa Shrine and the training of fetish priests respectively. With regard to ethnic diversity, the district to a large extent is homogenous with the Akans who form about 83.5%. About 10% of the entire district populations come from Northern Ghana. The people of Northern extraction are mainly migrants who are used as farm hands.

The district has about 23.5 kilometres of first class roads and about 6 kilometres of second class roads, while third class roads make up the remaining 81.6% of the total road network of 160.5 kilometres. The district has 24 nursery schools, 56 kindergartens, 84 primary schools, 41 junior high schools. On the average, the teacher / pupil ratio in the Kwabre District is 1:21. There are two private hospitals in the district owned and run by religious missions. There are also 10 level "A" primary health centres and two level "B" primary health centres. The sources of water in the district are pipe-borne water, boreholes, wells and streams. Eight communities have access to pipe-borne water. Electricity reaches 35 settlements in the district. Other sources of energy used in the district are kerosene, firewood and charcoal.

Poor marital conditions in the district is said to have caused many women to be either driven from home, or abandoned by their spouses because of their families' weak economic situation. Most of these people are aged between 18 years and 30 years. The rate of vulnerability is high among children and adults aged seventy (70) years and above.

Child poverty is very high in the district. This has led to children engaging in child labour such as iced water selling, kente and adrinkra production, wood carving, drivers' mate and others selling in and around Kejetia (ghanadistricts.com).

KNUST

3.2 Method of Data Collection

Structured questionnaires and interviews were used to elicit child's health and parent's demographic information such as age, employment status, expenditure, level of education, sex, marital status, number of children. Structured questionnaires and interviews were used because they promote standardization of both the asking of questions and recording of answers. They reduce error due to variation in the asking of questions and greater accuracy in and ease of processing respondents' answers (Bryman, 2008).

Household expenditure on food, clothing and other basic necessities of life was used by the study as a proxy for income. Majority of the respondents used by the study were in the informal sector. Income of these respondents was irregular and they lived virtually from hand to mouth.

The study employed Maternal (or Parental) Rated Overall Child Health to elicit child health information. Mother (or father in the case where the single parent is a male) was asked to rate her child's health on a five point scale. Maternal-rated overall child health (measured through a question such as "Overall, how would you rate your child's health? Excellent, very good, good,

fair or poor?”), is one of the most commonly-used measures of children’s health in social science research. Maternal ratings of child health have been found to predict levels of paediatric health care utilization (Cafferata and Kasper, 1985), and are often used as indicators of child health status in clinical care settings as well as in research. Mother’s are assumed to be specialists in the upbringing and rearing of children. They are good respondents when assessing their child’s health (Monnete et al. 2006). The study could not use physician assessed child health due to time and financial constraints. It was time consuming and costly to take every child to a physician for his or her health to be assessed.

KNUST

Convenience sampling was employed by the study to select children in the study area. Children were conveniently selected from 440 household units. One child was selected from each household unit. The child’s health information and the demographic characteristics of parents were provided by parents. The convenience sampling method was employed by the study due to time and financial constraints.

The study was limited to the inhabitants of the Kwabre East District in the Ashanti Region. The choice of this district was due to the proximity to the study and resource constraint and the researcher’s familiarity with the district. A 440 sample size was used by the study. In order to be consistent with Ghana’s definition of a child; the paper defines a child as a person below the age of 18 years. All questionnaires and interviews were personally administered by the researcher.

3.3 Data Analysis

The study employed descriptive and quantitative methods in the data analysis. Quantitative methods provide basis for more precise estimates of the degree of relationship between concepts. It allows delineation of “fine differences” between variables in terms of characteristics in

question. It also gives a consistent device or yardstick for making distinctions. Thus a quantitative measurement provides a consistent instrument for gauging differences (Bryman 2008).

Bar graphs and tables were used by the study under the descriptive methods. This was due to the fact that they are relatively easy to interpret and understand. All data analysis was carried out by using STATA 11.

3.4 Empirical Estimation

Ordered response data arises when mutually exclusive qualitative categories have a natural ordering as in the cases of ranking and rating. Ordered response data have a natural ordering but they do not have natural numerical values. Because there are no natural numerical values for ordered response data, OLS is inappropriate instead ordered data are often analyzed using a generalization of probit model called Ordered Probit Model in which the probabilities of each outcome conditional on the independent variables are modelled using the cumulative normal distribution (Stock and Watson, 2007).

Since the paper used Maternal Rated Overall Child Health to elicit child health information, the paper employed ordered probit model as empirical method of estimation. Ordered probit model is appropriate because like OLS regression it identifies statistically significant relationship between the explanatory variables and the dependent variable. But unlike OLS regression, ordered probit discerns unequal differences between ordinal categories in the dependent variable (Greene, 2002).

The ordered probit model can be expressed as:

$$y_i = j \text{ if } \mu_{j-1} < y_i^* \leq \mu_j, j=1, \dots, m \quad (1)$$

where,

$$y_i^* = x_i \beta + \varepsilon_i, \varepsilon_i \sim N(0,1), i = 1, \dots, n \quad (2)$$

and $\mu_0 = -\infty, \mu_j \leq \mu_{j+1}, \mu_m = \infty$. Given the assumption that the error term is normally distributed, the probability of observing a particular value of y is,

$$P_{ij} = P(y_i = j) = \Phi(\mu_j - x_i \beta) - \Phi(\mu_{j-1} - x_i \beta), j = 1, \dots, m \quad (3)$$

$$y_i = 0 \text{ if } \mu_{-1} < y_i^* < \mu_1,$$

$$y_i = 1 \text{ if } \mu_0 < y_i^* < \mu_1, \quad (4)$$

$$y_i = 2 \text{ if } \mu_1 < y_i^* < \mu_2$$

$$y_i = \dots$$

$$y_i = J \text{ if } \mu_{j-1} < y_i^* < \mu_j.$$

Where y_i^* is continuous, unmeasured latent variable whose values determine what the observed ordinal variable y (child health) equals. The continuous latent variable y^* has various thresholds points. $y = j$ is the observed discrete outcome. β is the vector of estimated parameters and x is the vector of explanatory variables. ε is the error term which is assumed to be normally distributed (zero mean and constant variance) with the standard normal distribution function denoted by $\Phi(\cdot)$. μ_j are the estimated threshold parameters. n is the number of observations. To preserve the positive signs of all the probabilities, $\mu_j > \mu_{j-1}$ (Greene and Hensher, 2009).

The threshold parameters (cutpoints) are used to differentiate the adjacent levels of the response variable (child health). A threshold can then be defined as points on the latent variable, continuous unobservable mechanism/phenomena that result in the different observed values on the proxy variable (the levels of child health used to measure the latent variable).

In STATA's implementation of these estimators in oprobit (ordered probit command in STATA), the actual values of the response variables are not relevant. Larger values are taken to correspond to higher outcomes (Baum, 2006). Thus a positive value means that the explanatory variable improves the ratings.

The equations to be estimated are given as:

$$y^* = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \beta_{16} X_{16} + \beta_{17} X_{17} + \varepsilon_i \quad (4)$$

NB. Though, the above linear forms of the equations for the ordered probit model are crude, it is conventional (Greene and Hensher, 2009)

y^* = ordered dependent variable (child health) coded 0, 1, 2, 3, 4 (poor, fair, good, very good, excellent respectively).

X_1 = Dummy variable ($X_1 = 1$ if child is female, $X_1 = 0$ if male)

X_2 = Child's age

X_3 = Dummy variable ($X_3 = 1$ if child sleeps under treated mosquito net, $X_3 = 0$ if otherwise)

X_4 = Dummy variable ($X_4 = 1$ if parent is female, $X_4 = 0$ if parent is male)

X_5 = Parent's age

X_6 = Expenditure

X_7 = Number of children

X_8 = Dummy variable ($X_8 = 1$ if parent is employed, $X_8 = 0$ if parent is unemployed)

X_9 = Dummy variable ($X_9 = 1$ if single parent, $X_9 = 0$ if two-parent)

X_{10} = Dummy variable ($X_{10} = 1$ if parent has basic education, $X_{10} = 0$ if otherwise)

X_{11} = Dummy variable ($X_{11} = 1$ if parent has secondary education, $X_{11} = 0$ if otherwise)

X_{12} = Dummy variable ($X_{12} = 1$ if parent has tertiary education, $X_{12} = 0$ if otherwise)

X_{13} = Dummy variable ($X_{13} = 1$ if child smokes/drinks, $X_{13} = 0$ if otherwise)

X_{14} = Dummy variable ($X_{14} = 1$ if parent drinks, $X_{14} = 0$ if otherwise)

X_{15} = Dummy variable ($X_{15} = 1$ if parent smokes, $X_{15} = 0$ if otherwise)

X_{16} = Dummy variable ($X_{16} = 1$ if child lives with the nuclear family, $X_{16} = 0$ if otherwise)

X_{17} = Dummy variable ($X_{17} = 1$ if child lives with the extended family, $X_{17} = 0$ if otherwise)

ε_i = Stochastic error term.

3.5 Expected signs of the estimated parameters

The sign of X_1 (female child) is unknown.

The study expects child's age (X_2) to be positive. This is because as the child advances in age it is expected that he/she becomes less vulnerable to diseases. As the age of the child increases his immunity becomes stronger. A positive sign of β_2 implies an improvement in child health.

Treated mosquito net (X_3) is expected by the study to have a positive impact on the child's health. When children sleep under treated mosquito nets, they are prevented from mosquito bites a major cause of malaria sickness and deaths among children in Ghana.

Female (X_4) is expected by the study to have a positive effect on the health of the child. Females are assumed to be specialist in the production of child health in the household. They are more efficient than males in terms of child health production. Children on the average tend to spend more time with their mothers than with their fathers. Thus the emotional stress a child may experience in the absence of the mother is greater than that of the father.

The sign of the parental age (X_5) is unknown. The research on parental age has yielded mixed findings.

The study expects expenditure (X_6) to have positive impact on child health. An increase in household expenditure is expected to correlate with an increase in the probability of parents to purchase health improving goods and services and demand for paediatric care.

Family size (X_7) is expected by the study to have negative impact on child health. A larger family size is more likely to be resource and financially constrained. They are more likely to live in congested rooms and are likely to be malnourished.

The study expects employed (X_8) to positively impact on child health. Children whose parents are employed are expected to have better health than those whose parents are unemployed. Employed parents are more likely to have self confidence and peace of mind to meet the emotional needs of their children.

The sign of single parent (X_9) is expected to be negative. Single parents are more likely to be resource constrained both in time and financially. As a result, they are less likely to meet the emotional and health needs of their children. Thus single parenthood is expected by the study to adversely affect child health.

