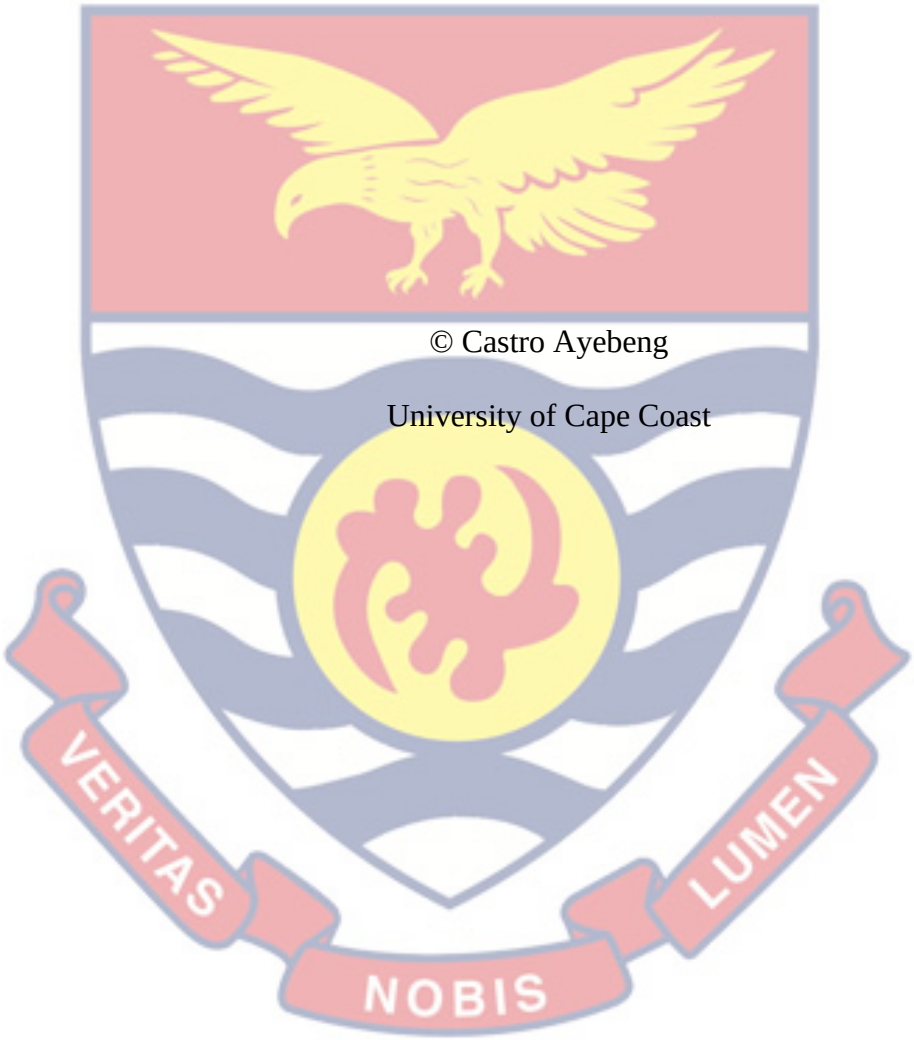
UNIVERSITY OF CAPE COAST

TRENDS AND PREDICTORS OF SINGLE MOTHERHOOD IN GHANA: 1993 – 2014

CASTRO AYEBENG

2022



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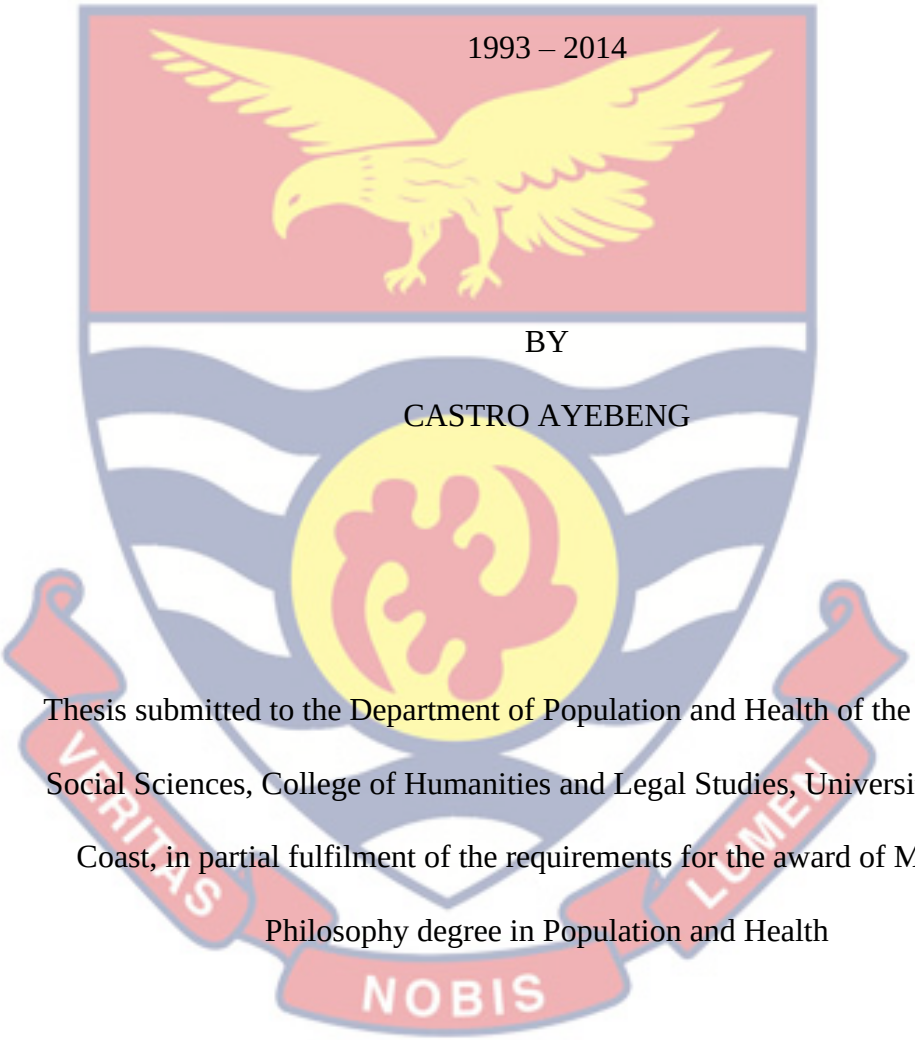

BY

CASTRO AYEBENG

Thesis submitted to the Department of Population and Health of the Faculty of Social Sciences, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Philosophy degree in Population and Health

MAY 2022

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ..... Date: .....

Name: Castro Ayebeng

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Supervisor's Signature: ..... Date: .....

Name: Dr. Joshua Amo-Adjei

ABSTRACT

Single motherhood is an important demographic change because it potentially has an adverse effect on many aspects of women's lives as well as that of their children. Using the Beckerian economic model and the social ecological system theory, the study sought to examine the trends and predictors of single motherhood in Ghana from 1993 to 2014. The last five rounds of the Ghana Demographic and Health Survey with a total sample of 18,065 women aged 15-49 years who had at least a child (less than 18 years) were used. Single motherhood and 13 explanatory variables were used for the study. Five binary logistic regression models were built to examine the predictors of single motherhood, and the connection between kinship affiliations and single motherhood. The proportion of single motherhood has been increasing over the period from 14.1% to 19.5%. The results showed a changing trend in the major pathways to single motherhood, with premarital birth, being the major pathway to single motherhood as of 2014. The results revealed a highly significant association between socio-economic and demographic variables on the one hand and single motherhood on the other hand. Among others, women with lower economic status were more likely to be single mothers compared to those with higher economic status. Women with matrilineal ties were more likely to be single mothers than women with patrilineal ties. I argue that it is important to consider the cultural influences that shape women's decisions around marriage and motherhood to address the menace of single motherhood and its associated effects.

KEY WORDS

Ghana

Kinship affiliation

Matrilineal

Pathways

Premarital birth

Single Motherhood

ACKNOWLEDGMENTS

I am particularly thankful to several people who have contributed immensely to this work from its conception. I am extremely indebted to my supervisor, Dr. Joshua Amo-Adjei of the Department of Population and Health, University of Cape Coast, for critically reviewing the work and for his encouragement.

I am also grateful to Dr. Kwamena Sakyi Dickson, and Mr. Abdul-Aziz Seidu, who constantly reviewed this work and urged me to complete it on time, and for walking me through 'Stata Software' used in analysing this work. Measure DHS is also acknowledged for the timely response to my request to use the data of 1993-2014 Ghana Demographic and Health survey.

My siblings, Isaac Nyarko, Martin Boadi, Charity Afaribea and Emmanuel Opare, are ever appreciated for their prayers and encouragement. My parents, Vida Mensah, and William Addae, who ensured that I obtained formal education also deserve special mention. I am also thankful to Mrs Mathilda Siaw and Mr Kofi Adjei, for their support and prayers.

While writing this thesis, I received encouragement from some lecturers, particularly, Prof. Kobina Esia-Donkoh, Dr. A.B. Adu-Gyamfi, and Dr. Kwaku Kissah Korsah and I am grateful. To all my friends, especially, Comfort Annor, Bernard Afriyie Owusu, Josephine Tetteh, Joshua Okyere and Mambono Nyaaba, I say your love, prayers, and frank arguments urged me to finish this work.

DEDICATION

To my mother, Vida Mensah

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LIST OF ACRONYMS

EST	Social Ecological System Theory
GDHS	Ghana Demographic and Health Survey
DHS	Demographic and Health Survey
GSS	Ghana Statistical Service
GHS	Ghana Health Service
DANIDA	Danish Development Agency
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
UNFPA	United Nations Population Fund
UNDP	United Nations Development Programme
GAC	Ghana Aids Commission
ILO	International Labour Organisation

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CHAPTER ONE

INTRODUCTION

Background to the Study

Single motherhood is an important demographic change because it potentially has an adverse effect on many aspects of women's life as well as that of their children. These potential negative effects manifest in economic, children development and moral problems (Ellwood & Jencks, 2004). It is estimated that about 86% of single-parent families across the world are headed by single mothers (Woessmann, 2015). For instance, in the United State, the percentage of children living with only the mother increased from 3% in the 1960s to 23% in 2016 compared to the 4% of children living with only the father in 2016 (U.S. Census, 2016). According to the 2015 U.S. Census Bureau, single mothers head more than 80 percent of the recorded 12 million single-parent households (U.S Census, 2016).

In sub-Saharan Africa, the increasing prevalence rate of single motherhood has been identified as a common phenomenon and the region records the highest (32%) percentage of single mothers worldwide (Crabtree & Kluch, 2020) due to emerging high rates of separation, divorce, and premarital births in some countries (Palamuleni & Adebowale, 2014; Kpoor, 2013; Reniers, 2003; Takyi & Broughton, 2006). For instance, Clark, Koski and Smith-Greenaway (2017) found high prevalence rates of premarital births in some sub-Saharan African countries like Liberia, Namibia and Gabon, ranging from 25-50%. Clark and Hamplova (2013) have also estimated that up to 50% of women have the likelihood of becoming single mothers by age 45 years through premarital birth or union dissolution. Single motherhood has

been operationalised in this study as a woman who is not married or not in a union and has at least one child (less than 18 years) living with her. Thus, through premarital births, divorce, separation and widowed (Ntoimo & Odimegwu, 2014).

In Ghana, around 30% of all children live with single parents, with the highest in the Central Region (33%). As of 2014, 25% and 5% of children below 18 years old were living with mother and father only respectively (Better Care Network, 2015). Perhaps, the high percentage of under 18 years old children living with mother only families is partly due to the custodianship of young children, which is usually entrusted in the care of their mothers after marital dissolution. Among countries in West Africa, Ghana has the third-highest percentage of children living with a single parent (Better Care Network, 2015).