X_{10} , X_{11} , X_{12} (basic, secondary, tertiary levels of education respectively) are expected to have positive signs and impact more on child health than the uneducated (control group). Educated parents are assumed to be more efficient producers of health. They are more likely to be conscious of health improving activities than the uneducated. Educated parents are also more likely to purchase health care when their children are sick.

The study expects the sign of X_{13} (Child's smoking/drinking activities) to adversely affect child health. Smoking increases the risk of heart diseases and makes children more vulnerable to diseases.

The study expects X_{14} (parent's drinking activities) to inversely impact on child health. Children living with alcoholic parents tend to be demoralized.

The study expects the sign of X_{15} (parent's smoking activities) to have a negative impact on child health. Smoking activities of parents exposes children to passive smoking. The exposure of children to nicotine (poisonous alkaloid substance in tobacco) makes children vulnerable to diseases.

The sign of X_{16} and X_{17} , living arrangements of children are unknown.

CHAPTER FOUR

ANALYSIS OF RESULTS

4.0 Introduction

This chapter presents the analysis of the results of the study. Summary statistics table and bar graphs were employed under the descriptive statistics to describe the socio-economic characteristics of the respondents in the study. The bar graphs were specifically used to compare the socio-economic characteristics of single-parent families to two-parent families. Under the quantitative analysis, two ordered probit models were estimated, one model with all the basic variables (Model1) using the full sample. The second model (Model2) used data for only single parents. This was done to find out the effects of the causes of single parenthood on child health.

4.1 Descriptive analysis

Table 1: Summary statistics of the demographic and socio-economic characteristics of the respondents

Table 1a

Variable	Percent
CHILD'S INFORMATION	
<u>Gender</u>	
Female	51.14
Male	48.86

Variable	Percent
<u>Usage of Treated Mosquito Net</u>	
Child Slept under Treated Mosquito Net	21.14
Child did not Sleep Under Treated Mosquito Net	78.86
<u>Smoking/Drinking Activities</u>	
Smoking Child	.68
Non Smoking Child	99.32
<u>Health Status</u>	
Poor Health	25
Fair Health	22.73
Good Health	24.77
Very Good Health	18.64
Excellent Health	8.86
PARENT'S INFORMATION	
<u>Gender</u>	
Female	93.41
Male	6.59
<u>Level of Education</u>	
Basic Education	48.41
Secondary Education	12.73
Tertiary Education	7.05
Uneducated	31.82

Variable	Percent
<u>Employment Status</u>	
Employed Parent	66.36
Unemployed Parent	33.64
<u>Parenthood</u>	
Single-Parent	44.77
Two-Parent	55.23
<u>Causes of Single Parenthood</u>	
Divorce	34.69
Surrogate Motherhood	2.55
Child Neglect by Partner	43.88
Deceased Partner	18.88
<u>Living Arrangements</u>	
Nuclear Family	21.59
Extended Family	71.36
Other (Rented Apartment)	7.05
<u>Smoking Activities</u>	
Smoking Parent	2.05
Non-Smoking Parent	97.95
<u>Drinking Activities</u>	
Drinking Parent	12.95
Non Drinking Parent	87.05

Insurance (NHIS)

Insured	74.32
Not Insured	25.68

Source: Researcher's Field Survey (2011)

Table 1b

Variable	Mean Value	Standard Deviation	Minimum Value	Maximum Value
CHILD'S INFORMATION				
Child's Age (Years)	5.613455	4.820462	0.08	17
PARENT'S INFORMATION				
Parent's Age (Years)	32.49091	9.281716	15	68
Expenditure (Monthly)	309.9114	209.3168	25	1300
Number of Children	3.036364	1.79687	1	10

Source: Researcher's Field Survey (2011)

The above tables (1a and 1b) give the summary statistics of the demographic and socio-economic characteristics of the sampled respondents in the study area. The age structure of the children of the sampled respondents ranged from 0.08 years to 17 years with the mean age of 6 years which is a bit more above what is normally used for child health survey (i.e. under-five). 51.14% of the children in the survey were females and the remaining 48.86% were males. Only few children of the sampled respondents slept under treated mosquito nets. 21.14% of the children slept under treated mosquito nets whilst 78.84% did not as of the time the survey was conducted. Smoking among children was negligible since only 0.68% of the children smoked whilst the remaining 99.32% did not. 25.00% of the children were rated by parents to have poor health, 22.73% were rated as fair, and 24.77% had good health. 18.64% and 8.86% were rated to have very good and excellent health respectively.

With regard to parents, majority of the sampled participants were females (93.41%) with the remaining 6.59% comprising of males. This was probably due to the fact that the survey preferred maternal ratings of child's health. Mothers tend to spend more time with their children than fathers. Mothers are assumed to be specialist in the production of child health and are therefore good candidates when assessing their child's health (Monette et al. 2006). The age structure of parents ranged from 15 years to 68 years. The average parent in the study was 32 years which is within the productive age. Expenditure distribution varied considerably among parents in the study. The maximum and the minimum expenditure were GH¢25 and GH¢1300 respectively. The average parent spent GH¢310 in a month. With respect to number of children, the maximum number of children was 10 and the minimum was 1. The study revealed that the average parent had 3 children. The distribution of education in the study showed that 48.41% of the sampled parents had acquired basic education, 12.73% had secondary education and 7.05%

of the parents obtained tertiary education. The remaining 31.82% were uneducated. With respect to employment, 66.36% of the respondents were employed with 33.64% unemployed. 197 respondents comprising of 44.77% out of the total of 440 sampled respondents were single parents. The remaining 243 respondents comprising of 55.23% were two parents. Out of the 197 single parents, 34.69% attributed the cause of their single parenthood to divorce, 2.55% attributed it to surrogate motherhood, 43.88% of single-parents ascribed their single parenthood to child neglect by partner and the remaining 18.88% claimed they were single parents because of a deceased partner. Child neglect as major cause of single parent in the study is consistent with the 2010 Ghana News Agency Report of cases of child neglect. Like a typical Akan setting, 71.36% of the respondents lived with the extended family, 21.59% lived with the nuclear family and the remaining 7.05% rented apartments.

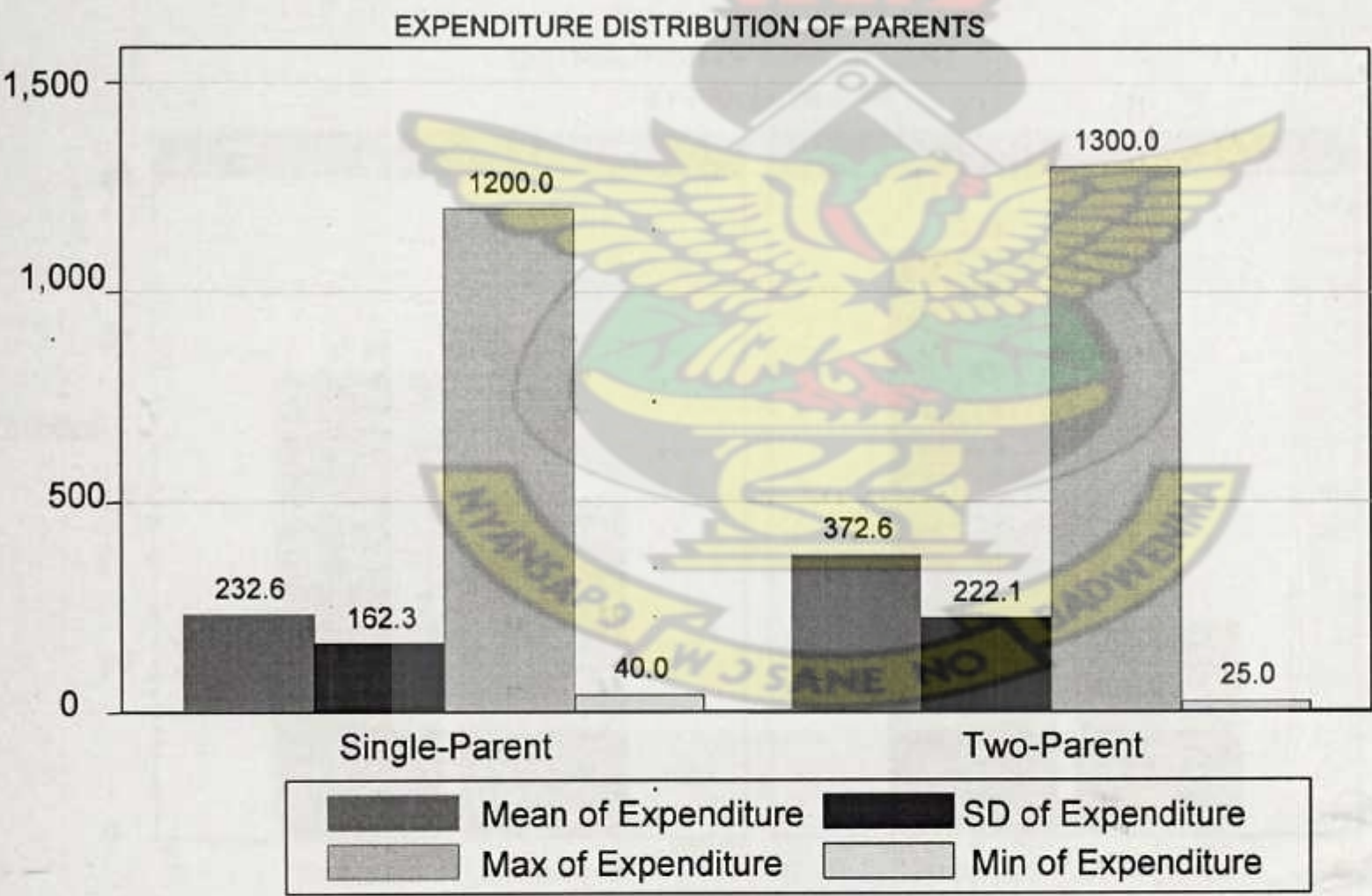
Smoking was not a common practice among participants in the study. Only 2.05% of parents smoked as of the time of the study and 97.95% did not. Drinking of alcohol was however a little bit higher among parents compared to smoking activities. 12.95% percent of sample participants took alcohol and the remaining 87.05% did not.

Finally, the study sought to find out the percentage of parents who have subscribed to the National Health Insurance Scheme (NHIS). It was revealed that 74.32% of the sampled respondents had subscribed to the NHIS as of the time of the study. The remaining 25.68% were not subscribers. This is encouraging since there is high patronage of the NHIS.

4.2 Comparison of the Socio-Economic Characteristics of Single-Parent and Two-Parent Households

Figure 1 shows the expenditure distribution of parents. The maximum expenditure of single-parent families was GH¢1200 compared with GH¢1300 of two parent families. The minimum expenditure of the two parents was GH¢25 compared with GH¢40 of single parents. The average single parent spent GH¢233 in a month compared with GH¢373 spent by an average two-parent family. However, variation in expenditure was higher among two parent families (SD=221) than single parent families (SD=162).

Figure 1

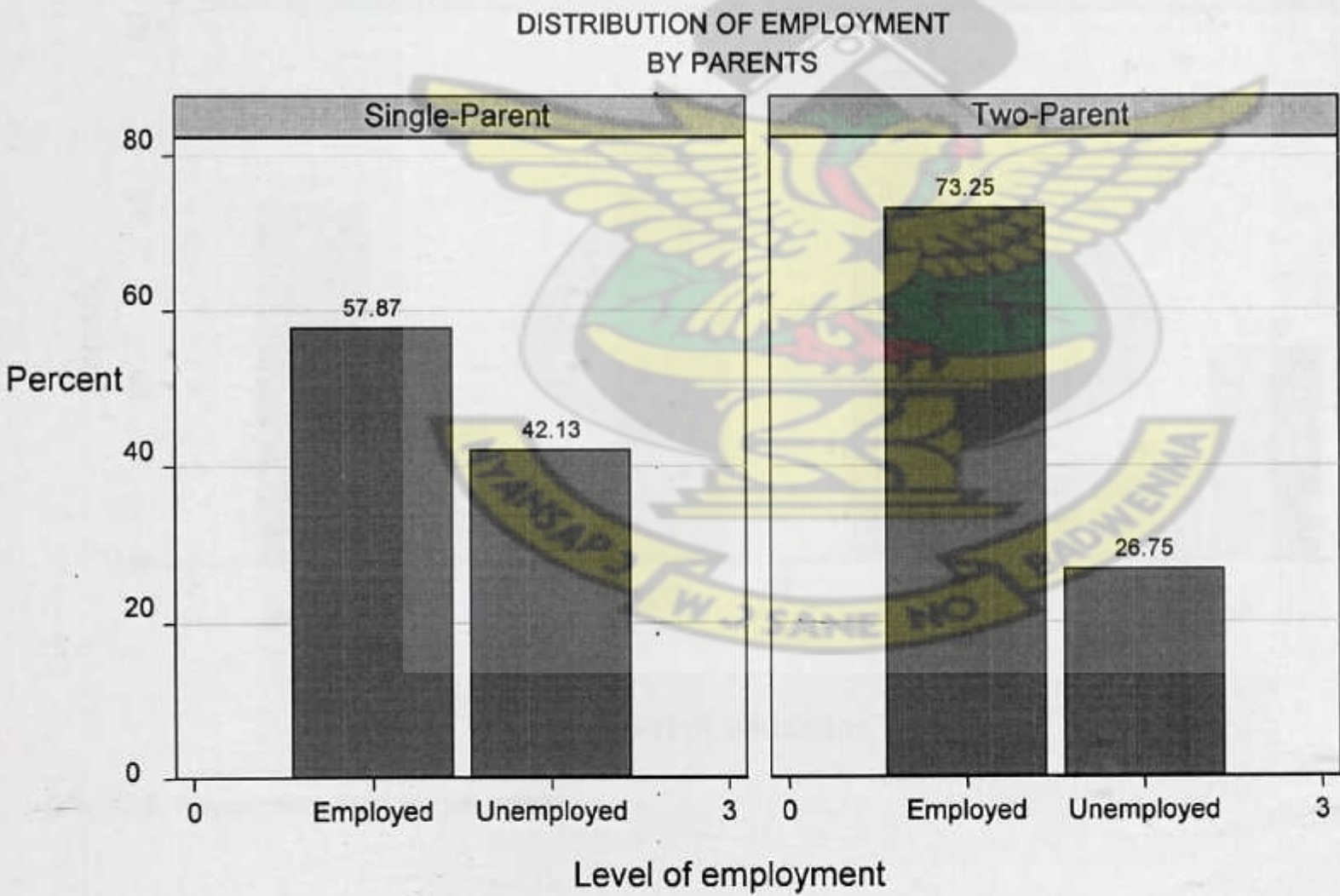


SOURCE: Researcher's Field Survey (2011)

Figure 2 below shows employment distribution of parents. Employment was generally high among the sampled respondents, 57.87% of single parents compared with 73.25% of two-parent families were employed. Unemployment was higher among single parents than two-parent households, 42.13% of single parents compared with 26.75% of two-parent families were unemployed.

The expenditure and the employment distributions confirm the fact that single parents are more likely to be resource constrained than two-parent households.

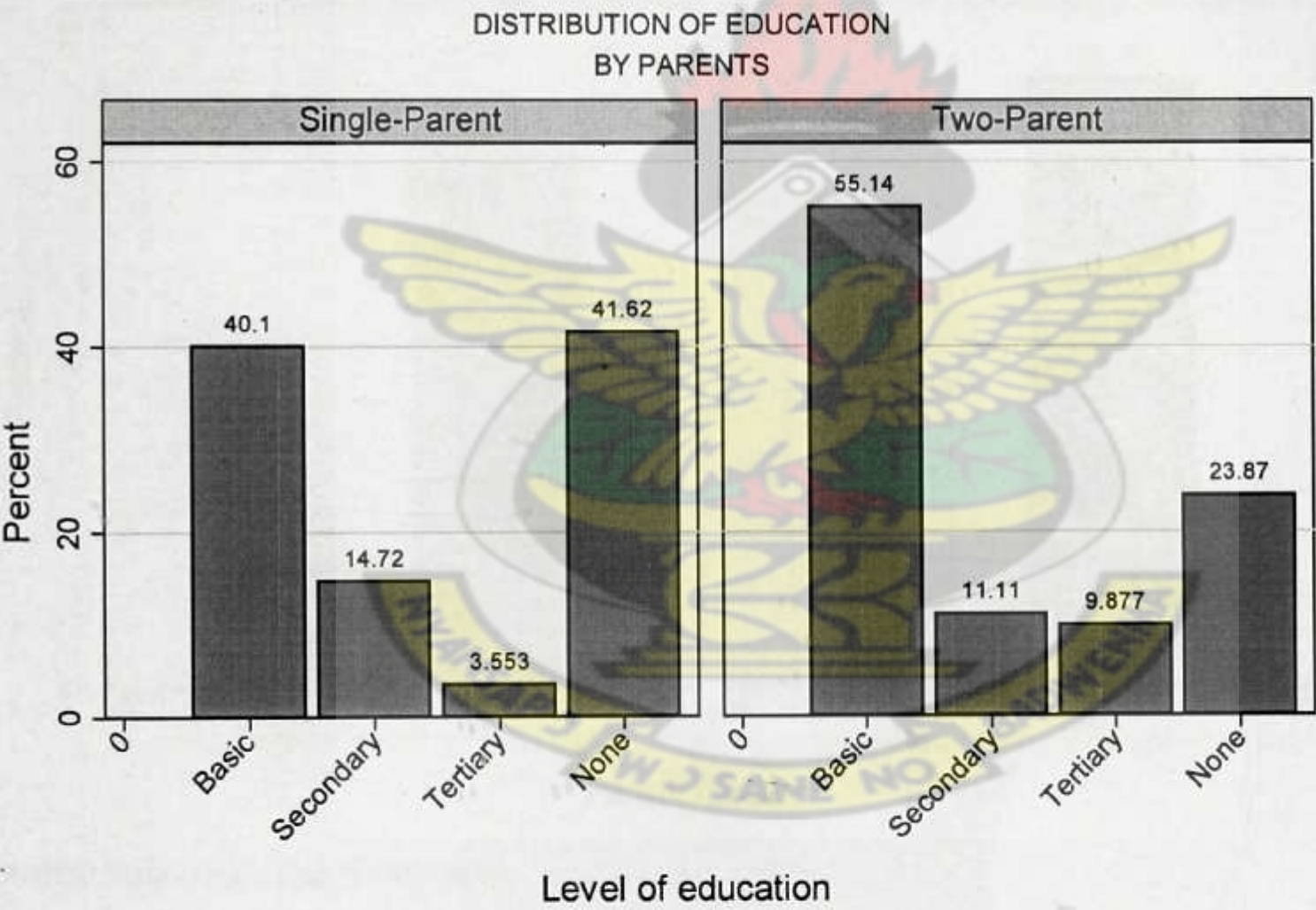
Figure 2



SOURCE: Researcher's Field Survey (2011)

Figure 3 shows the distribution of education of parents. Overall education was higher in two-parent households than in single-parent households, 40.1% of single parents compared with 55.14% of two parents had basic education. 14.72% of single parents compared with 11.11% of two parents obtained secondary education and 3.6% of single parents compared with 9.8% of two parents acquired tertiary education. Illiteracy was higher among single parents than two-parent households, 41.62% and 23.83% respectively.