The evidence of the relatively high rate of single mother families in the country does not occur in vacuum. Although there are no systematic estimates of the rates of single motherhood in Ghana, several important indicators suggest that single motherhood is probably quite common in the country. According to the Ghana Statistical Service (2015), the median age at first marriage for women increased from 18.3 years in 1988 to 20.7 years in 2014. Existing evidence shows that the increasing age at first marriage has increased the duration at which women are at a higher risk of premarital childbearing across countries (Okigbo & Speizer, 2015; Reda & Lindstrom, 2014). Regarding the incidence of divorce in the country, studies have been inconclusive. Some studies suggest a high incidence of divorce rate in the country (Takyi, 2001; Takyi & Broughton, 2006; Takyi & Gyimah, 2007).

The prevalence of divorce increased from 5.6% in 1988 to 7.7% in 2014, and the prevalence of separation soared from 2.7% in 1988 to 7.7% in 2014 (GSS, GHS & ICF International, 2015). Regarding premarital childbirth, twenty-two percent of Ghanaian women aged 25-49 years have given birth before reaching age 18, and thirty-nine percent have given birth by age 20 (GSS, GHS & ICF International, 2015). All these transformations in the family and household structure may have the propensity to increase single mother families in Ghana, hence, it's associated adverse effects.

Over the last six decades, the issue of single motherhood has received much research and policy attention, especially in the advanced countries, owing principally to the fact that single motherhood is associated with poverty and negative health outcomes for both mothers and their children (Thomas & McLanahan, 2012). The adverse effects of single motherhood on children's well-being are usually higher due to high poverty levels and gender gap in high-wage employment and education (Ntoimo & Odimegwu, 2014). Usually, the socio-economic conditions of single mother families are worse than that of single fathers (Heine, 2016). Increasing rates of cognitive, emotional and social detrimental effects have been identified among children living with divorced single-parent families and those born to unmarried women (Amato, 2005; Kim, 2011).

Studies in some African regions associate single motherhood with several adverse effects on children's health outcomes, including higher rates of malnutrition and under-five mortality (Clark & Hamplova, 2013; Ntoimo & Odimegwu, 2014; Tette *et al*., 2016). Nonetheless, the basic concern to single motherhood is their greatest risk to economic hardships (Jencks & Ellwood,

2004). Unlike most developed countries with well-structured policies and interventions to ameliorate the adverse effects of single motherhood, developing countries including Ghana lack adequate social and welfare programmes or policies critical to protect vulnerable individuals such as single mothers from severe economic hardships (Clark & Hamplova, 2013).

Given the high prevalence of single motherhood in Sub-Saharan Africa (Clark & Hamplova, 2013), and the fact that existing literature ignores the potential influence of internal and institutional structures such as kinship systems on single motherhood status, an examination of trends and predictors of single motherhood in Ghana is essential. Thus, it will demonstrate the various factors influencing the prevalence of single motherhood in the country.

Statement of the Problem

Evidence of the relatively increasing prevalence of single motherhood and its associated adverse effects described in the preceding section provides new impetus and context to study the socio-economic and demographic transformations contributing to the upsurge of single mother families. Understanding the dynamics in the socio-economic and demographic transformations that have led to the relatively high single mother families in Ghana is essential to ensure that policy makers are able to respond to the needs of single mothers and their dependents.

However, in Ghana, the few studies that have examined the growing transformation of the family structure have focused on marital dissolution (divorce and separation) (Takyi, 2001; Takyi & Broughton, 2006; Takyi & Gyimah, 2007), with less attention to single motherhood which is an important

outcome of the demographic changes in the family and household structure. For the most part, studies on this subject focused on the implications of single parenthood in some parts of the country (Abudu & Fuseini, 2013; Amissah *et al*., 2015; Amoakohene, 2013; Ansah, 2017; Nkyi, 2013). Conversely, the scope of these studies has not included the extent of single parenthood overtime, specifically, single motherhood and its predictors. To address this research gap, this study used the last five waves of the Ghana Demographic and Health Survey, a nationally representative dataset, to assess trends and predictors of single motherhood in Ghana.

Also, beyond Ghana, studies in sub-Saharan Africa and other parts of the world that have examined the determinants of single motherhood are limited to some common conventional measures such as age, educational level, type of residence, employment, economic status, and age at first marriage and first birth (Odimegwu *et al*., 2017; Clark & Hamplova, 2013; Muthuri *et al*., 2016). Although I acknowledge the merits of these conventional measures as correlates of single motherhood in Ghana and sub-Saharan Africa at large, I argue that the widespread emphasis on these conventional measures ignores the potential influence of internal and institutional structures such as kinship systems on single motherhood status in the country. This study addressed the established gap by examining whether there is a statistically significant relationship between kinship systems and single motherhood in Ghana.

Objectives of the Study

The main objective of this study is to examine trends and predictors of single motherhood in Ghana from 1993- 2014. Specifically, the study aims to achieve the following objectives:

1. To analyse trends and levels in single motherhood from 1993- 2014.
2. To examine socio-economic and demographic factors associated with single motherhood in Ghana.
3. To ascertain the connection between kinship systems and single motherhood in Ghana.

Research Hypotheses

Based on the reviewed relevant literature on the topic, the following hypotheses are set to be tested:

1. There is no statistically significant relationship between socio-economic and demographic characteristics, and single motherhood.
2. There is no statistically significant relationship between kinship systems and single motherhood.

Significance of the Study

Examining whether specific kinship affiliations correlate with single motherhood outcomes could yield some insights into our understanding of family dynamics in the country and thus contribute to knowledge on the cross-cultural family. From a policy perspective, a better understanding of the links between single motherhood and its predictors is vital. Because a study of this nature will create awareness for policy makers and other institutions to consider the necessary measures to support single mother families by targeting the key factors which predict single motherhood status.

Organisation of the Study

The study is organised in five chapters. The first chapter focuses on background to the study, statement of the problem, objectives of the study, hypotheses, significance of the study and chapter organisation. Chapter Two deals with literature review. Theories which best explain the phenomenon under study are discussed in this chapter, and a proposed conceptual framework is developed. Additionally, this chapter reviews empirical studies on various aspects of single motherhood. Chapter Three covers the philosophical orientation, study design, research method and procedures as well as sampling methods, the data collection, and analytical techniques. The fourth chapter deals with analysis and discussions of findings. The final chapter concludes the study with a summary of key findings, conclusions, recommendations, and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter comprises a review of Becker's economic theory and economic independence hypothesis, as well as the social ecological system theory. The proposed conceptual framework guiding the study is also captured in this chapter. Also, I critically reviewed the context of kinship systems in Ghana in this chapter. In addition, some relevant empirical literature on the concept of single motherhood, pathways to single motherhood, socio-economic and demographic predictors of single motherhood, and the connection between kinship affiliation and single motherhood are reviewed.

Context of Kinship Systems in Ghana

Kinship system is an important cultural dimension in Ghanaian communities. Kinship system refers to the culturally defined relationships between individuals through consanguinity or marital relationships. Kinship binds together families and their lineage (Higgs, 2003). Conventionally, there are many indigenous variations, matrilineal and patrilineal kinship systems are the most common (Takyi & Gyimah, 2007). Kinship systems are constructed based on common ethnic identity (Takyi, 2001). There are several ethnic groups in Ghana and the predominant groups are captured independently in the Ghana Demographic and Health Survey: Twi, Fante, Other Akans, Ga-Adangbe, Ewe, Guans/others, and Mole- Dagbani. The Twi (Ashanti and Akwapim), Fante, Bono, and other Akans are people with a matrilineal kinship system. The Ga-Adangbe, the Ewe-speaking people, the Guans/Others and the Mole-Dagbani are patrilineal. In the matrilineal system, property and

inheritance rights are inherited down the maternal line, whereas they are passed down the paternal line in the patrilineal system (Takyi & Gyimah, 2007).

In the Ghanaian context, kinship systems may partly influence the significance placed on children due to the role children play in the perpetuation of family lineage. For instance, in the matrilineal system, children perpetuate their maternal lineage but not the paternal line, and the opposite is true for the paternal kinship system. These cultural dynamics may have significant influence on the living arrangement of children after marital dissolution or premarital birth. As already emphasised, kinship differences regarding social organisation and marriage formation (Takyi, 2001; Takyi & Gyimah, 2007), and living arrangements may contribute to variations in prevalence of single motherhood among these common kinship systems (matrilineal and patrilineal) in Ghana.

Concerning processes in marriage formation and dissolution among these major kinship systems, there are some similarities. Traditionally, marriage formation in both matrilineal and patrilineal lineage is often viewed as a contract between two families rather than a union between two individuals (Frost & Dodoo, 2010). For marriage to be formed and legitimised, there is the need for the payment of bridewealth (which varies in the form of livestock, cash and other items dependent on the type of ethnic group) to the bride's kinsmen. The payment of the bridewealth does not only give recognition to the marriage but also transfers some rights and responsibilities to the couple. For example, the payment of the bride wealth transfers higher rights to men to women's labour and the children the woman reproduces to the man (both in

matrilineal and patrilineal) and his lineage (in patrilineal descent) (Dodoo *et al*., 2014). In both kinship systems, the woman's kinsmen are obliged to refund the bride wealth if the marriage is dissolved.

However, there are some differences which are likely to influence marital outcomes and its contribution to single motherhood. For instance, in the patrilineal lineage, marriage attracts higher bride wealth compared to the matrilineal descents (Horne *et al*., 2013). Where bride wealth is substantial, the woman's kinsmen have a higher obligation to ensure the survival of the marriage to prevent the refund of bride wealth paid to them (Takyi, 2001). This practice may discourage marital dissolution even among abusive union in the patrilineal system (Wendo, 2004). These cultural dimensions and its sociological explanation may offer convincing reason to conclude that kinship systems may help drive single motherhood in matrilineal kinship systems compared to patrilineal descent.

Pertaining to the importance of lineal ties in the lives of many Ghanaians, the examination of how specific kinship affiliations correlate with single motherhood outcomes could yield some insights into our understanding of family dynamics in the country and thus contribute to knowledge on the cross-cultural family.

Empirical Literature on Single Motherhood

Research and policy interest in single motherhood has increased owing to extensive documentation of the negative health impacts, as well as the social and economic consequences associated with single mother families compared to two-parent families (Gonzalez, 2004). Single mothers and their children have been over-represented among the economically challenged

populations (Heine, 2016; Ntoimo & Odimegwu, 2014; Thomas & McLanahan, 2012). Single motherhood is connected to high economic constraint, worse maternal mental health, child cognitive development and poor parenting practices (Harkness, Gregg & Fernandez-Salgado, 2020). Perhaps, increases in premarital births during the last six decades have highlighted the economic vulnerability of single mothers and their children and this has raised worries about the well-being of single mother families.

Pathways to single motherhood

There is an increase in the prevalence of single mother families across many countries, both advanced and developing, due to the upsurge in the marital dissolution resulting from divorce/separation or death of a spouse and other issues like premarital childbearing and migration (Clark & Hamplová, 2013; Dintwat, 2010; Moyo & Kawewe, 2009). The most common pathways of becoming single mother are through divorce or separation, widowhood and premarital birth or adoption by individuals (Clark & Hamplova, 2013). Bernardi and Mortelmans (2017) highlighted a socio-demographic shift in the profile of single mothers in the last five decades in Europe where single mothers were mostly young and widowed until the 1970s, to a state where increasing numbers of single mothers were because of divorce and separation.

Studies have identified considerable variations across advanced and developing countries in the overall incidence of single mothers (Odimegwu *et al.*,2017; Gonzalez, 2005; Livingston, 2018; Manning, Brown & Stykes, 2015; Muthuri *et al.*, 2016). For instance, Gonzalez (2005) conducted a cross-country analysis to examine the determinants and prevalence of single motherhood across 14 countries in Europe (Italy, Ireland, Germany, Canada,

Finland, US, UK, Luxembourg and other 7 countries) using five waves of the Luxembourg Income study (1984-87, 1988-91, 1992-95, 1996-99 and 2000-01). The study revealed substantial variations in the contributions of premarital birth and divorce to single motherhood across those 14 countries. The results revealed divorce as the major cause of single motherhood across all countries. Changes in the incidence of divorced mothers contributed 65% to the variance in the change of the total number of single mothers, while changes in premarital birth accounted for the remaining 35%. However, Gonzalez noticed a rapid increase in the contribution of premarital birth mothers to single motherhood in almost all countries compared to divorced mothers which experienced slower growth.