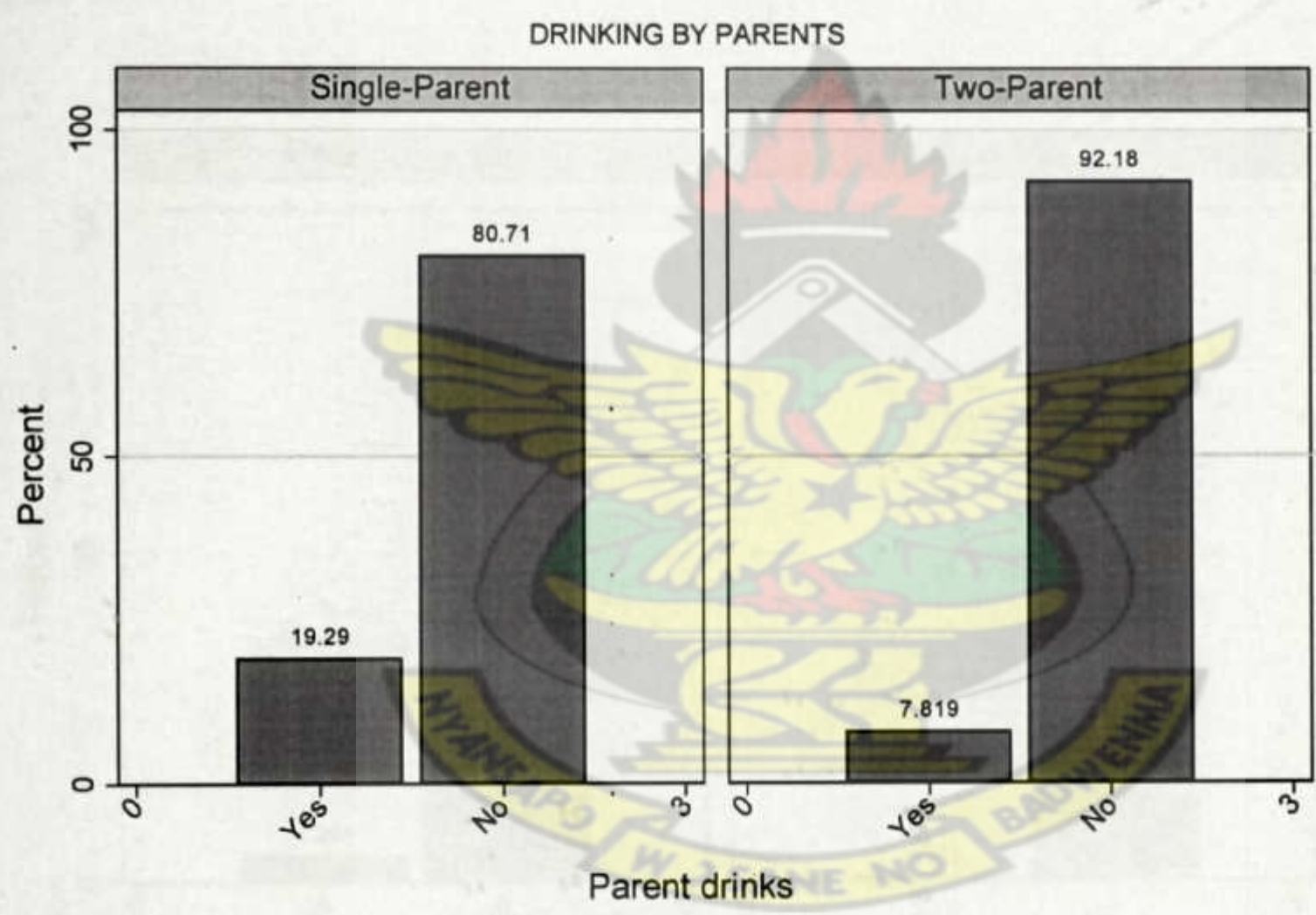
Figure 3



SOURCE: Researcher's Field Survey (2011)

Figure 4 compares the drinking activities of single-parent households to that of two-parent households. It shows that, 19.3% of single parents engaged in drinking activities compared with 7.8% of two-parent households, 80.79% of single parents and 92.18% of two parents did not as of the time of the study. Although, drinking activities was generally low among parents, it was higher among single-parent households than two-parent households. The reason is unknown.

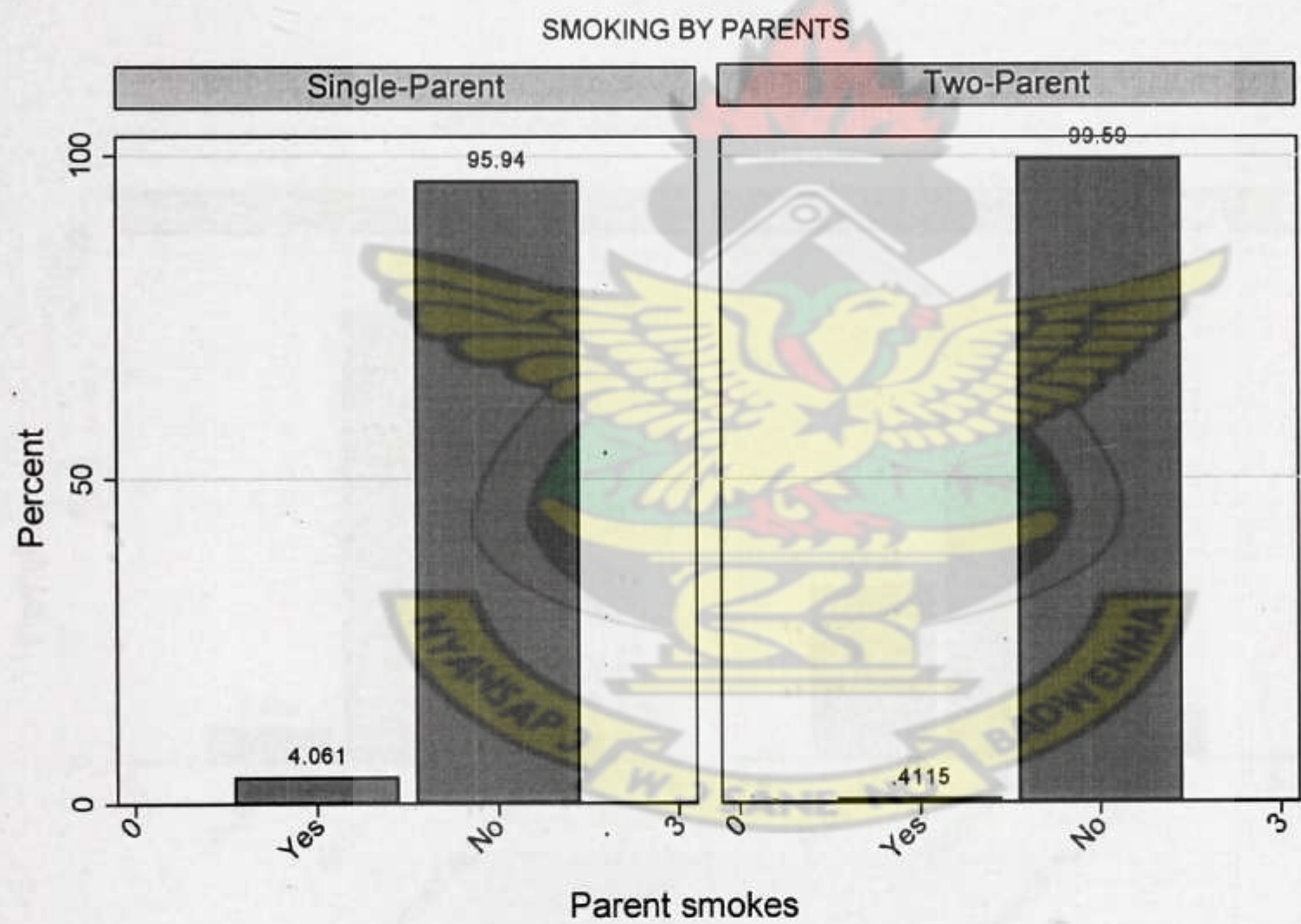
Figure 4



SOURCE: Researcher's Field Survey (2011)

Figure 5 depicts the smoking activities among single-parent and two-parent households. It reveals that 4.06% of single parents engaged in smoking compared to that of 0.41% of two parents, 95.94% and 99.59% respectively did not engage in smoking activities. Smoking activities was higher among single parents though it was generally low among parents.

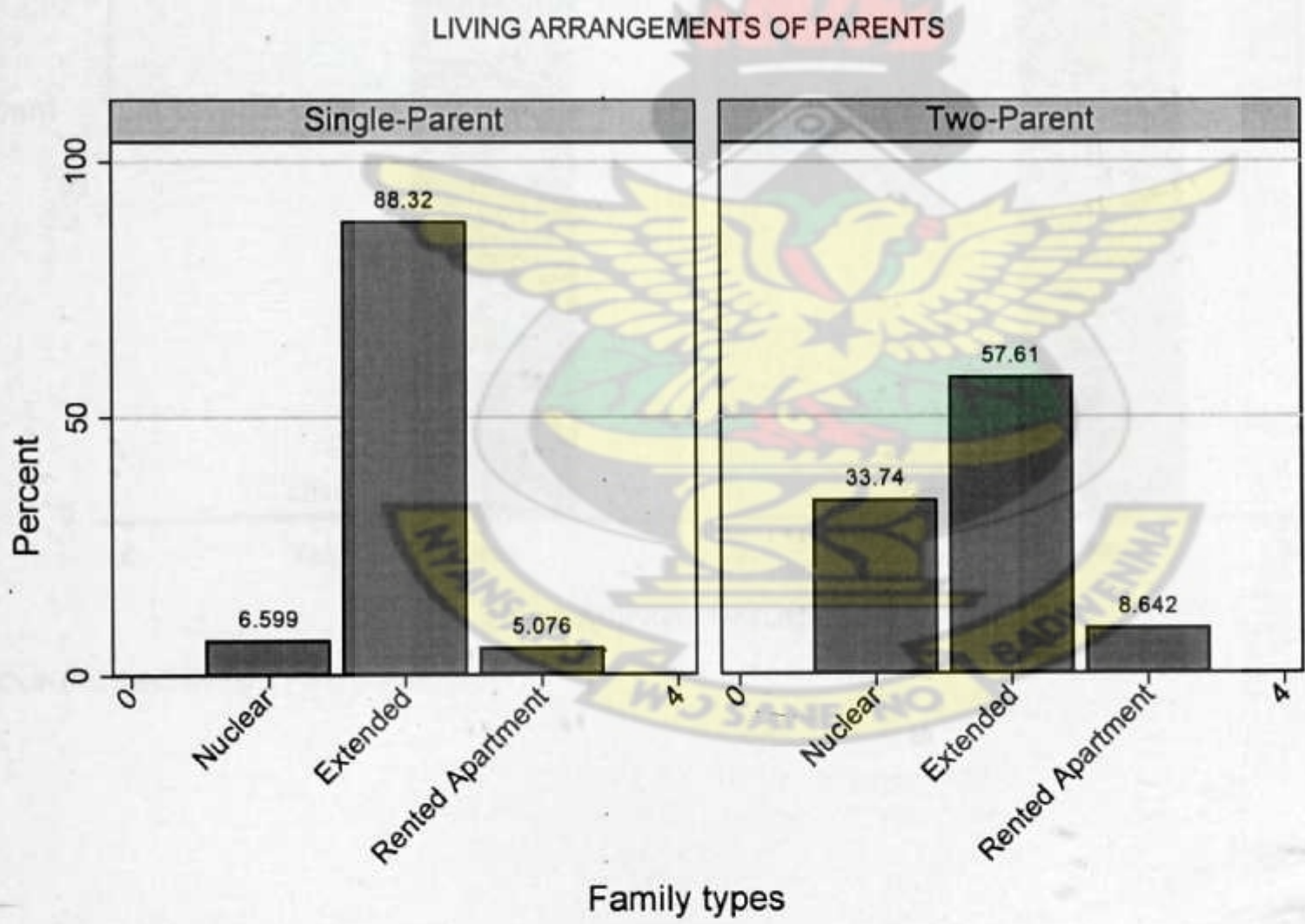
Figure 5



SOURCE: Researcher's Field Survey (2011)

Figure 6 depicts the living arrangements of parents. It shows that, 6.59% of single parents compared with 33.74% of two parents lived with their nuclear family, 88.32% of single parents lived with their extended family compared with 57.61% of two parents, 5.07% of single parents compared with 8.64% of two parents rented apartments. Although, living with the extended family is a common phenomenon among the Akans, it was higher among the single parents than the two parents.