In a relatively more recent study, Manning *et al*. (2015) examined the trends in births to single and cohabiting mothers from 1980 to 2013 in the United States of America. The study identified premarital birth as the major contributor to single motherhood: the proportion of premarital birth to single motherhood doubled from 1980 to 2013 with 43% of births. Livingston (2018) also identified a similar trend by examining the changing profiles of unmarried parents in the United States. Among all parents living with a child, unmarried mothers contributed by 25% in 2017, an increase from 23% in 2007. The National Vital Statistics Report (2019) showed 39.6% of premarital births to all parents with a child.

In Africa, about three decades ago, a rise in the proportion of single motherhood was attributed to increasing divorce or separation rates (Blanc & Lloyd, 1994; Hutchinson, 1990; Isiugo-Abanihe, 1998; Tilson & Larsen, 2000). Early age at marriage and childlessness were recognized as significant

factors associated with the increasing divorce rates (Isiugo-Abanihe, 1998; Tilson & Larsen, 2000). In examining single motherhood and child mortality in five counties in sub-Saharan Africa (Ethiopia, Kenya, Malawi, Tanzania and Zimbabwe), Clark and Hamplova (2013) estimated the probability of women becoming single mothers over their life course. They posited that up to 50% of women are expected to become single mothers because of divorce or widowhood in Malawi and Zimbabwe. The result revealed that about 30% of women in Kenya and 17% of women in Tanzania and Zimbabwe had premarital birth.

Moreover, in analysing the correlates of single motherhood in four sub-Saharan African countries (Congo Brazzaville, Gabon, Namibia and Swaziland) using the latest Demographic and Health Survey (DHS) for each country, Odimegwu, Mutanda and Mbanefo (2017) found premarital childbearing as the major cause of single motherhood in Gabon (60.2%), Namibia (84.2%) and Swaziland (75.5%) whilst separation featured as the main cause of single motherhood in Congo Brazzaville (75.3%). However, divorce was reported as the least cause of single motherhood across all four countries.

A similar trend regarding increasing prevalence of nonmarital childbearing has been found in Ghana. In examining the levels and socio-economic determinants of nonmarital birth in Ghana, using pooled data from the last three waves of the Ghana Demographic and Health Survey, Nyarko and Potter (2021) observed a consistent upsurge in the prevalence of nonmarital birth of 24%, 33% and 40% in 2003, 2008 and 2014 respectively.

Single mother by choice

It is noteworthy to reflect on this interesting emerging pathway to single motherhood which has gained research attention in some advanced countries (Adamczyk, 2010; Golombok *et al*., 2016; Kelly & Dempsey, 2016). The concept of single motherhood by choice is defined as a situation whereby women choose to adopt or have children via donor insemination without marrying (Golombok & Badger, 2010). The concept of single mother by choice originated by the psychotherapist and single mother by choice, Jane Mattes, after going through the medical procedure of donor insemination to have her son in 1980 (Golash & Turkulainen, 2018).

Except for adoption, the donor insemination dimension of single mother by choice is not popular in many countries perhaps due to some strict legalities concerning the phenomenon and religious beliefs. For instance, donor insemination is viewed as against natural law by some religious leaders and in effect condemned (Allan, 2016). This may have a greater influence on women who profess such beliefs to opt for single motherhood status through donor insemination. The medical practice of donor insemination is key among extended frontiers of legal thinking on some specific bioethical and legal issues. Glanville Williams presents a controversial argument published in the seminal Health Care Law-related book entitled, *The Sanctity of Life and the Criminal Law*. He argues about thought-provoking issues, including artificial insemination. However, this type of family is gaining roots in some advanced countries such as Finland where donor insemination is legally accepted through the enactment of the Finnish Fertilization Act in 2006. For instance, according to the Family Federation in Finland, about 25% of all inseminating

treatments by donor sperm are made to single mothers (Golash & Turkulainen., 2018). Empirical evidence demonstrates that single mothers by choice are largely highly-educated women in professional occupations who choose to become mothers mainly in their 30s or early 40s (Graham, 2014; Graham & Braverman, 2012; Jadva, Badger, Morrissette & Golombok, 2009). Evidence shows that the rising phenomenon of single mother by choice is usually an unwishful decision made by such mothers as many single mothers by choice have expressed that they would have preferred to have children within a stable union but could not wait due to their increasing age and associated fertility decline (Graham, 2014). Possibly, it is because of the high cost involved in the medical procedure of donor insemination.

Taken together, the above evidence from some advanced and African countries seems to reflect that premarital motherhood may be the major cause of single motherhood compared to other pathways to single motherhood. This study focuses on the contributions of four main pathways (premarital childbearing, divorce, separation, and widowhood) to single motherhood as dictated by the dataset.

Socio-economic predictors of single motherhood

There is evidence to show that socio-economic and demographic factors are important predictors of single motherhood (Odimegwu *et al*., 2017; Gonzalez, 2005; Muthuri *et al*., 2016). For instance, studies have established age disparities in single mothers. In a study by Clark and Hamplova (2013), it was observed that single mothers in sub-Saharan Africa are predominantly young women. Perhaps, this phenomenon is necessitated by the high teenage pregnancy and premarital births. They realised that the cumulative risk of

being a single mother increases with an increasing age of women, and the probability of being a single mother at some point by the age of 45 years was between 30% and 69% among Ethiopian, Tanzanian, Kenyan, Malawian and Zimbabwean women. Similarly, Muthuri *et al*. (2016) observed in Kenya that the highest proportion of single mothers were aged 15-19 years. However, they realised that the percentages declined with an increasing age to a certain point, and thereafter slightly increased at the highest age group of 40-49 years. Lwelamira, Nyakoki and Zakayo (2012) observed that increased age is associated with increased likelihood of premarital birth in Tanzania. They found that non-married female youths aged 15 years and more were 15 to 20 times more likely to have experienced premarital birth compared to those aged below 15 years.

Research has showed contrasting results on the association between education level and single motherhood status. In a study, Harkonen (2017) observed in 33 North American, Asian and European countries that major increases in the number of single mothers largely occurred among low- and middle-educated women. This finding has been corroborated by other studies (Manning & Brown, 2014; Nyarko & Potter, 2021). This may be explained on the basis that pregnancy is more likely to truncate young women's education; hence, single mothers are more likely to be less educated. The phenomenon has necessitated policies in many countries with a high incidence of teenage pregnancy to encourage teenage mothers to return to school with their condition. For instance, in Ghana, there is a strong policy structure instituted to make the school environment supportive and protective of young girls who get pregnant especially during their basic and secondary education to continue

their education without a hindrance (Birungi *et al*., 2015). Perelli-Harris *et al*. (2010) observed that women who are highly educated in many European countries are less likely to be single mothers via premarital birth. In contrast, Odigmewu, Mutanda and Mbanefo (2017) observed that educated mothers were more likely to be single mothers compared to uneducated mothers. They posited that the likelihood of single motherhood was twice in educated women compared to uneducated women in Gabon.

Type of place of residence has been identified as one of the correlates of single motherhood status. For instance, in their studies on correlates of single motherhood, Odigmewu, Mutanda and Mbanefo (2017) established that, in Namibia, mothers in the rural areas were more likely to be single mothers compared to urban residents. However, in the same study, mothers in rural setting were less likely to be single mothers than urban areas in Congo Brazzaville. In affirmation to the situation in Congo Brazzaville, Muthuri *et al*. (2016) found in Kenya that women living in rural areas were less likely to be single mothers compared to their urban counterparts. It is noteworthy that these mixed results may be due to differential national contextual factors.

Research on the association between socioeconomic factors and single motherhood has identified both positive and negative associations. For instance, in examining the effect of public assistance and labour market conditions on the prevalence of single mother families across 14 countries in Europe, Gonzalez (2005) observed that single mothers are more prevalent in environments where women's wages are lower. She also observed a higher prevalence of single mother families in countries with vibrant child support systems and alimony payments. A higher prevalence of premarital

childbearing and divorce was found to be significantly associated with increasing national support for single mother families.

Studies have also established that single mothers are more likely to be unemployed (Odigmewu *et al*., 2017; Jordal *et al*., 2013). In their study, Jordal and colleagues observed in Sri-Lanka that single mothers were more likely to be engaged in low paying jobs as their source of livelihood (Jordal *et al*., 2013). This situation may reflect much about the economic positions of single mothers in our societies, even though studies have observed inconsistent results about the relationship between wealth status and single motherhood. For instance, Odigmewu, Mutanda and Mbanefo (2017) made a different observation that depicts a higher likelihood of single motherhood among women with lower economic status than higher economic status in Congo Brazzaville and Swaziland. In line with the above findings, on the connection between socio-economic factors associated with single motherhood, Nyarko and Potter (2021) found in Ghana that women from rich households appear considerably less likely to have children out of wedlock compared to women from poor households. On the other hand, Muthuri *et al*. (2016) found that single mothers were highly represented among women with higher economic status in Kenya.

Research has also proven age at first birth and age at first sex as common determinants of single motherhood. Increasing age at first marriage and first sexual debut has increased the duration at which women are at a higher risk of premarital childbearing and unintended pregnancies across countries (Okigbo & Speizer, 2015; Reda & Lindstrom, 2014; Soura *et al*., 2018) hence increasing the rate of premarital childbearing (Nyarko & Potter,

2021) and its contribution to single mother families. Emerging research shows that premarital birth significantly prolongs the difficulties of a woman finding a suitable partner, thereby, increasing the duration for a mother to remain single. On the contrary, Odigmewu, Mutanda and Mbanefo (2017) found a positive association between age at first sex and single motherhood in Namibia and suggested for further studies to explore this paradigm shift. Regarding the relationship between age at first birth and single motherhood, Muthuri *et al*. (2016) found that, in Kenya, women who give their first birth at an older age are less likely to be single mothers.

Studies have also found an inverse relationship between women's age at first marriage and divorce which is one of the pathways to single motherhood (Dagnew *et al*., 2020). For example, Dagnew and colleagues found that the likelihood of divorce was higher among women whose age at first marriage is below 15 years compared to those whose age at first marriage is 19 years and older (Dagnew *et al*., 2020). Studies have identified some common reasons that explain the association between higher divorce rates and younger age at first marriage. Some of these reasons are lack of maturity level, low knowledge and plan for marriage, inadequate skills to manage marriage on the part of young girls (Erulkar, 2013; Santhya *et al*., 2010).

The number of living children that a woman has had been identified as one of the correlates of single motherhood. With regard to the living number of children a woman has and its impact on the risk of single motherhood, Xu, Yu and Qiu (2015) found that the risk of divorce, which is one of the pathways to single motherhood, significantly declines with an increasing number of children that the couples have. However, they demonstrated that the number of

children has a diminishing effect on the stability of the marriage. Caring and nurturing of children comes with varied socio-cultural and financial responsibilities which may be carried by a single parent. Thus, the more children a couple has the more likely to compound these responsibilities associated with caring and nurturing and vice versa. This makes it a critical issue to consider in couples' decisions, especially mothers, to opt for marital dissolution. In line with the findings of Xu *et al*. (2015 Odigmewu, Mutanda and Mbanefo (2017) also found a significant inverse relationship between the living number of children that a woman has and the likelihood of single motherhood.

Studies have also established both negative and positive effects of children's age on the stability of marital unions. For instance, Xu *et al*. (2015) demonstrated that having younger children in a relationship offers greater protective effects on the stability of the relation. Thus, the likelihood of mothers with younger children to be single through divorce is lower, compared with mothers with older children.

The association between religion and some pathways to single motherhood has been established. Religion is critical in attitude formation (Gyimah *et al*., 2013) which may have a great impact on the risk of single motherhood through premarital childbearing, divorce or separation. Although no religion endorses premarital sex in its central doctrines, their commitment and condemnation of premarital sex relations may differ (Cochran *et al*., 2004; Smith, 2004). According to Addai (2000), some religious organisations tend to be liberal in dealing with moral issues such as non-marital sexual practices and premarital childbearing. For instance, in the context of Islamic religion, Jones

(2000) observed that divorce customs and laws serve as deterrent to perpetual divorce rates due to rigorous religious practices. Addai (2000) observed that Muslim and traditional women are significantly less likely to engage in premarital sex compared to women with no religion. Hence, single motherhood associated with premarital birth among Muslim mothers is expected to be low, compared with women with no religion. Gyimah *et al*. (2013) asserted that higher echelons of religiosity are linked with more conservative views on premarital sex, thereby, having a strong impact on the risk of single motherhood associated with premarital childbearing.

Kinship system and single motherhood status

Sociocultural differences resulting from differences in ethnicity between individuals could also be important variables influencing perceptions, beliefs, attitudes, and practices towards issues related to sexual and reproductive health behaviour (Okonta, 2007; Ikamari, 2008; Garenne & Zwang, 2008) including marital outcomes. Although no recognised study has examined the direct connection between kinship affiliation and single motherhood, few studies have looked at the connection between kinship system and one of the pathways (divorce) to single motherhood. Takyi and Gyimah (2007) observed an association between kinship system and divorce which is one important pathway to single motherhood. He posits that women from matrilineal societies enjoy some level of autonomy and support from their kins compared to their counterparts from patrilineal origin, which in effect may weaken the conjugal bond leading to divorce. In exploring the factors that influence divorce processes in Ghana, Takyi and Gyimah (2007) found that the likelihood of divorce is higher among women with matrilineal

origin compared to those with patrilineal origin. Based on the positive association between matrilineal system and divorce, it may be logical to reason out that the prevalence of single mother families associated with divorce is expected to be high among mothers with matrilineal ties compared to mothers from patrilineal origin.

The evidence highlights some socio-economic and demographic correlates of single motherhood. This study adds to the limited empirical studies on the connection between kinship affiliation and single motherhood.

Theoretical Review

Several theories have been used to study family structures and systems. Among these are Becker's economic theory and economic independence hypothesis (Becker, 1973; Becker *et al*., 1977), and the social ecological system theory (Bronfenbrenner, 1989).

Becker's economic theory

The role of economic resources has been key to theoretical explanations to decisions on union/marital formation (Cuesta & Reynolds, 2022). Becker's economic theory and the economic independence hypothesis (Becker, 1973; Becker *et al*., 1977) remain some of the common theoretical explanations that have been extensively utilised by scholars in the context of family structure and formation. The economic theory draws on economic models to explain decisions on union/family formation. Becker's economic theory stresses that women would choose divorce/separation when the utility expected from being single exceeds the utility of marital union and vice versa (Becker, 1974). The basic assumption of the theory is that both couples try their best in the marriage market to reach equilibrium.

According to this perspective, there is always a risk associated with marriage (Becker *et al*., 1977). Marriage is at risk of dissolving, whether through divorce or separation. These risks were attributed to inadequate information on the personality, requirement, and productivity of partners. In the context of motherhood status, when a mother's expectation based on the incomplete information cannot be satisfied, mothers would ponder over the continuity or dissolution of the current marital relationship as rooted in the theory. Hence, different outputs between mothers and their partners may cause discordance which can contribute to a higher likelihood of single motherhood. In the context of the economic independence hypothesis, single motherhood status accruing from non-marital childbearing, divorce or separation may be incentive or disincentive, dependent on the economic resources at women's disposal.

The economic perspective is premised on gendered division of labour and specialisation in the labour market. In view of this perspective, women's skills were specialised and more treasured in domestic activities whereas men's skills were relegated to and more esteemed in the labour market. However, with the rise of rapid industrialisation, increasing number of women are extensively engaged in market activities, likewise domestic activities. Also, with the growth of the welfare state and rise in welfare payments, the gendered division of labour and specialisation has become progressively more equitable. According to Becker and colleagues, this transformation has altered union life (Becker, 1981; Becker, Landes & Michael, 1977). Thus, the rise in women's economic independence has reduced their gain to marriage, which has consequently altered both marital and non-marital unions. As a result, this

perspective asserts that the stability of on-going marriages is undermined, and non-marriage becomes more attractive to women because they no longer have to depend on their partners for economic support. Hence in the context of this theory, improvements in women's economic status would instigate an upsurge of single motherhood through high divorce rates and non-marital births.

Empirical evidence supports this perspective. Moffitt (1998, 2000), for instance, demonstrated that the old U.S welfare system encouraged marital dissolution, increased non-marital births, and enabled unmarried mothers to remain single. Because of the concern that programmes offer more economic support and inadvertently promote single mothering, much recent U.S. policy aims to encourage marriage among single mothers. Other common approaches assume an independence effect: because additional income diminishes the need for a woman to find a partner with whom she can largely depend on financially, increase in her economic status is assumed to make her more independent and less likely to partner (Burstein, 2007; Bzostek *et al*., 2012). According to Vignoli and Ferro (2009), it is usual to anticipate that the higher the economic status of a woman, the more likely it is that she will separate. Thus, single mothers with a stable or secure source of income will find it much easier to support/afford the expense of establishing a separate home. For instance, Muthuri and colleagues (2016) found that single mothers were highly represented among women with higher economic status in Kenya, which partly supports the Beckerian theory and hypothesis.

This economic perspective in relation to the positive associative effect of economic improvement on single motherhood has been criticised both theoretically and empirically. Theoretically, Oppenheimer's (1997) theory of

marriage timing contends that, in some instances, income equality between spouses can increase the gain to marriage rather than reduce it and, hence, strengthen rather than weaken union stability. According to Oppenheimer, varying number of women may want to or compelled to delay marriage due to reasons such as school enrolment, getting established in a career, and so on, but they still see a major gain from marriage rather than seeing it as disincentive based on their economic status. From this theoretical standpoint, women with higher economic status are less likely to be single mothers resulting from divorce or non-marital birth which contrasts with the economic independence hypothesis. On empirical grounds, Oppenheimer postulates that evidence for the women's economic independence hypothesis is either weak or misguided. Several studies endorse this claim by Oppenheimer as single mothers are over-represented among women with poor economic status (Odigmewu *et al*., 2017; Jordal *et al*., 2013; Nyarko & Potter, 2021). In view of this, the role of poor economic circumstances leading to early sexual activities among girls could also be at play.

Social ecological system theory

The social ecological system theory (EST) is a developmental psychological perspective advanced by Bronfenbrenner (1977, 1979) to identify the environment responsible for influencing the development of a child. The theory demonstrates that people's behaviour is because of the dynamic interaction of individual and contextual factors. For this study, the EST was the basis to better understand individual and contextual factors that predict single motherhood.

Bronfenbrenner's EST is composed of five different nested systems impacting individuals and mutually influencing one another. These systems are the microsystem, mesosystem, exosystem, macrosystem and the chronosystem. At the core of the systems is the individual, who is surrounded by the microsystem. This system encompasses the immediate and intimate environment which women directly and frequently have contact with, including the home, peers, family, neighbourhood and school or workplace (Bronfenbrenner, 1986). This system takes into consideration how factors like race, gender, age and socio-economic status impact single mothers at the core of the analysis (Allen & Henderson, 2022). Some studies have identified some connection between mothers' socio-economic status and demographic characteristics, and single motherhood (Odigmewu *et al*., 2017; Muthuri *et al*., 2016). For instance, looking at age group as a factor, evidence shows that single mothers are over-represented among young women who are usually below age 20 years (Clark & Hamplova, 2013; Muthuri *et al*., 2016)

Next to the microsystem is the mesosystem: it represents a linkage that connects the microsystem to the outer systems. More importantly, the mesosystem can create or restrict opportunities for women and their families because it represents access to resources. For example, women who have access to some forms of social support from their family are protected from some external forces that can often disrupt their education, such as the risk of teenage pregnancy which is a critical conduit to single motherhood.

The third system, the exosystem, encompasses all social institutions like education and employment (Allen & Henderson, 2022) which may predict single motherhood status. Studies demonstrate a strong connection between

mothers' level of education and single motherhood (Harkonen, 2017; Lamidi *et al*., 2019; Nyarko & Potter, 2021; Perelli-Harris *et al*., 2010) as well as employment status and single motherhood (Odigmewu *et al*., 2017; Jordal *et al*., 2013; Muthuri *et al*., 2016) which are all embedded in the exosystem.

The fourth and largest system is the macrosystem. It represents the broader cultural norms, values and beliefs, and societal laws which directly or indirectly impact peoples' behaviour. Thus, cultural background including kinship systems and religion are embedded with some cultural norms and practices which can directly or indirectly mould women's behaviour which may have some influence on motherhood status. For instance, an association between kinship system and divorce, which is one of the pathways to single motherhood, has been established (Takyi, 2001).

The fifth system is the chronosystem, which represents timing and historical shifts that impact each of the other systems as well as the individual. The chronosystem deals with the influence of the passage of time, historical trends and transitions, and the historical context that inevitably affect motherhood status (Bronfenbrenner, 1989). For instance, the transitions in timing for marriage, sex and birth have an impact on the increasing prevalence of single mother families as highlighted by several studies (Dagnew *et al*., 2020; Okigbo & Speizer, 2015; Soura *et al*., 2018).

The strength of the theory lies in its ability to assist in identifying potential individual and contextual contributors or inhibitors that impact peoples' behaviour. Also, the model can be used in the conceptualisation of programmes that are grounded in seeing a measurable change in dimensions associated with individuals.

The model has been criticised for not paying critical attention to biological factors that influence peoples' behaviour. The model suggests that in order to transform peoples' behaviour, it is necessary to act across multiple levels of the model at the same time, hence, making its applicability more financially costly. Although the social ecological system theory has been found effective, specifically, in the field of public health and health promotion (Golden & Earp, 2012), the framework is easily adopted to help explain other social science phenomena involving the interplay of the individual and environmental factors such as teenage pregnancy (Akella & Jordan, 2014; Dimo, 2019). Mwamba (2021) adopted this theory to examine the impact of single motherhood on child nutrition and health in Kgatleng District, Botswana.

In the context of the present study, the social ecological system theory is considered appropriate. Since one isolated factor cannot explain the determinant of single motherhood, the various systems of the theory consider individual, social and community-based factors that may interact within a variety of contexts to predict single motherhood. Thus, this theory offers the best framework for this study, as it considers individuals in ecological contexts (Neal & Neal, 2013).

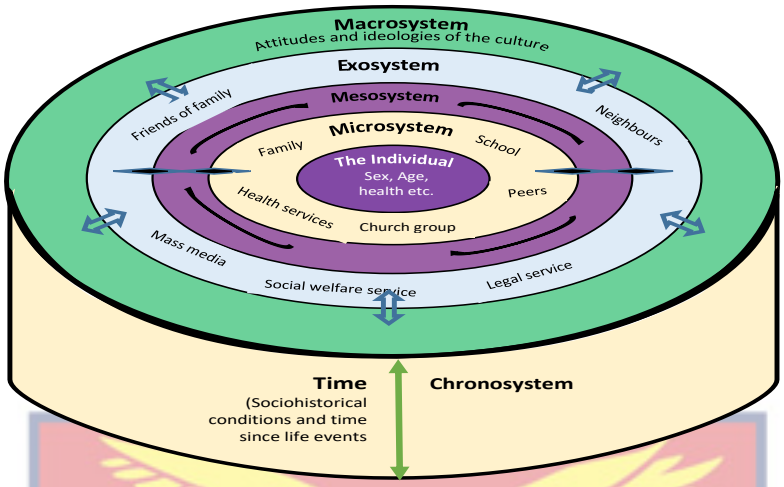

Figure 1: Bronfenbrenner's social ecological system theory (1989)
Source: Mwamba, 2021

In all, notwithstanding the shortfalls of these theories (i.e., Becker's economic theory, the economic independence hypothesis and the social ecological system theory), they fit well for explaining the phenomenon of single motherhood as supported by the several empirical evidence discussed. The selected theories include both individual and contextual level factors which are intuitively important for this study.

Conceptual Framework for the Study

The conceptual framework for the study was developed based on the social ecological system theory and the economic independence hypothesis. The framework adapted the social ecological system theory by categorising the various systems into two broad groups: individual factors and contextual factors. It recognises the interaction of individual and contextual factors to predict single motherhood. The first circle of the framework contains individual level factors that seek to predict single motherhood (age, education, occupation, and age at first birth, age at first sex, number of living children, and current age of child). The second circle depicts the contextual factors (kinship system, residence, religion, and region) that correlate single

motherhood, including the wealth status of the respondents representing the economic independence hypothesis. Finally, the variables in the third box are the various pathways (premarital birth, divorced, separation and widowed) that lead to the outcome variable (single motherhood status).