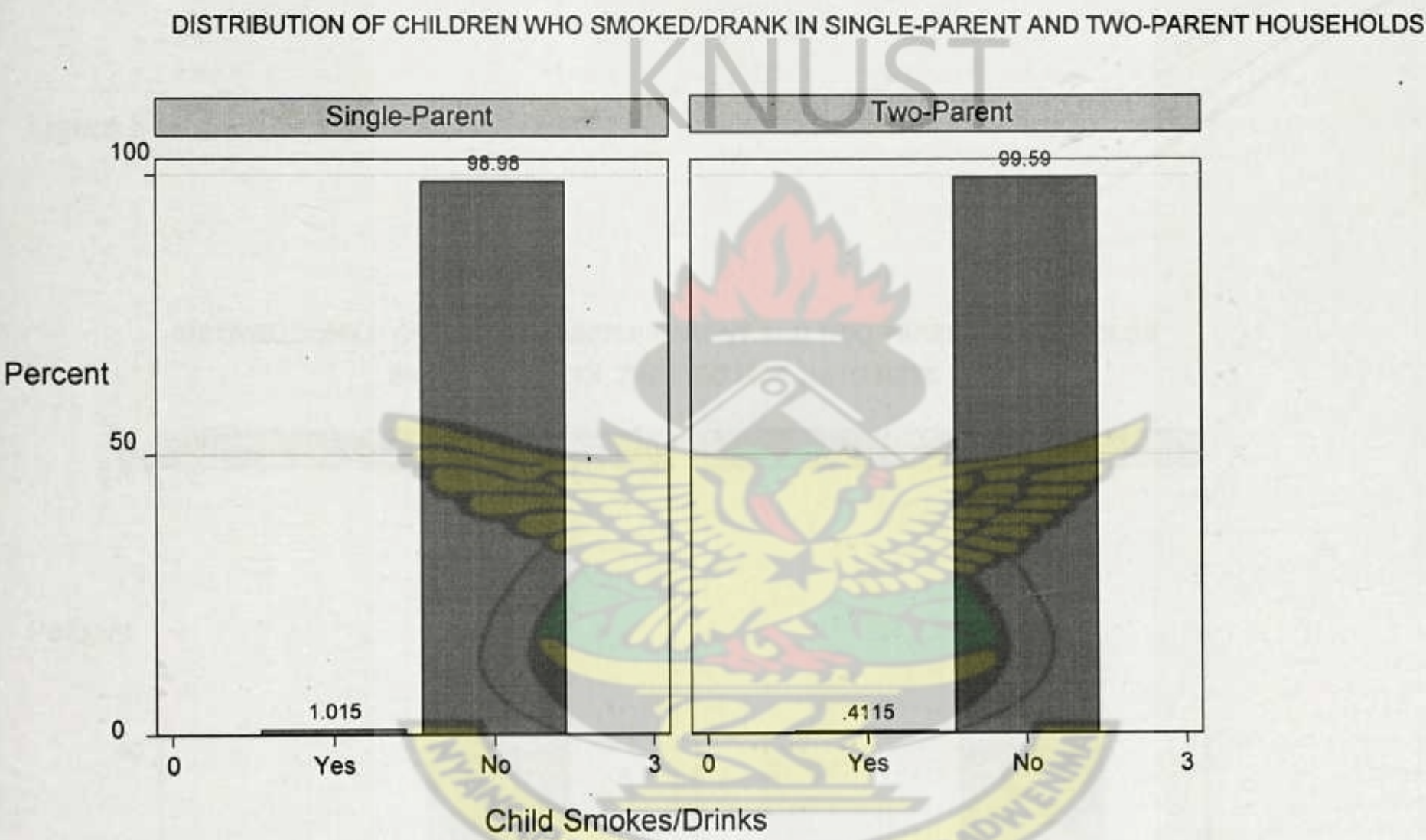
Figure 6



SOURCE: Researcher's Field Survey (2011)

Figure 7 depicts the distribution of children who smoked/drunk in two-parent and single-parent households. It shows that, 1.02% of children living in single-parent households smoked/drunk compared with that of 0.41% of children living in two-parent households. Overall, smoking was low among the children. However, it was higher among children living in single-parent households than two-parent households.

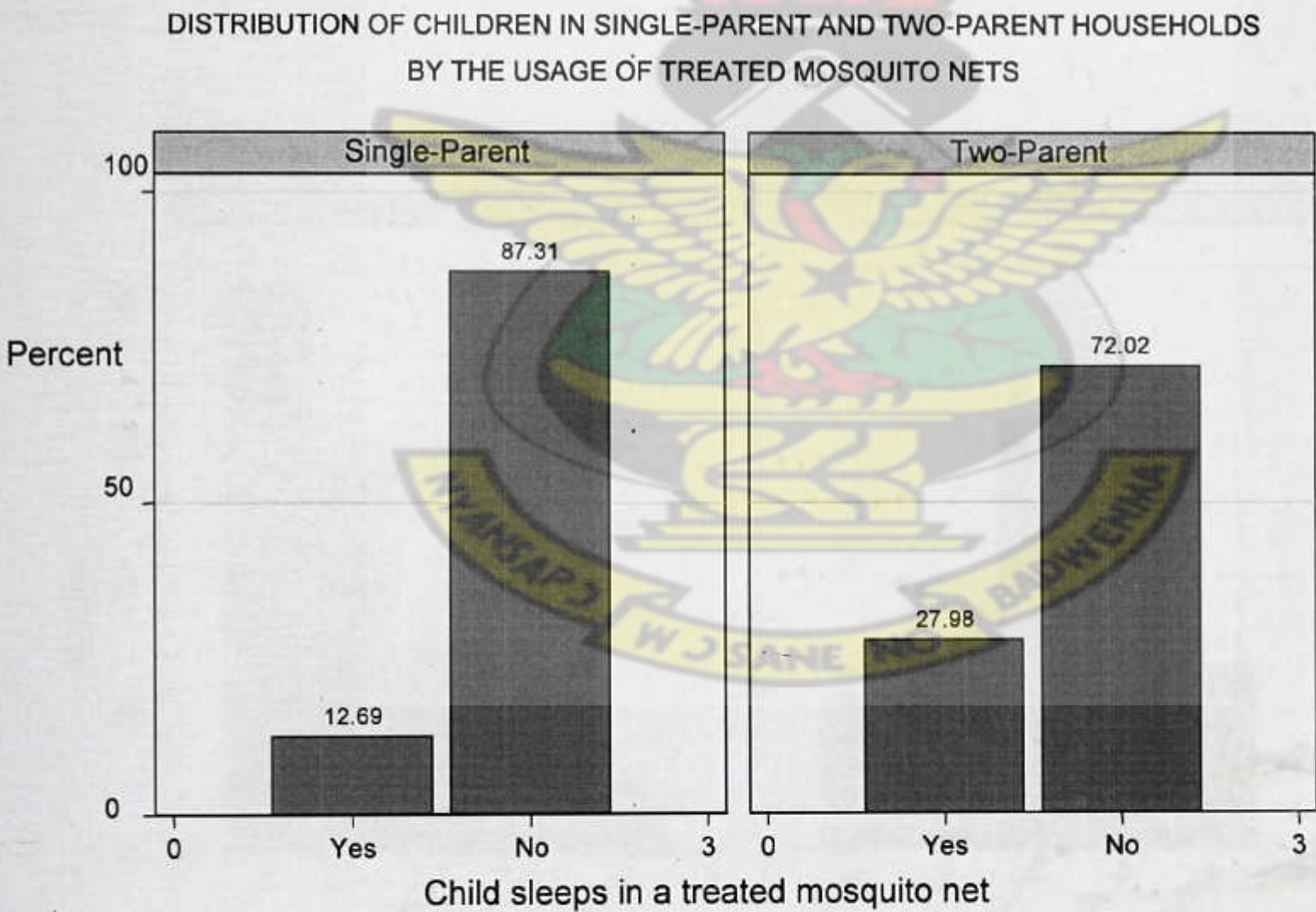
Figure 7



SOURCE: Researcher's Field Survey (2011)

Figure 8 below shows the distribution of children in single-parent households and two-parent households who slept under treated mosquito nets. It reveals that, 12.69% of children in single-parent families compared with 27.98% of children in two-parent households slept under treated mosquito nets, 87.31% of children in single-parent families compared with 72.02% of two parent families did not. Thus the overall usage of treated mosquito nets was woefully low. However, usage was higher among two-parent households than single-parents households.

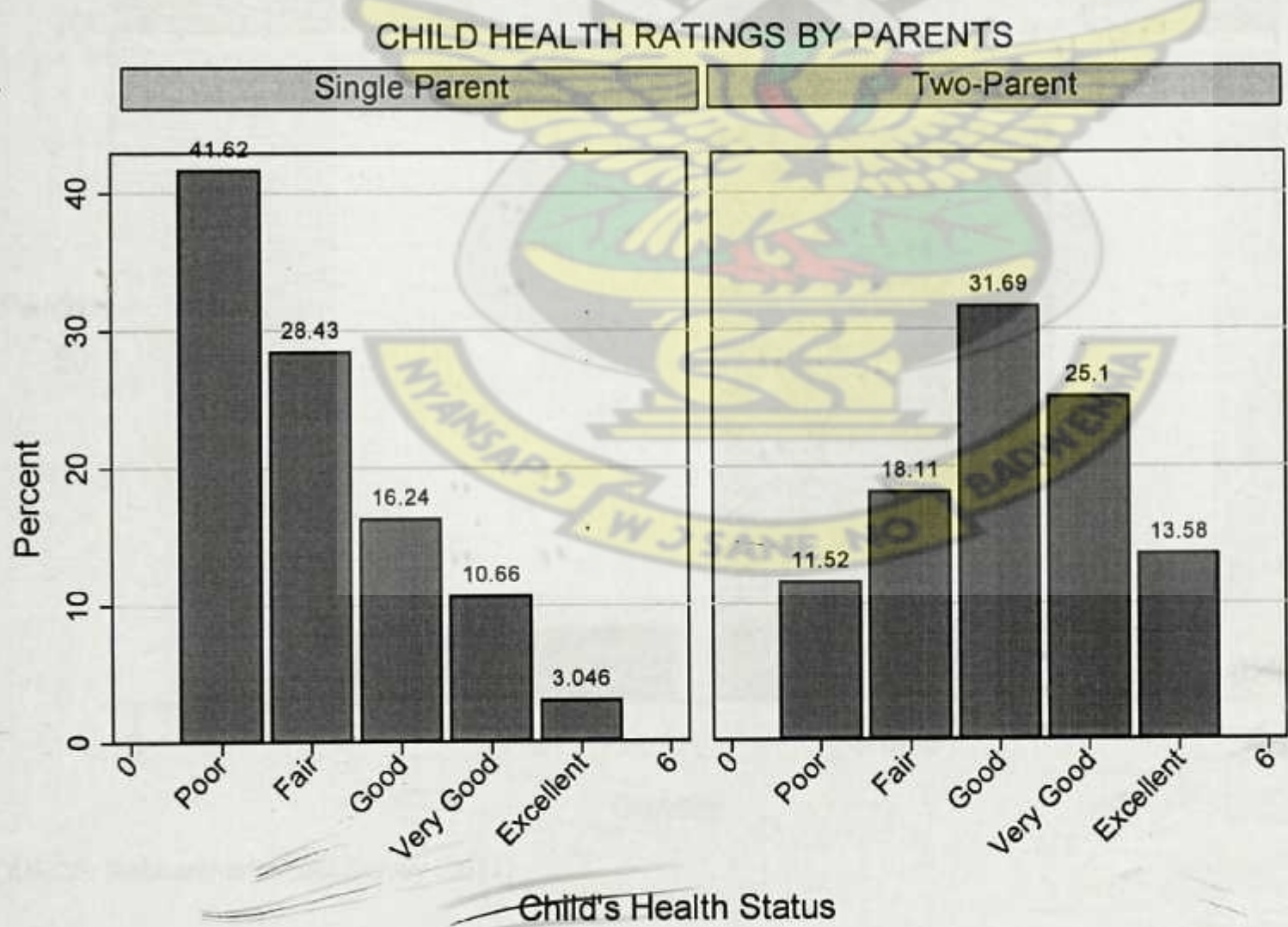
Figure 8



SOURCE: Researcher's Field Survey (2011)