The choice of these theory is because it is flexible and allows for manipulations to suit varying contexts and phenomena. The strength of the conceptual framework lies in the fact that it uses aspects of the reviewed theories. Specifically, it includes some variables at the microsystem level (age, education, occupation, age at first birth, age at first sex, number of living children, current age of child), the exosystem (residence, region and wealth status) and the macrosystem level (kinship system, religion), which makes it suitable for this study.

This framework is simplistic, and it ignores important aspects of direct determinants of single motherhood. However, the design was dictated largely by the cross-sectional nature of the data and the available variables captured in the dataset. The adapted framework is clearly not envisioned to provide an entirely realistic description of the way women become single mothers, but rather to offer a framework that allows for socio-economic and demographic determinants of single motherhood.

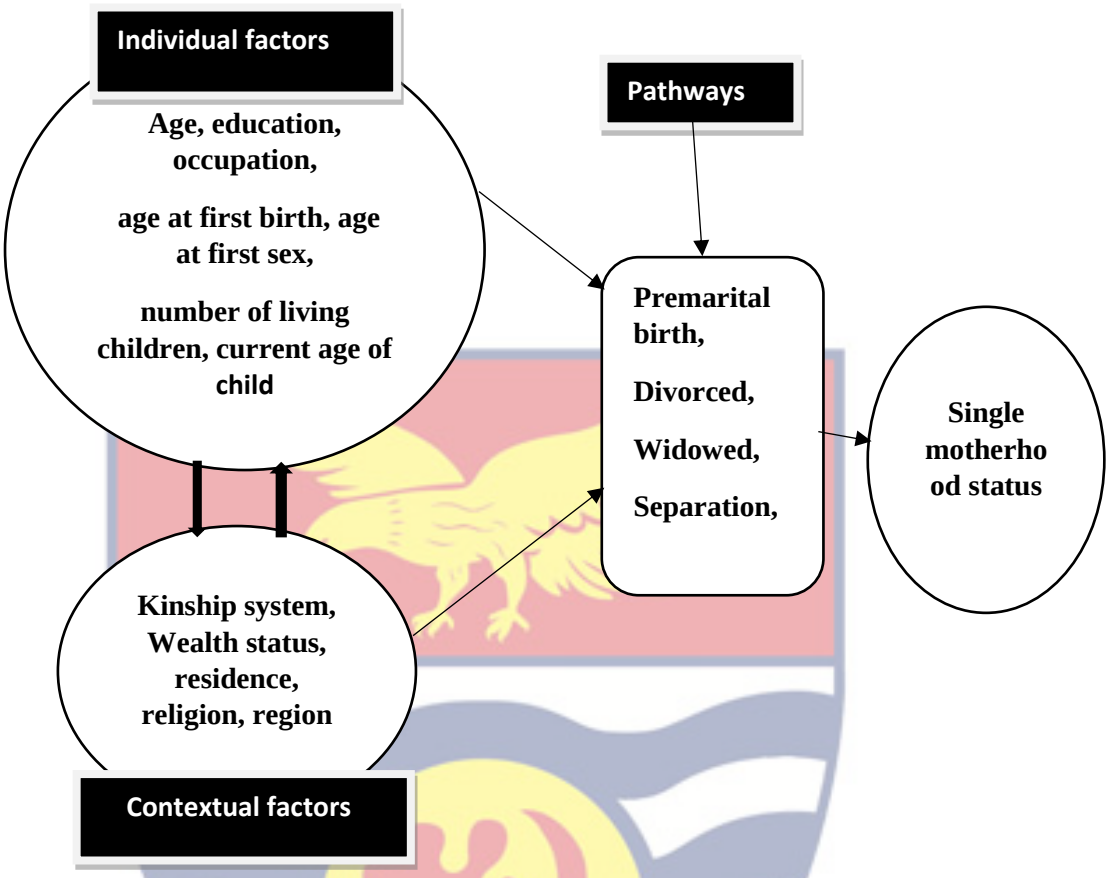

Figure 2: Conceptual framework for studying single motherhood.
Source: Author's construct based on the social ecological system theory by Bronfenbrenner (1989) and Economic independence hypothesis (Becker *et al*., 1977)

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter gives an account of the philosophical orientation, description of data, processes involved in accessing the data and data management and analysis.

Philosophical Orientation

The study is situated in the positivist philosophy, which asserts that objective knowledge is attainable and can be quantified. Its epistemological assumption is that knowledge exists in the form of natural laws which could be uncovered and explained. It holds that it is possible to control events and predict their occurrence (Tombs & Pulgsely, 2020). Also, its ontological assumption is that reality is objective and it is ascertainable through experiments and hypothesis testing using deductive reasoning (Howell, as cited in Ryan, 2018). These attributes entirely coincide with the focus of this study. In the context of the positivist paradigm, knowledge generated may be too abstract and general to be directly applied to a specific local situation (Johnson & Onwuegbuzie, 2004). Overall, there is no leeway. Some scholars believe that because positivists believe everything can be measured and calculated, they tend to be rigid. Positivists see things as they are and tend to dismiss unexplained phenomena (Johnson, 2014). The study is based on Ghana Demographic and Health Survey, which uses the repeated cross-sectional approach. This type of research design helps to study the current behaviour, belief, practices and attitudes of a specific group of respondents at a given point in time (Creswell, 2014).

Data Source

Data for this study were drawn from five waves of the Ghana Demographic and Health Surveys that were conducted as part of the worldwide Measure DHS program, thus, 1993, 1998, 2003, 2008 and 2014. Each survey collected data from a nationally representative sample of women aged between 15 and 49 years from all the then ten administrative regions of Ghana. Inasmuch as the dataset contains almost all relevant variables for the study, a limitation concerning direct questions to measure cultural norms and values, in the context of this study, was missing. However, kinship system was used as a proxy to measure cultural norms and values, a method similar to other studies (Gyimah, 2006; Takyi & Gyimah, 2001). Notwithstanding this limitation, the dataset is appropriate for this study partly due to some chief advantages of the DHS, including high response rates, national coverage, high-quality standardized data collection procedures, which enhance the comparability across populations cross-sectionally and over time. The survey collected information on a host of questions, including socio-economic and demographic characteristics (e.g., age, education, wealth, place of residence), as well as marital and fertility histories. The survey aimed at collecting essential information needed for making informed policy decisions and for planning, monitoring, and evaluating programmes concerning health in general, and specifically reproductive health. This study focuses on mothers who were either married or single and had at least one child at the time of the survey. The study, therefore, includes all women who were never married, married and formerly married (divorced/separated/widowed) who had at least a child.

Ghana Demographic and Health Survey is carried out by the Ghana Statistical Service with ICF Macro, an international company, providing technical support for the survey through Measure DHS. GDHS is funded by the United States Agency for International Development (UNSAID) and the Government of Ghana, with support from other donor agencies such as United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), the United Nations Development Programme (UNDP), the Danish Development Agency (DANIDA), the Ghana Aids Commission (GAC), the Global Fund and the International Labour Organisation (ILO).

Customary of nationwide representative datasets, the Ghana Demographic and Health Survey uses sample weights to regulate for effects of under- and over-sampling to allow for generalisability of the results. Sample weights are alteration factors used to account for differences in probability of selection and interview between cases because of survey design or chance (GSS, GHS & ICF International, 2015; GSS, GHS & ICF Macro, 2009).

The 1993 GDHS made use of 4,562 women age 15 – 49 from 5,822 households covering 400 clusters throughout Ghana. It had a response rate of 97 percent. The 1998 GDHS comprised 4,843 women age 15 – 49 sampled from 6,375 households covering 400 clusters throughout Ghana with a response rate of 97 percent. The 2003 GDHS interviewed 5,691 women age 15 – 49 from 6,251 households covering 412 sample points throughout Ghana. It had a response rate of 95 percent. The 2008 GDHS also covered 4,916 women age 15 – 49 from 11,778 households covering 412 clusters with a response rate of 96 percent. The 2014 GDHS interviewed 9,396 women age 15 – 49 from

12, 831 households covering 427 clusters throughout Ghana. It had a response rate of 97 percent (GSS, GHS & ICF International, 2015; GSS, GHS & ICF Macro, 2009; GSS, NMIMR & ORC Macro, 2004; GSS & MI, 1999).

Target Population

The target population is women between the ages of 15-49 years who participated in the various waves of the GDHS.

Sampling Procedure

The GDHS utilised a two-stage sample design. The first stage involved selecting points or clusters from an updated master sampling frame constructed from the most current Ghana Population and Housing Census. Thus, the GDHS 1993 and 1998 were based on the 1984 Population and Housing Census while the GDHS 2003, 2008 and 2014 were based on the 2000 and 2010 Population and Housing Census respectively. The second stage includes a systematic sampling of households listed in each cluster. Weights were calculated, considering respective clusters household and individual no-responses so that there will be representativeness.

Table 1: Sampling Procedure

Waves	Sample Frame	Cluster	Household	All women interviewed	Women living with child(ren)
6 (2014)	2010 PHC	427	12831	9396	5644
5 (2008)	2000 PHC	412	11778	4916	2837
4 (2003)	2000 PHC	412	6251	5691	3380
3 (1998)	1984 PHC	400	6375	4843	3000
2 (1993)	1984 PHC	400	5822	4562	3204

Source: Computed from GDHS 1993, 1998, 2003, 2008 and 2014

Acquisition of Data

The study used secondary data which was acquired online from Measure DHS. A registration form was filled and registered with Measure DHS. A brief proposal of the study showing what the dataset was going to be used for was sent to Measure DHS. An approval was given to download the dataset. Data files available were in SAS, SPSS, STATA and CIPRO formats and all STATA data files were chosen and downloaded.

The Ghana Demographic and Health Survey (GDHS) 1993, 1998, 2003, 2008 and 2014 used a standard DHS model questionnaire developed by the Measure DHS programme (Ghana Statistical Service, Ghana Health Service, ICF Macro, 2015; Ghana Statistical Service [GSS], Ghana Health Service [GHS], and ICF Macro, 2009; Ghana Statistical Services, Noguchi Memorial Institute for Medical Research and ORC Macro, 2004; Ghana Statistical Service and Macro International, 1999; Ghana Statistical Service and Macro International, 1989, 1994). The women's questionnaire was used to collect data from the target population on sections on respondents' demographic background, reproduction, contraception, pregnancy, delivery and postnatal care, child immunisation and child's health and women nutrition, marriage and sexual activity, husband's background, fertility preference and woman's work, HIV/AIDS, other health issues, and domestic violence.

Description and Definition of Variables

Outcome variable

'Single motherhood' is the main outcome variable in this study. The outcome variable was measured as a dichotomous indication of whether a

mother is single '1' or not '0'. Single motherhood in this study refers to female respondents who were not married or not in a union who had at least a child (less than 18 years) and the child was living with her at the time of the survey. Thus, through premarital births, divorce, separation and widowed (Ntoimo & Odimegwu, 2014).

Independent variables

The study considered the following twelve factors conceptually relevant in predicting single motherhood: age, educational level, occupation, age at first sex, and age at first birth, number living children, current age of child, wealth status, religion, region, residence, and kinship affiliation. Age was originally captured into 7 age groups: 15 – 19, 20 – 24, 25 – 29, 30 – 34, 35 – 39, 40 – 44, and 45 – 49. Educational level was re-coded as no education, primary, and secondary and above. Occupation was recoded as not working, professional, sales and service, agricultural, and skilled and unskilled worker. Age at first sex and age at first birth was recoded into four groups respectively: <15, 15-19, 20-24, and 25+. Current age of child was recoded as <5, 5-9, 10-14, and 15+. Number of living children was recoded as 1, 2, 3, and 4 children and above. Type of place of residence coded as urban or rural. Wealth quintile was categorised as poorest, poorer, middle, richer and richest. Religion was recoded as no religion, Orthodox and Protestant, others Christians, Islam and other religion. Region was captured as Western, Central, greater Accra, Volta, Eastern, Ashanti, Brong – Ahafo, Northern, Upper East and Upper West.

The independent variables also included ethnicity as a proxy indicator for measuring the type of kinship affiliation. A dummy variable was coded, with '1' representing matrilineal group and '0' for patrilineal group. Because the study could not directly assess the impact of subgroup norms and practices on the probability of a woman becoming a single mother due to unavailability of information in the dataset, lineal ties (kinship affiliation) was used as a proxy for cultural norms and practices. Seven major cultural groups were captured in the dataset: Twi, Fante, Other Akans, Ga-Adangbe, Ewe, Guans/Others, and Mole- Dagbani. The Twi (Ashanti and Akwapim), Fante, and Other Akans are people with a matrilineal kinship system. The Ga-Adangbe, the Ewe-speaking people, the Guans/Others and the Mole-Dagbani are patrilineal. Because women interviewed in GDHS were not asked to identify their lineage, a measure of family ties was constructed based on common ethnic identity and characteristics, a method that has been used in other studies (Gyimah, 2006; Takyi & Gyimah, 2001).

Potential confounders

To examine more completely the connection between kinship affiliation and single motherhood, potential confounders were identified and controlled in a statistical sense. For the multivariate equations, I controlled for some socio-economic and demographic factors that have been linked to single motherhood, including age, educational level, and occupation, age at first sex, age at first birth, number of living children, current age of child, wealth status, religion, and region, residence. The year the various surveys were conducted was included as a partial control for a period trend to control for the effects of

unidentified factors that may have been introduced due to the different timing of surveys as recommended by Yaya *et al*. (2018).

Data Processing and Analyses

The dichotomous nature of the outcome variable suggested logistic regression as the appropriate technique for the analysis (DeMaris, 1995). Regression procedures are critical for understanding and explaining complex associations among variables and for making predictions to a criterion (King, 2002). The data analysis for this study was carried out at three levels: univariate, bivariate and multivariate. Respondents' profile was presented using descriptive statistics. The Pearson chi-square test was used to examine the association between single motherhood and each selected independent categorical variable. The bivariate and multivariate binary logistic regression was then employed to examine the relationship between the independent variables and single motherhood. All the analysis was conducted using Statistical data (Stata) version 13.

The women's sample weight provided in the DHS individual dataset was used in generating estimates. Application of the sample weight is essential when generating estimates because it adjusts for non-response and oversampling of some population segments in the survey data. Because GDHS is hierarchical in nature and respondents are layered within survey clusters with a potential of biasing standard errors, the Huber-White technique for dealing with clustering was used to derive robust standard errors (Amo-Adjei & Kumi-Kyereme, 2014). The analysis started separately for each survey year to derive the percentage contributions of the various pathways to single motherhood before appending various datasets for further analysis.

To ensure that the fitted model is reliable and stable in its parameter estimation in the regression analysis, multicollinearity diagnosis was conducted, and no multicollinearity was found between the regressors. Variance inflation factor (VIF) was used as the diagnostic measure and this found relatively low coefficients ranging from 1.4-3.4, which is an indication of an absence of multicollinearity. Chatterjee *et al*. (2000) suggests that a VIF value >10 indicates the existence of multicollinearity. The VIF estimates how much the variance of a regression coefficient is inflated due to multicollinearity in the model. The GDHS 1988 was dropped from the analysis of this study due to the absence of the wealth index variable deemed conceptually relevant in predicting single motherhood.

The study relied on the positivist research paradigm. It was based on this ideology that quantitative data from the GDHS were used as a means of examining the socio-economic and demographic correlates of single motherhood. The data were extracted from the 1993, 1998, 2003, 2008 and 2014 GDHS datasets. This source was used due to the high quality of the data it provides as well as its usefulness for national studies and comparison.

Ethical Considerations

Permission to use the GDHS dataset was sought from Measure DHS, and evidence of approval is attached to appendix I. In accordance with Measure DHS data acquisition requirements, a concept paper outlining the scope of the study was assessed and approved by Measure DHS. Prior to the GDHS, the Ghana Health Service Ethics Review Committee and ICF Macro's Institutional Review Board reviewed and approved the survey protocol. Each respondent provided written consent prior to participation in the survey.

Concerning respondents below 18 years (the legal age for defining adulthood), parental or guardian consent followed by the respondent's assent was obtained.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter reports the outcome of the data analysis and discussion of key findings. First, the analysis provides a description of the study sample in terms of the socio-demographic characteristics (age, education, wealth, age at first sex and birth, and residence among others) followed by a segregated description of the covariates by motherhood status. Again, a descriptive analysis was used to establish the trends of single motherhood in Ghana. Pearson's chi-square test was used to analyse the association between motherhood status and the identified independent variables. Also, a further binary logistic regression analysis was employed to examine the association between socio-economic and demographic characteristics and single motherhood; and the connection between kinship affiliation and single motherhood in the form of two and three models respectively. The results are presented in the form of tables and graphs.

Background Characteristics of the Respondents

Descriptive results in Table 2 revealed that, out of the 18,056 sample of mothers living with their children, 84% and 16% were in-union and single respectively. The proportions of respondents within the age groups were fairly distributed, with the exception of 3.1% found within the ages of 15-19 years. A greater proportion of the respondents had formal education compared to about 33% with no education. The proportion of the respondents who occupied the sales and service sector was far higher than that of professional workers, about 39% and 4% respectively. More than 50% of the respondents

had their first sex within the age group, 15-19 years, and approximately, 47% of the respondents gave their first birth within the same age group. About 72% of the respondents were living with children less than 5 years old.

The proportions of respondents were fairly similar across the various wealth quintiles, and 59% and 41% of the respondents were from the rural and urban area respectively. The highest proportion of the respondents resided in the Ashanti Region (18.1%) and the least in the Upper East Region (3.9%). Half (50.5%) of the respondents belonged to the Orthodox and Protestant denominations, 14.2% were Muslim, 24.1% and 4.2% were affiliated to other churches and religion, and 7% had no religious affiliation. Approximately, 51% and 49% of the respondents were affiliated to the patrilineal and matrilineal lineages. The 2014 DHS contributed about 31% to the total sample and the remaining was fairly distributed across the other four waves of the DHS (see Table 2).

Table 2: Pooled Distribution of Respondents by Selected Background Characteristics, 1993-2014 (n=18065)

Variables	(%)	N
Motherhood status		
In-union	84.01	15,177
Single	15.99	2,888
Age group		
15-19	3.14	617
20-24	14.38	2,597
25-29	20.76	3,751
30-34	19.80	3,576
35-39	17.95	3,244
40-44	13.53	2,445
45-49	10.16	1,836
Highest education level		
No education	32.75	5,916
Primary	25.91	4,680
Secondary and above	41.34	7,469
Occupation		
Not working	12.36	2,232
Professional	4.01	724

Table 2 continued.

Sales/service	38.68	6,987
Agricultural worker	32.54	5,879
Skilled/unskilled	12.42	2,242
Age at 1st sex		
<15	8.31	1,501
15-19	54.19	9,789
20-24	11.56	2,087
25 +	25.95	4,688
Age at first birth		
<15	3.83	692
15-19	46.77	8,449
20-24	36.53	6,599
25+	12.87	2,325
Current age of child		
<5	72.49	13,095
5-9	17.45	3,153
10-14	7.35	1,329
15+	2.70	488
# Living children		
1	21.3	3,848
2	21.04	3,801
3	17.92	3,238
4+	39.73	7,178
Wealth index		
Poorest	18.42	3,327
Poorer	18.55	3,350
Middle	20.69	3,737
Richer	21.60	3,902
Richest	20.57	3,749
Religion		
No religion	6.98	1,260
Orthodox/Protestant	50.47	9,118
Other Christians	24.12	4,357
Islam	14.20	2,565
Other religion	4.23	765
Type of place of residence		
Rural	59.04	10,666
Urban	40.96	7,399
Region		
Western	9.91	1,790
Central	9.80	1,771
Greater Accra	14.71	2,658

Table 2 continued.

Volta	9.35	1,688
Eastern	10.91	1,971
Ashanti	18.09	3,268
Brong-Ahafo	9.21	1,664
Northern	9.49	1,715
Upper East	3.86	698
Upper West	4.65	841
Years of survey		
1993	18.04	3,259
1998	16.60	2,999
2003	18.36	3,317
2008	15.81	2,855
2014	31.19	5,634
Kinship affiliation		
Patrilineal	50.67	9,153
Matrilineal	49.33	8,912
N	18,065	

Weighted values

Bivariate Association between Background Variables and Motherhood Status

Table 3 shows the segregated description of the covariates by motherhood status, and the association between motherhood status and each of the socio-economic and demographic variables in proportions. The results reveal a highly significant association between all socio-economic and demographic variables used in the analysis such as age, education, age at first birth, age at first sex, occupation, current age of child(ren), number of children a woman is living with, wealth status, religion, region, place of residence, kinship affiliation; and motherhood status as shown by the Pearson's chi-square test results. Therefore, the evidence points to the rejection of the two null hypotheses: there were statistically significant relationships between socio-economic and demographic characteristics, and single motherhood; and

there was a statistically significant relationship between kinship affiliation and single motherhood.

With respect to mothers with no education, 89.9% were in union compared to 10.1% being single mothers. Regarding mothers who experienced their first birth at ages below 15 years, 81.6% were in union and 18.4% were single, and this distribution was similar regarding age at first sex. Eighty-six percent of mothers in the rural setting were in union compared to 14% who were single. In terms of kinship affiliation, 80.4% of the mothers with matrilineal ties were in union and 19.6% were single. Compared to mothers with patrilineal bond, 87.6% and 12 .4% were in union and single respectively (see Table 3).

Table 3: Background Characteristics of Respondents by Motherhood Status, 1993-2014

Covariates	Motherhood status				
	In-union		Single		χ^2
	(%)	N	(%)	n	
Age group					390.8023***
15-19	59.47	367	40.53	250	
20-24	79.46	2,063	20.54	534	
25-29	86.94	3,261	13.06	490	
30-34	87.85	3,141	12.15	435	
35-39	86.82	2,816	13.18	427	
40-44	84.59	2,068	15.41	377	
45-49	79.49	1,460	20.51	377	
Highest Education level					286.9982***
No education	89.91	5,319	10.09	597	
Primary	82.01	3,838	17.99	842	
Secondary and above	80.59	6,020	19.41	1,449	

Table 3 continued

Occupation					202.1610***
Not working	79.59	1,777	20.41	456	
Professional	85.28	618	14.72	107	
Sales/service	81.37	5,685	18.63	1,302	
Agricultural worker	89.04	5,234	10.96	644	
Skilled/unskilled	83.06	1,863	16.94	380	
Age at 1st sex					204.7486***
<15	79.14	1,188	20.86	313	
15-19	82.21	8,048	17.79	1,741	
20-24	82.40	1,720	17.60	367	
25 +	90.04	4,221	9.96	467	
Age at first birth					41.2941***
<15	81.56	564	18.44	128	
15-19	82.03	6,930	17.97	1,518	
20-24	85.66	5,653	14.34	946	
25+	87.27	2,029	12.73	296	
Current age of child					565.4751***
<5	87.77	11,494	12.23	1,601	
5-9	77.08	2,430	22.92	723	
10-14	71.71	953	28.29	376	
15+	61.31	299	38.69	189	
# Living children					643.8655***
1	70.55	2,715	29.45	1,133	
2	84.09	3,196	15.91	605	
3	88.78	2,874	11.22	363	
4+	89.04	6,391	10.96	787	
Wealth index					122.4448***
Poorest	88.12	2,932	11.88	395	
Poorer	83.03	2,782	16.97	569	
Middle	79.58	2,974	20.42	763	
Richer	82.90	3,235	17.10	667	
Richest	86.82	3,254	13.18	494	
Religion					217.0974***
No religion	86.89	1,095	13.11	165	
Orthodox/Protestant	81.28	7,411	18.72	1,707	
Other Christians	83.09	3,620	16.91	737	
Islam	91.76	2,354	8.24	211	
Other religion	91.03	696	8.97	69	
Type of place of residence					101.2647***
Rural	86.11	9,184	13.89	1,482	
Urban	80.99	5,992	19.01	1,406	

Table 3 continued

Region					330.3631***
Western	79.97	1,432	20.03	359	
Central	80.41	1,424	19.59	347	
Greater Accra	82.28	2,187	17.72	471	
Volta	85.20	1,438	14.80	250	
Eastern	81.71	1,611	18.29	361	
Ashanti	81.23	2,655	18.77	613	
Brong-Ahafo	83.78	1,394	16.22	270	
Northern	94.82	1,626	5.18	89	
Upper East	90.38	631	9.62	67	
Upper West	92.62	778	7.38	62	
Years of survey					195.045***
1993	85.86	2,798	14.14	461	
1998	85.40	2,561	14.60	438	
2003	87.09	2,889	12.91	428	
2008	83.69	2,390	16.31	466	
2014	80.55	4,539	19.45	1,096	
Kinship affiliation					202.373***
Patrilineal	87.55	8,014	12.45	1,139	
Matrilineal	80.38	7,163	19.62	1,749	
N	84.01	15177	15.99	2,888	

Source: Computed from GDHS 1993, 1998, 2003, 2008 and 2014
***p<0.001
Note: weighted values

Trends of Single Motherhood in Ghana, 1993-2014

Figure 3 shows the trends of single motherhood from 1993-2014 in percentages. The percentage of single mothers increased slightly from 14.1% in 1993 to 14.6% in 1998. However, it declined sharply from 14.6% to 13% from 1998 to 2003. It then again, increased consistently from 13% in 2003 to 16.3% in 2008 and further increased to 19.5% in 2014 (see Figure 3).