Figure 9 gives the pictorial view of the child health ratings by parents. It reveals that, 41.62% of single parents compared with 11.52% of two parents rated the health of their children as poor, 28.43% of single parents rated the health of their children as fair compared to 18.11% that of two parents. It also shows that, 16.24% of single parents compared with 31.69% of two parents rated their children's health as good, 10.66% of single parents compared with 25.1% of two parents rated the health of their children as very good. Finally, 3% and 13.58% of single parents and two parents respectively rated the health of their children as excellent. The health of the average child in the study was good. This is probably due to the fact that, the average child in the study was above 5 years. However, ratings were better among children in two-parent households than single-parent households.

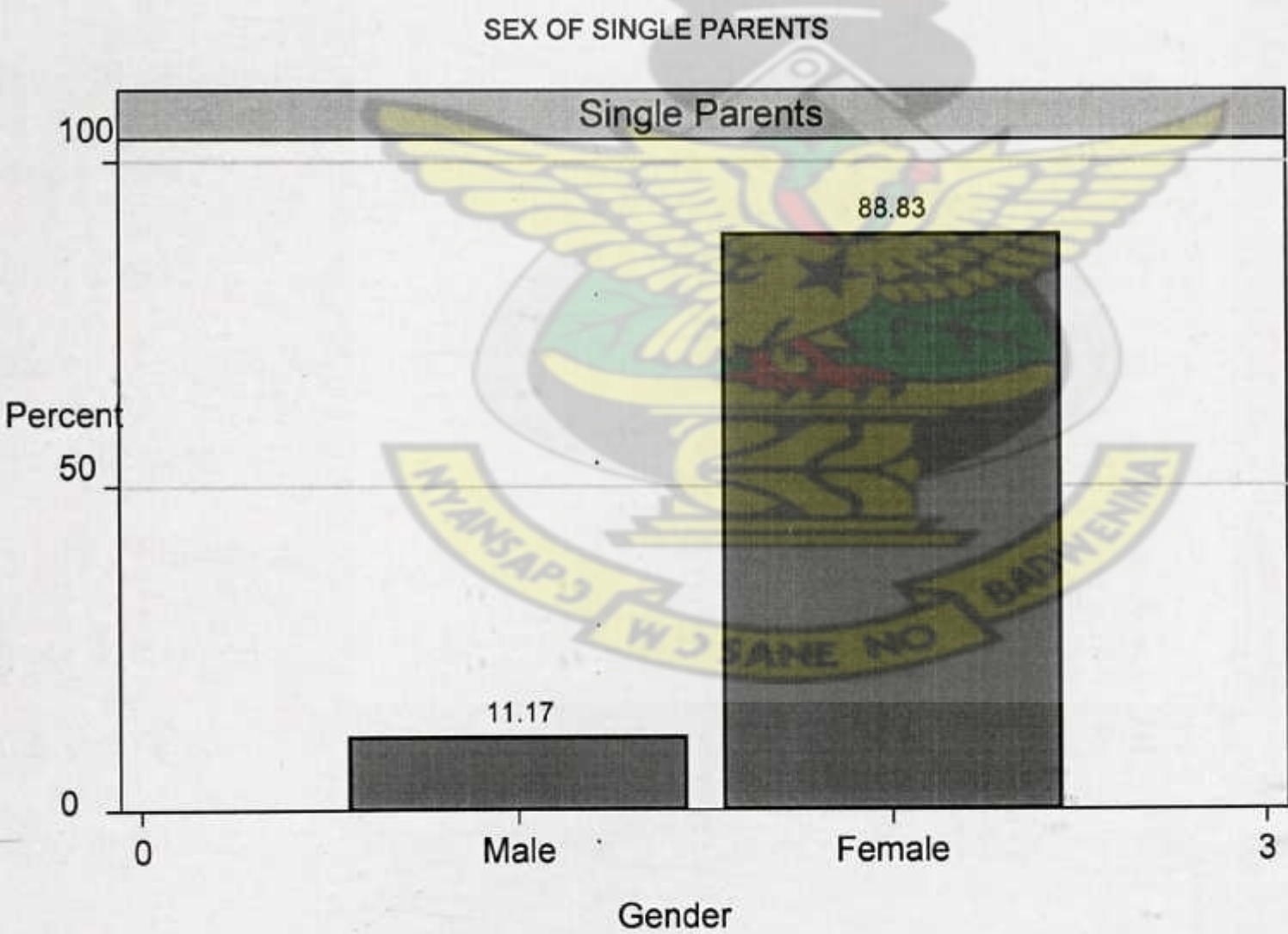
Figure 9



SOURCE: Researcher's Field Survey (2011)

Finally, the study sought out to find the gender of single parents. It was revealed that single-parent households virtually were headed by females. As shown in figure 10, 88.83% of single parents were females with males comprising of only 11.17%. This could be as a result of the matrilineal system of inheritance of the Akans. Nevertheless, this finding corroborates with the findings of Worobey et al (1988) that an increasing proportion of children will grow up in female-headed households.

Figure 10



SOURCE: Researcher's Field Survey (2011)

4.3 Quantitative analysis

Two models were estimated, one model with all the basic variables (Model1) using the full sample. The second model (Model2) used data for only single parents. This was done to find out the effects of the causes of single parenthood on child health. The results of the ordered probit models are presented in table 2.

Table 2: Results of the ordered probit models

Variable	Model 1	Model 2
Child's Age	.052***	.0756**
Parent's Age	.00334	-.00097
Expenditure (Monthly)	.00079*	-.0004
Number of Children	-.0641	-.0425
Female Parent	-.314	-.445
Female Child	-.113	-.157
Usage of Mosquito Net	.305*	.399
Basic Education	.606***	.673***
Secondary Education	.34	.506
Tertiary Education	1.01***	1.37**
Employed Parent	.261*	.174
Single Parent	-.799***	

Variable	Model 1	Model 2
Drinking Child	-.224	-.0267
Nuclear Family	.0658	.0762
Extended Family	.0472	.144
Drinking Parent	.0243	.032
Smoking Parent	-1.04*	-1.2*
Divorce		-.284
Child Neglect		-.286
Deceased Partner		-.0316
Cut1 _cons	-.456	-.122
Cut2 _cons	.358	.773
Cut3 _cons	1.2**	1.48
Cut4 _cons	2.13***	2.36*
Number of Observations	440	196

Legend: * p-value<0.05; ** p-value<0.01; *** p-value<0.001

The Table 2 above shows the results of the two ordered probit models. The statistical significance of the estimated coefficients is determined by the number of stars as shown by the legend below Table 2. The cuts in the models refer to the estimated threshold parameters.

A positive sign of an estimated coefficient implies increases in the variable leads to a higher child health outcome. Overall tests of the significance of the models show that the two models are all statistically significant. Model1 has LR of 186.69 with p value of 0.0000. Model2 has LR 59.76 with p value of 0.0000. The implication is that the variables in each respective model together have significant impact on child health.

The results in Model1 show that the prior expected signs of the coefficients with the exception of Female Parent (dummy variable=1 if parent is female) and Drinking Parent (dummy variable=1 if parent drinks) were met. The results indicate that parent's age, number of children of a parent, female parent, female child (dummy variable=1 if child is a female), secondary education surprisingly though, smoking child (dummy variable=1 if child smokes), drinking parent, extended and nuclear families were not statistically significant at 5% error level. The implication is that parent's age, the number of children of a parent, gender of parent, gender of child, secondary education, smoking activities of child, drinking activities of parent, and the type of family the parent lives have no effects on child health based on the statistical evidence at hand.

However, the model identified many significant variables associated with child health. Child's age was statistically significant at less than 1% error level and has a positive sign. This means that an older child was rated to have a higher child health outcome. This is due to the fact that, as the child's age increases his/her immunity becomes stronger. The child thus becomes less vulnerable to diseases.

Expenditure was also statistically significant at 5% error level and has a positive sign. This positive relationship between child health and expenditure implies that as the expenditure of the household increases, the health of the child improves all things being equal. This result is consistent with most research findings (Paxson et al. 2006, Riggs et al. 2006).

The coefficient of the use of treated mosquito net was positive and statistically significant at 5% error level. This positive relationship implies that the use of treated mosquito nets improves child health holding all other things constant. The use of treated mosquito nets prevents children from being bitten by mosquitoes, the major cause of malaria among children in Ghana.

Tertiary and basic levels of education have positive signs and were all statistically significant at less than 1% error level. This implies that parent's education and child health are positively related. Secondary education was statistically insignificant at 5% error level. This result corroborates the findings of most research works. Educated parents are expected to be more efficient producers of child health than uneducated parents all things being equal.

In addition employment has positive statistically significant effects on child health. Thus children whose parents were employed had better health than those whose parents were unemployed. Employed parents are more likely to have self confidence and peace of mind to meet the emotional needs of their children.

The sign of smoking parent (dummy variable=1 if parent smokes) was negative and statistically significant at 5% error level. This implies that smoking activities of parents adversely affect the health of their children. Parent's smoking activities expose children to nicotine (a poisonous alkaloid) which makes them susceptible to diseases. This finding is consistent with the findings of Meara et al. 2009.

Finally, of interest were the sign and the level of significance of the main variable of the study. The results in Model 1 show that the sign of the coefficient of single (single parent) was negative and was highly significant at less than 1% error level. The negative relationship between single parenting and child health means that children in single-parent households have poorer health compared to children in two-parent households. Thus single parenting adversely affects child health holding other things constant. The above results corroborate the study's prior expectations.

To find out the effects of the causes of single parenting on child health, Model 2 was estimated using the data on single parents. It was revealed that, the causes of single parenthood identified by the paper were statistically insignificant at 5% error level. Thus, divorce, child neglect, deceased partner and surrogate motherhood had no significant effects on the health of children of single parents and as such no evidence was produced based on the sample size and the level of significance.

However, some interesting changes were revealed in Model 2, the sign of expenditure changed and was statistically insignificant in model 2. The implication is that expenditure of single parents has no effect on the health of their children. The sign of the age of the parent also changed from positive in model 1 to negative in Model 2 but it was statistically insignificant in all the models. All other variables maintained their signs and their level of significance as in Model 1.

Finally, to find out whether child health varies across educated single parents and uneducated single parents and between employed and unemployed single parent, interaction between

education and single parent and interaction between employment and single parent were included in the model.

The results were not reported because there was no evidence of variations in child health between educated single parents and uneducated single parent and between employed single parents and unemployed single parents at 5% error level.

4.4 Interpretation of the thresholds parameters in the ordered probit models.

In the ordered probit model, child health y is an observed dependent variable. Child health, y is a function of a continuous, unmeasured latent variable y^* whose values determine what the observed ordinal variable y (child health) equals. The continuous latent variable y^* has various thresholds points (i.e. Cut1, cut2, cut3 and cut4 in the table 2). A respondent value on the observed variable y (child health) depends on whether or not that respondent has crossed a particular threshold.

Child health was coded as 0, 1, 2, 3, and 4 (poor, fair, good, very good and excellent respectively). Since there are 5 possible values for child health, in model 1:

$y = \text{poor if } y^* \leq -.456$

$y = \text{fair if } -.456 \leq y^* \leq .358$

$y = \text{good if } .358 \leq y^* \leq 1.2$

$y = \text{very good if } 1.2 \leq y^* \leq 2.13$

$y = \text{excellent if } y^* \geq 2.13$

In Model 2:

$y = \text{poor if } y^* \leq -.122$

$y = \text{fair if } -.122 \leq y^* \leq .773$

$y = \text{good if } .773 \leq y^* \leq 1.48$

$y = \text{very good if } 1.48 \leq y^* \leq 2.36$

$y = \text{excellent if } y^* \geq 2.36$

The above implies that for example in Model 1:

Cut1 is the estimated cutpoint on the latent variable used to differentiate poor child health from fair, good, very good and excellent child health when values of the independent variables are evaluated at zero. This implies that children that had a value of $-.456$ or less on the underlying latent variable that gave rise to child health variable would be classified to have poor health.

Cut2 is the estimated cutpoint on the latent variable used to differentiate poor and fair child health from good, very good and excellent child health when values of the independent variables are evaluated at zero. Parents whose children had a value between $-.456$ and $.358$ on the underlying latent variable would have fair health.

Cut3 is the estimated cutpoint on the latent variable used to differentiate poor, fair and good child health from very good and excellent child health when values of the independent variables are evaluated at zero. Parents whose children had a value between $.358$ and 1.2 on the underlying latent variable would be classified as good health.

Cut4 is the estimated cutpoint on the latent variable used to differentiate poor, fair, good and very good child health from excellent child health when values of the independent variables are evaluated at zero. Parents whose children had a value between 1.2 and 2.13 on the underlying latent variable would be classified as very good health.

Parents whose children had a value of 2.13 or greater on the underlying latent variable would be classified to have excellent health.

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CHAPTER FIVE

SUMMARY OF FINDINGS AND POLICY RECOMMENDATION

5.0 Introduction

This chapter presents the major findings of the study base on the results from the data analysis. Conclusions and policy recommendations are also made.

5.1 Summary of major findings

The usage of treated mosquito nets, a major tool to prevent mosquito bites and hence malaria was revealed by the study as woefully low. Only 21.14% of the children slept under treated mosquito nets whilst 78.84% did not as of the time the survey was conducted. However, usage of treated mosquito nets was higher among children in two-parent households than in single-parent households.

The study also showed that smoking and drinking activities of parents and children were negligible. They were however, higher among single-parent families than in two-parent families.

Child neglect by partner, divorce, deceased partner and surrogate motherhood were revealed by the study as major causes of single parenthood. Child neglect by partner was the highest among these causes.

The study also found that virtually all the sampled respondents lived with the extended family with few respondents living with the nuclear family and other forms of living arrangements like rented apartments. However, single parents were revealed by the study to have lived with the extended family more than the two parents.

It was found by the study that, expenditure, employment, education distributions were higher among two-parent household than among single-parent households. Thus, the study corroborates the fact that single parents are more likely to be resource constrained than two parents.

The study also revealed that child health rating by parents was higher in two-parent families than in single-parent families.

Of interest is the gender of single parents. The study revealed that, single-parent households were virtually headed by females. The study showed that, 88.83% of single parents were females with males comprising of only 11.17%. This could be as a result of the matrilineal system of inheritance of the Akans.

In addition, the study found that, at 5% error level there was no statistical evidence of the effects of parent's age, the number of children of a parent, gender of parent, gender of child, smoking activities of child, drinking activities of parent, and the type of family the parent lives on child health.

However at 5% error level, the study found the following statistical evidence:

Age of the child was found by the study to have a positive relationship with child health. This implies that as child advances in age his/her health improves. Advancement in age makes the child less vulnerable to diseases since his immunity becomes stronger.

It was revealed by the study that, expenditure has a positive effect on child health. The implication is that, as the expenditure of the household increases the health of the child improves. This could be due to the fact that, the probability of purchasing child health improving goods and paediatric care increases with increases in household expenditure.

The study in addition, found a positive relationship between the usage of treated mosquito nets and child health. This means that, children who sleep under treated mosquito nets are more likely to be healthier than children who do not. Treated mosquito nets prevent children from being bitten by mosquitoes, the major cause of malaria among children in Ghana.

Education was found by the study to have a positive relationship with child health. Thus, children of educated parents are more likely to be healthier than children of uneducated parents. Educated parents have been shown by research to be more efficient in child health production than their uneducated counterparts.

Furthermore, the study revealed a positive relationship between child health and employment. Employed parents were found by the study to be more likely to have healthier children than the unemployed parents. Employment gives parents self confidence and peace of mind to meet the emotional needs of their children.

The study also found a negative relationship between parent's smoking activities and child health. The implication is that, children of smoking parents are less likely to be healthier than children of non smoking parents. Parent's smoking activities expose children to nicotine (a poisonous alkaloid) which makes them susceptible to diseases.

Of interest were the sign and the level of significance of the main variable of the study. The study showed that the sign of the coefficient of single parent was negative and was highly significant at less than 1% error level. The negative relationship between single parenting and child health means that children in single-parent households have poorer health compared to children in two-parent households. Thus single parenting adversely affects child health holding other things constant. The above results corroborate the study's prior expectations.

The study also found no statistical evidence of the effects of the causes of single parenthood on child health at 5% error level.

Finally, no statistical evidence was found by the study regarding variations in child health among educated single parents and uneducated single parents and between employed single parents and unemployed single parents at 5% error level.

5.2 Conclusion

The study concludes that single parents are more likely to be resource constrained and that children from single parents households are more likely to be disadvantaged than their counterparts in intact families.

The study's prior expectations and objectives were met. Single parenting is indeed adversely affecting the health of children in Ghana.

5.3 Policy recommendations

Education and sensitization on the importance of the use of treated mosquito nets to prevent malaria should be intensified by the government and civil societies including religious bodies. Price of treated mosquito nets should be subsidized and made affordable to parents. The current Government's policy of giving treated mosquito nets free of charge to pregnant women could be boosted up by support from Non Governmental Organizations (NGOs) and the private sector. Employers can also encourage the use of treated mosquito nets among children of their employees by providing them with the nets free of charge.

The extended family system provides a safety net to single parents and their children. Therefore, policies must be geared towards the strengthening of the extended family system in Ghana. Thus, the study recommends that, the current ongoing debate on the revision of the Inter-state Succession Law (PNDC Law 111) in Parliament should be well scrutinized in a manner that will not jeopardize the extended family system.

The study recommends the strengthening of the formation of families, the interaction of parents and children. Intended marriage couples should be subject to intensive guidance and counselling before marriage. Married couples should also be encouraged to attend counselling from time to time. This presupposes the establishment of guidance and counselling centres for married couples and potential couples.

In addition, married couples should be encouraged to renew their vows periodically in order to renew their marriages and also to resolve some marital problems. This could be done in churches or law courts or even in open air. Churches and communities can also encourage and promote happy family lives by rewarding successful marriages as role model families. National family day should also be promoted by the state. This will enhance family interactions and bonds.

Preventing early and unplanned births could also allow young women to acquire higher levels of education, obtain better quality employment, and form more stable relationships with intimate partners. This could be achieved by encouraging child-parent interactions, sex education among teenagers especially encouraging the use of contraceptives. Creating of awareness of the consequences of marital disruptions and broken homes on the mental, physical and emotional health of parents and children among teenagers can also go a long way to reduce occurrence of single parenthood in the future.

Single parenthood is inevitable in society. As a result, government policies should be geared towards measures and mechanisms to ameliorate negative effects of single parenthood on the children and the single parents. This could be achieved by the establishment of guidance and counselling centres and reformation homes for children of broken homes and providing social support such as child care subsidies to needy children especially from single-parent homes. Also, institutions that deal with cases of marital disruptions and welfare such as the department of social welfare should be well resourced.

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5.4 Limitations of the Study

The study was not without limitations. The major limitation of the study had to do with the sample size. The sample size used for the study was small. This was due to financial and time constraints. The small sample size made the results less representative of the population and hence limited its generalization to the entire population.

In addition, the ordered probit model employed by the study uses Maximum Likelihood Estimation which requires a larger sample size for the efficiency and significance of the estimated parameters. Thus, the statistical insignificance of some of the estimated parameters could be as a result of the small sample size.