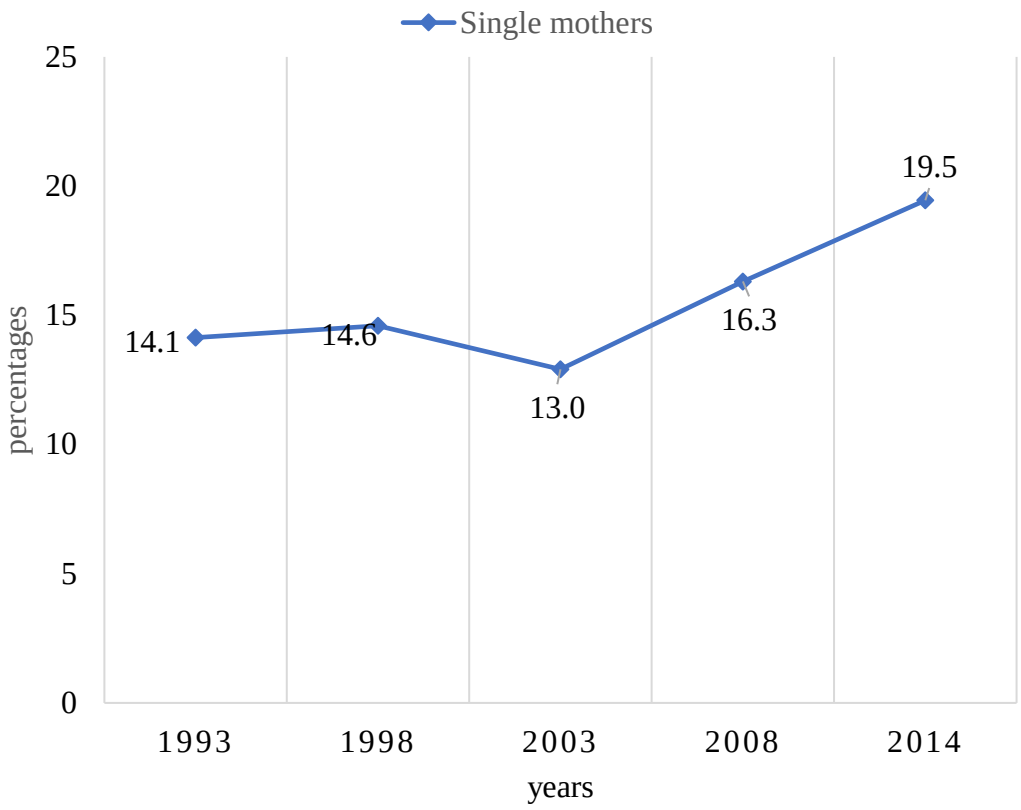

Figure 3: Trends of single motherhood in Ghana, 1993-2014.
Source: Computed from GDHS 1993, 1998, 2003, 2008 and 2014

Figure 4 shows the percentage contributions of the various pathways to single motherhood from 1993-2014. In 1993, divorce rate was the major cause of single motherhood in the country which stood at 47.5%, followed by separation (24.3%), widowed (14.5) and never married mothers. However, the contribution of divorce rate to single motherhood declined sharply to 36.2%, equating to the percentage contribution of separation (36.3%), with never married still being the least among the pathways in 1998. The contribution of divorce rate to single motherhood continuously declined throughout the various waves, which now placed as the least among the various pathways (15.1%) in 2014.

However, the contribution of never married to single motherhood increased abruptly from 13.3% in 1998 to 22.57% in 2003 and then further

took over as the major pathway to single motherhood in 2008 and 2014, with 34.7% and 39.1% respectively. The contribution of widowhood to single motherhood has been relatively low throughout the various waves, from 14.5% in 1993 to 17.3% in 2014 (see Figure 4).

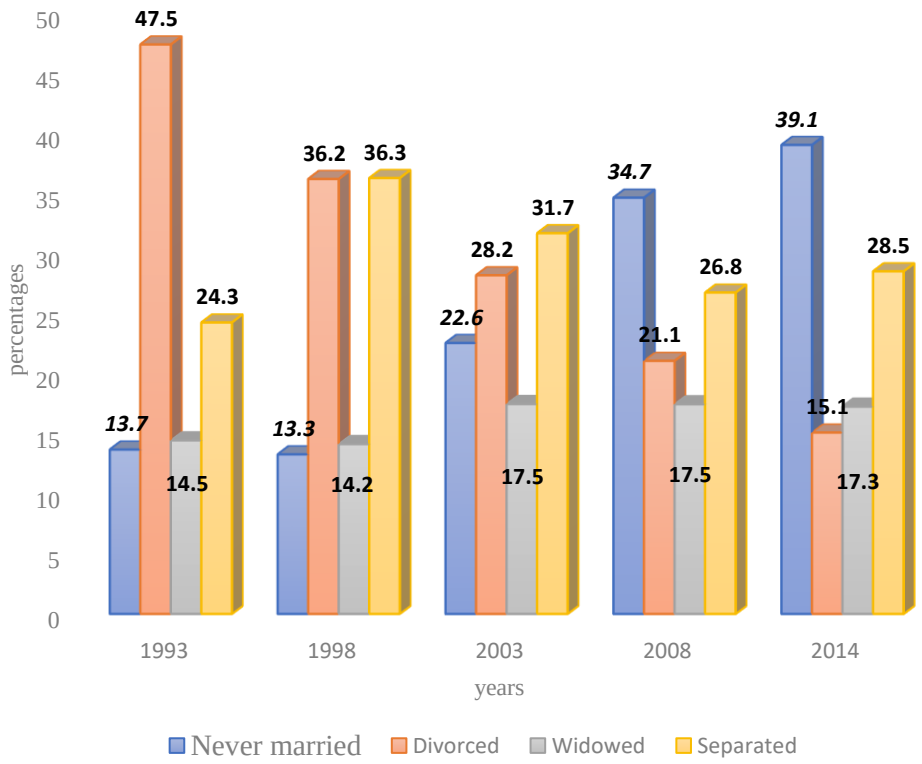

Figure 4: Percentage distribution of pathways to single motherhood, 1993-2014.
Source: Computed from GDHS 1993, 1998, 2003, 2008 and 2014

Binary Logistic Regression of Socio-economic and Demographic Correlates of Single Motherhood

To examine the predictors of single motherhood, two sequential models were run and the results are presented in Table 4. The Akaike's information criterion values for the two models considered in the analysis were Model 1: 13544.6, Model II: 13264.1. The Pseudo R^2 for Models 1 & 2 was 0.1100 and 0.1314 respectively. The results indicate in Model 2 that a

combination of both individual and contextual factors as captured in the conceptual framework best predicts single motherhood after controlling for the effects of differences in survey years as portrayed by comparing the Akaike's information criterion values for both models.

The results of the final model revealed that, compared to younger mothers within the ages 15-19 years, the likelihood of a woman becoming a single mother declined with an increasing age. Thus, the likelihood of single motherhood decreased by 46% and 32% at the age of 20-24 and 35-39 respectively compared to younger mothers within the ages 15-19 years.

It was observed that women with some levels of education were more likely to be single mothers [primary: OR= 1.54; 95% CI=1.37, 1.74; secondary and above: OR=1.59; 95% CI=1.42, 1.80] compared to women with no education. The findings also showed that women who work are less likely to be single mothers compared to their unemployed counterparts. Specifically, women who occupied the professional, sales and agricultural sectors were 34%, 14% and 33% less likely to be single mothers compared to non-working women.

Single motherhood was significantly less likely associated with older (25 years and above) age at first sex and age at first birth compared to women who had their first sex and birth at less than 15 years old. The likelihood of single motherhood declined as age at first sex [OR=0.60; 95% CI=0.50, 0.73] and first birth [OR=0.43; CI=0.32, 0.58] were 25 years and above.

It is observed that the likelihood of a woman becoming a single mother is positively associated with an increasing age of her children. Compared to women with children less than 5 years old, the likelihood of being a single

mother is 3.05 times higher in mothers with children aged 15 years and older. The likelihood of single motherhood decreases with an increasing number of children that a woman has. For instance, compared with women with one child, the likelihood of single motherhood decreased by 57%, 74% and 79% among women with 2, 3 and 4 or more children respectively (see Table 3).

With reference to wealth status, it was observed that richer [OR=0.80; 95% CI=0.69, 0.94] and richest [OR=0.47; 95% CI=0.47, 0.68] women were less likely to be single mothers than poorest women. The results suggest that women in the urban areas were more likely to be single mothers compared to women who reside in the rural areas [OR=1.17; 95% CI=1.05, 1.31].

It is worthy to note that there was a significant relationship between single motherhood and women's affiliation to the Islamic religion. It was less likely for women who profess Islam to be single mothers, compared to women who had no religious affiliation [OR=0.60; 95% CI=0.47, 0.75]. The likelihood of single motherhood was varied by region. For instance, women from the Northern, Upper East and Upper West Regions were 58%, 41% and 45% respectively less likely to be single mothers compared to the reference category (Western Region).

Table 4: Binary Logistic Regression on Socioeconomic and Demographic Correlates of Single Motherhood

Correlates	Model I		Model II	
	OR	95% CI	OR	95% CI
Age group				
15-19	Ref		Ref	
20-24	0.54***	[0.45,0.66]	0.56***	[0.46.0.68]
25-29	0.47***	[0.38,0.59]	0.50***	[0.40,0.63]
30-34	0.60***	[0.46,0.77]	0.65**	[0.50,0.84]
35-39	0.68**	[0.51,0.91]	0.74*	[0.55,0.99]
40-44	0.76	[0.56,1.05]	0.83	[0.60,1.15]
45-49	0.98	[0.69,1.38]	1.11	[0.77,1.56]
Highest Education level				
No education	Ref		Ref	
Primary	1.54***	[1.37,1.74]	1.22**	[1.07,1.40]
Secondary and above	1.59***	[1.42,1.80]	1.23**	[1.07,1.41]
Occupation				
Not working	Ref		Ref	
Professional	0.60***	[0.47,0.78]	0.66**	[0.51,0.86]
Sales/service	0.88	[0.77,1.01]	0.86**	[0.75,0.98]
Agricultural worker	0.68***	[0.59,0.79]	0.67***	[0.57,0.76]
Skilled/unskilled	0.84*	[0.72,0.99]	0.83**	[0.70,0.98]
Age at 1st sex				
<15	Ref		Ref	
15-19	0.85*	[0.72,0.99]	0.99	[0.76,1.06]
20-24	0.93	[0.75,1.14]	1.02	[0.82,1.26]
25 +	0.55***	[0.46,0.65]	0.60***	[0.50,0.73]
Age at first birth				
<15	Ref		Ref	
15-19	0.86	[0.68,1.09]	0.87	[0.69,1.10]
20-24	0.65**	[0.51, 0.83]	0.66**	[0.51,0.85]
25+	0.44***	[0.33,0.59]	0.43***	[0.32,0.58]
Current age of child				
<5	Ref	Ref		
5-9	2.46***	[2.16,2.79]	2.40***	[2.11,2.73]
10-14	2.81***	[2.34,3.37]	2.71***	[2.25,3.25]
15+	3.05***	[2.33,3.99]	2.91***	[2.22,3.83]
# Living children				
1	Ref	Ref		
2	0.46***	[0.40,0.53]	0.43***	[0.38,0.50]

Table 4 continued.