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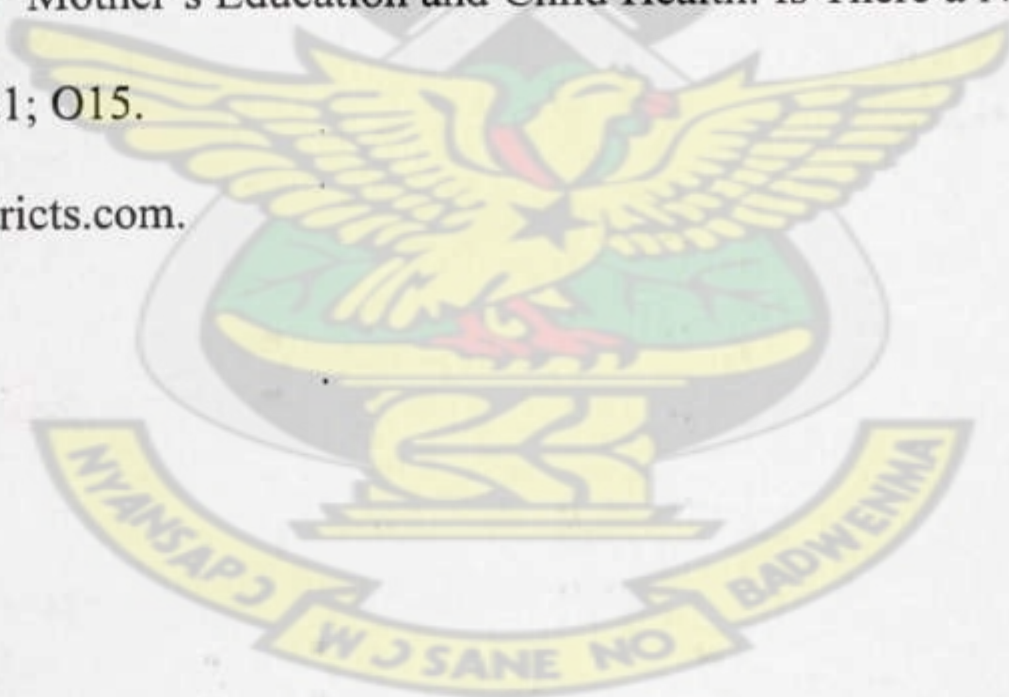
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Appendix 1: Questionnaires

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF ECONOMICS

MA/MPhil program

Topic: The effects of single-parenting on child health.

Please tick or circle the appropriate response.

CHILD'S INFORMATION (to be provided by the parents preferably the mother)

1. What is the gender of your child?

Male [1] []

Female [2] []

2. How old is your child?

..... years

3. Does your child sleep under a treated mosquito net?

Yes [1] []

No [2] []

4. Does your child drink or smoke?

Yes [] []

No [] []

5. Overall, how would you rate your Child's health?

Excellent [5] []

Very good [4] []

Good [3] []

Fair [2] []

Poor [1] []

PARENT'S SOCIO-ECONOMIC AND DEMOGRAPHIC INFORMATION

1. What is your gender?

Male [1] []

Female [2] []

2. How old are you?

..... years

3. What is your level of education?

Basic [1] []

Secondary [2] []

Tertiary [3] []

None [4] []

4. Are you employed?

Yes [] [1]

No [] [2]

5. What is the level of your monthly income /expenditure?

GH¢

6. Are you a single parent?

Yes [1] []

No [2] []

7. If yes which of the following is the cause of your single parenthood?

Divorce [1] []

Adoption [2] []

Artificial insemination [3] []

Surrogate motherhood [4] []

Child neglect [5] []

Deceased partner [6] []

Other (state).....

8. How many children do you have?

.....

9. Which of the following type of families are you living with?

Nuclear family [1] []

Extended family [2] []

Other (state).....

10 Do you smoke?

Yes [1] []

No [2] []

11. Do you drink?

Yes [1] []

No [2] []

12. Do you have health insurance?

Yes [1] []

No [2] []

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Appendix 2: Ordered probit results

Regression without interaction

Ordered probit regression

Number of obs = 440

LR chi2(17) = 189.69

Prob > chi2 = 0.0000

Log likelihood = -590.17926

Pseudo R2 = 0.1385

chealth	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
cage	.0520136	.0140982	3.69	0.000	.0243817	.0796456
page	.0033442	.0086199	0.39	0.698	-.0135504	.0202389
income	.0007892	.000313	2.52	0.012	.0001757	.0014027
numchild	-.0641288	.0395965	-1.62	0.105	-.1417365	.013479
p_female	-.3135441	.2411095	-1.30	0.193	-.7861101	.1590219
c_female	-.1133393	.1045934	-1.08	0.279	-.3183385	.09166
net	.3053668	.1396424	2.19	0.029	.0316727	.579061
basic	.6063424	.1309324	4.63	0.000	.3497196	.8629652
secondary	.3399633	.1851047	1.84	0.066	-.0228353	.702762
tertiary	1.009455	.2679843	3.77	0.000	.4842155	1.534695
employed	.2607091	.124031	2.10	0.036	.0176128	.5038054
single	-.7992818	.129027	-6.19	0.000	-1.05217	-.5463936
ch_smoke	-.2235189	.6444843	-0.35	0.729	-1.486685	1.039647
nuclear	.0658336	.2341501	0.28	0.779	-.3930921	.5247594
extended	.0472275	.2075869	0.23	0.820	-.3596353	.4540903
pa_drink	.0243279	.1760709	0.14	0.890	-.3207648	.3694206
pa_smoke	-1.035297	.4971015	-2.08	0.037	-2.009598	-.0609961
/cut1	-.4556125	.4101304			-1.259453	.3482284
/cut2	.3583686	.4099625			-.4451431	1.16188
/cut3	1.203947	.4116427			.3971426	2.010752
/cut4	2.125147	.4185221			1.304858	2.945435

Ordered probit regression

Number of obs = 196
 LR chi2(19) = 59.76
 Prob > chi2 = 0.0000
 Pseudo R2 = 0.1118

Log likelihood = -237.2869

chealth	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
cage	.075595	.0232293	3.25	0.001	.0300664	.1211236
page	-.0009726	.01316	-0.07	0.941	-.0267657	.0248204
income	-.0004	.0006012	-0.67	0.506	-.0015783	.0007782
numchild	-.0425023	.0647307	-0.66	0.511	-.1693721	.0843675
p_female	-.4445105	.3134476	-1.42	0.156	-1.058857	.1698355
c_female	-.1565947	.1695303	-0.92	0.356	-.488868	.1756786
net	.3988264	.2670758	1.49	0.135	-.1246326	.9222854
basic	.6731662	.1983482	3.39	0.001	.2844109	1.061922
secondary	.5058421	.2672424	1.89	0.058	-.0179434	1.029627
tertiary	1.365038	.482159	2.83	0.005	.4200238	2.310052
employed	.1738792	.1891965	0.92	0.358	-.196939	.5446975
ch_smoke	-.0267228	.8385754	-0.03	0.975	-1.6703	1.616855
nuclear	.0762218	.4955335	0.15	0.878	-.895006	1.04745
extended	.1436087	.3808431	0.38	0.706	-.6028302	.8900475
pa_drink	.0320176	.2461366	0.13	0.897	-.4504013	.5144366
pa_smoke	-1.197851	.5755544	-2.08	0.037	-2.325917	-.0697849
divorce	-.2836646	.5719372	-0.50	0.620	-1.404641	.8373118
ch_neglect	-.2857521	.5808024	-0.49	0.623	-1.424104	.8525996
deceased	-.0315681	.5710787	-0.06	0.956	-1.150862	1.087726
/cut1	-.1224314	.9408451			-1.966454	1.721591
/cut2	.7730962	.9414256			-1.072064	2.618256
/cut3	1.477893	.9429716			-.3702978	3.326083
/cut4	2.364558	.9598033			.4833781	4.245738

Regression with interaction

Ordered probit regression

Number of obs = 440

LR chi2(21) = 190.45

Prob > chi2 = 0.0000

Log likelihood = -589.80032

Pseudo R2 = 0.1390

chealth	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
cage	.052666	.0141946	3.71	0.000	.0248451	.080487
page	.0031672	.0086557	0.37	0.714	-.0137978	.0201321
income	.0007949	.0003144	2.53	0.011	.0001787	.0014112
numchild	-.0642666	.0400721	-1.60	0.109	-.1428064	.0142733
p_female	-.307216	.24398	-1.26	0.208	-.785408	.1709759
c_female	-.1165168	.104941	-1.11	0.267	-.3221975	.0891638
net	.3167803	.1406631	2.25	0.024	.0410857	.5924748
basic	.584268	.1791625	3.26	0.001	.233116	.9354201
secondary	.2730218	.2603263	1.05	0.294	-.2372084	.783252
tertiary	.9468288	.3205418	2.95	0.003	.3185785	1.575079
employed	.3440571	.1669764	2.06	0.039	.0167894	.6713247
ch_smoke	-.2095025	.6484794	-0.32	0.747	-1.480499	1.061494
single	-.7289484	.2379272	-3.06	0.002	-1.195277	-.2626197
nuclear	.0604887	.2394937	0.25	0.801	-.4089104	.5298877
extended	.0480342	.2088379	0.23	0.818	-.3612806	.4573489
pa_drink	.0193987	.1781982	0.11	0.913	-.3298633	.3686608
pa_smoke	-1.087629	.4998878	-2.18	0.030	-2.067391	-.1078664
sinba	.0525923	.2556502	0.21	0.837	-.4484729	.5536576
sinsec	.1516642	.3604598	0.42	0.674	-.554824	.8581524
sinter	.204985	.5297747	0.39	0.699	-.8333544	1.243324

sinemp | -.1882116 .2402669 -0.78 0.433 -.6591261 .2827029

/cut1 | -.4170358 .4186404

-1.237556 .4034842

/cut2 | .3977058 .4182392

-.422028 1.21744

/cut3 | 1.245537 .4206866

.4210063 2.070068

/cut4 | 2.168382 .4282942

1.32894 3.007823



Appendix 3: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
chealth	440	2.636364	1.280499	1	5
cage	440	5.613455	4.820462	.08	17
page	440	32.49091	9.281716	15	68
income	440	309.9114	209.3168	25	1300
numchild	440	3.036364	1.79687	1	10
p_female	440	.9340909	.2484056	0	1
c_female	440	.5113636	.5004399	0	1
net	440	.2113636	.4087404	0	1
basic	440	.4840909	.5003157	0	1
secondary	440	.1272727	.3336576	0	1
tertiary	440	.0704545	.2562028	0	1
employed	440	.6636364	.4730028	0	1
single	440	.4477273	.4978261	0	1
ch_smoke	440	.0068182	.082384	0	1
nuclear	440	.2159091	.4119199	0	1
extended	440	.7136364	.452576	0	1
pa_drink	440	.1295455	.3361849	0	1
pa_smoke	440	.0204545	.1417103	0	1
insured	440	.7431818	.4373755	0	1
divorce	196	.3469388	.477215	0	1

surro_moda	196	.0255102	.1580725	0	1
ch_neglect	196	.4387755	.4975082	0	1
deceased	196	.1887755	.3923323	0	1
poor	440	.25	.4335056	0	1
fair	440	.2272727	.4195472	0	1
-----+-----					
good	440	.2477273	.432184	0	1
very_gud	440	.1863636	.3898431	0	1
excellent	440	.0886364	.2845417	0	1

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