3	0.28***	[0.24,0.33]	0.26***	[0.22,0.31]
4+	0.24***	[0.20,0.29]	0.21***	[0.17,0.25]
Wealth index				
Poorest			Ref	
Poorer			1.11	[0.96,1.29]
Middle			1.12	[0.97,1.29]
Richer			0.80**	[0.69,0.94]
Richest			0.57***	[0.47,0.68]
Religion				
No religion			Ref	
Orthodox/Protestant			0.93	[0.77,1.13]
Other Christians			0.95	[0.77,1.17]
Islam			0.60***	[0.47,0.75]
Other religion			0.92	[0.67,1.25]
Type of place of residence				
Rural			Ref	
Urban			1.17**	[1.05,1.31]
Region				
Western			Ref	
Central			0.93	[0.77,1.12]
Greater Accra			0.86	[0.71,1.03]
Volta			0.62***	[0.51,0.76]
Eastern			0.84	[0.70,1.01]
Ashanti			0.92	[0.78,1.09]
Brong-Ahafo			0.74**	[0.61,0.90]
Northern			0.42***	[0.33,0.55]
Upper East			0.59***	[0.47,0.74]
Upper West			0.55***	[0.43,0.70]
Years of survey				
1993			Ref	
1998			0.94	[0.79,1.11]
2003			0.84*	[0.71,1.00]
2008			1.02	[0.87,1.20]
2014			1.41***	[1.22,1.63]
Constant	0.75	[0.55,1.00]	1.20	[0.82,1.75]
Model fitness				
Prob >chi2		<0.001		<0.001
AIC		13544.6		13264.1
Pseudo R^2		0.1100		0.1314
Sample size		18,065		18,065

***p<0.001, **p<0.01, *p<0.05;
Note: Ref= (reference category); AIC= (Akaike's information criterion)
Model I: introduced only individual level factors
Model II: adjusted for both individual and contextual level factors and the year the DHS was conducted.

Binary Logistic Regression Analysis on the Association between Kinship Affiliation and Single Motherhood

Table 5 presents the results obtained from the binary logistic regression analysis on the association between kinship affiliation and single motherhood. Three sequential models were run: Model I is bivariate, with the other models (Models II & III) being multivariate. The Pseudo R^2 values for the three models considered were Model 1- 0.0132, Model II 0.1141 and model III 0.1318, with respective Akaike's information criterion 14965.84, 13483.25 and 13259.31. The results, indicate that controlling for both individual and contextual factors, Model III is the best model to explain the connection between kinship affiliation and single motherhood.

In the bivariate analysis, kinship affiliation was significantly associated with single motherhood. The likelihood of single motherhood was 1.8 times higher among women with matrilineal descent compared to women with patrilineage. In Model 2, the association between kinship affiliation and single motherhood was still significant after controlling for some individual level factors such as age, education, occupation, age at first sex and birth, number of living children and current age of a child. Women with matrilineage were more likely to be single mothers compared to their counterparts with patrilineage [OR=1.46; 95% CI=1.32, 1.60]. The significant association between kinship affiliation and single motherhood was still maintained in the full model after controlling for both individual and contextual factors such as wealth, religion, region and residence, and the effects of differences in survey years. The likelihood of single motherhood among women with matrilineage was 17% higher, compared to patrilineage women.

The results have demonstrated the significance of socio-economic and demographic factors to single motherhood. The study also revealed a strong positive connection between kinship affiliation and single motherhood. The next section of this chapter discusses the key findings in relation to the theoretical perspective and empirical evidence discussed.

Table 5: Binary Logistic Regression Analysis on the Association Between Kinship Affiliation and Single Motherhood

Correlates	Model I		Model II		Model III	
	OR	95% CI	OR	95% CI	OR	95% CI
Kinship affiliation						
Patrilineal	Ref		Ref		Ref	
Matrilineal	1.81***	[1.67,1.97]	1.46***	[1.32,1.60]	1.17**	[1.04,1.33]
Age group						
15-19			Ref		Ref	
20-24			0.54***	[0.44,0.66]	0.56***	[0.45,0.68]
25-29			0.46***	[0.37,0.58]	0.49***	[0.39,0.62]
30-34			0.59***	[0.46,0.76]	0.64**	[0.49,0.83]
35-39			0.67**	[0.50,0.89]	0.73*	[0.55,0.98]
40-44			0.75	[0.55,1.03]	0.82	[0.59,1.13]
45-49			0.97	[0.69,1.38]	1.10	[0.76,1.54]
Highest Education level						
No education			Ref		Ref	
Primary			1.38***	[1.22,1.57]	1.20**	[1.05,1.37]
Secondary and above			1.38***	[1.22,1.57]	1.19*	[1.04,1.37]
Occupation						
Not working			Ref		Ref	
Professional			0.62***	[0.48,0.79]	0.67**	[0.52,0.86]

Table 5 continued.

Sales/service	0.87*	[0.76,0.99]	0.86*	[0.75,0.98]
Agricultural worker	0.67***	[0.58,0.77]	0.67***	[0.57,0.77]
Skilled/unskilled	0.86	[0.73,1.01]	0.84*	[0.71,0.99]
Age at 1st sex				
<15	Ref		Ref	
15-19	0.85*	[0.72,0.99]	0.90	[0.76,1.01]
20-24	0.95	[0.77,1.17]	1.02	[0.82,1.26]
25 +	0.57***	[0.48,0.68]	0.61***	[0.50,0.73]
Age at first birth				
<15	Ref		Ref	
15-19	0.87	[0.69,1.09]	0.87	[0.69,1.11]
20-24	0.66**	[0.52,0.85]	0.66**	[0.52,0.85]
25+	0.45***	[0.33,0.60]	0.43***	[0.32,0.58]
Current age of child				
<5	Ref		Ref	
5-9	2.46***	[2.16,2.79]	2.40***	[2.11,2.73]
10-14	2.76***	[2.31,3.31]	2.70***	[2.25,3.25]
15+	3.02***	[2.31,3.96]	2.92***	[2.22,3.83]
# Living children				
1	Ref		Ref	
2	0.46***	[0.40,0.52]	0.43***	[0.38,0.50]
3	0.28***	[0.23,0.33]	0.26***	[0.22,0.31]

Table 5 continued.

4+	0.23***	[0.19,0.28]	0.21***	[0.17,0.25]
Wealth index				
Poorest			Ref	
Poorer			1.11	[0.96,1.28]
Middle			1.11	[0.96,1.28]
Richer			0.80**	[0.68,0.94]
Richest			0.56***	[0.47,0.67]
Religion				
No religion			Ref	
Orthodox/Protestant			0.92	[0.76,1.12]
Other Christians			0.93	[0.76,1.15]
Islam			0.62***	[0.49,0.78]
Other religion			0.92	[0.68,1.25]
Type of place of residence				
Rural			Ref	
Urban			1.17**	[1.05,1.31]
Region				
Western			Ref	
Central			0.92	[0.76,1.11]
Greater Accra			0.93	[0.76,1.13]
Volta			0.71**	[0.57,0.88]
Eastern			0.87	[0.72,1.05]

Table 5 continued.

Ashanti					0.92	[0.78,1.09]
Brong-Ahafo					0.75**	[0.62,0.91]
Northern					0.46***	[0.35,0.60]
Upper East					0.66**	[0.51,0.84]
Upper West					0.61***	[0.48,0.79]
Years of survey						
1993					Ref	
1998					0.94	[0.80,1.12]
2003					0.85	[0.72,1.01]
2008					1.03	[0.88,1.22]
2014					1.43***	[1.24,1.65]
Constant	0.13***	[0.12,0.14]	0.69*	[0.51,0.93]	1.07	[0.73,1.58]
Model fitness						
Prob >chi2	<0.001		<0.001		<0.001	
AIC	14965.84		13483.25		13259.31	
Pseudo R^2	0.0132		0.1141		0.1318	
Sample size	18,065		18,065		18,065	

***p<0.001, **p<0.01, *p<0.05

OR=odds ratio; Model I: the baseline model with only the variable of interest; Model II: controlled for only individual-level factors Model III: controlled for both individual and contextual level factors and the year the DHS was conducted.

Discussion

With the rapid transformation of family structure in both developing and advanced countries, social response to improving welfare of single mothers and their children has become an important concern to researchers and policy makers as this phenomenon has major implications for many kinds of family behaviour. In this study, pooled data from the second round (1993) to the recent GDHS (2014) are used to examine the trends and predictors of single motherhood in Ghana, with emphasis on socio-economic and demographic factors, and kinship. Overall, 16% of the mothers were identified as single. Out of this, a considerable number (19.6%) of single mothers shared matrilineal ties and 12.5% were patrilineal.

Generally, the evidence points to the rejection of the two null hypotheses. Indeed, there were significant relationships between socio-economic and demographic characteristics, and single motherhood. There was a significant relationship between kinship affiliation and single motherhood even after controlling for some individual and contextual factors known to influence single motherhood.

The study found a consistent increase in single motherhood in Ghana except 2003 which recorded the least proportion (13%) of single mothers. This may be because of the sharp decline in divorce rate from 47.5% in 1993 to 28.2% in 2003 as the major pathway to single motherhood (see Figure 4). However, the sudden surge of single motherhood again from 2008 after it declined in 2003 may be attributed to the emergence of premarital childbearing as the major pathway to single motherhood, thus, the observed

rapid increase from 22.6% in 2003 to 34.7% and 39.1% in 2008 and 2014 respectively.

Divorce rate was found to be a major pathway to single motherhood in Ghana in the 1990s. However, its contribution continuously declined over the years as premarital childbearing in 2008 and 2014 emerged strongly. This finding confirms the works of Clark and Brauner-Otto (2015) who observed a declining rate of divorce in Ghana. There are several possible reasons that could explain the declining contribution of divorce rate to single motherhood. Among them is the improvement in age at first marriage (GSS, 2015) which may account for the declining rate of divorce in Ghana, hence a decline in its contribution to single motherhood.

Several existing empirical evidence demonstrate that divorce rate is over-represented among women who marry at a younger age (Dagnew *et al*., 2020; Erulkar, 2013; Santhya *et al*., 2010). However, this demographic change in increasing age at first marriage comes with some indirect effect on family structure. Evidence shows that increasing age at first marriage than first sexual debut has increased the duration at which women are at a higher risk of premarital childbearing and unintended pregnancies across countries (Okigbo & Speizer, 2015; Reda & Lindstrom, 2014; Soura *et al*., 2018), hence, increasing the rate of premarital childbearing (Nyarko & Potter, 2021) and its contribution to single mother families. Another plausible cause of increasing single mother families may be attributed to emerging cultural changes to accepting pre-marital birth compared to the days when it's prohibited and punished if a girl became pregnant before marriage – puberty rites (Schmitz & Tebb, as cited in Moyo & Kawewe, 2009). In the past, premarital virginity

was an essential condition for giving a young woman's hand in marriage, however, this seems to be disappearing, and hence with the great prospects to contribute to the increasing rate of single mother families in the country. The finding which depicts premarital childbearing as the leading pathway to single motherhood is in line with current findings in both advanced and developing countries (Odigmewu *et al*., 2017; Livingston, 2018; Lamidi *et al*., 2019).

To an extent, the study suggests that the likelihood of a woman being a single mother declines with an increasing age. This confirms the studies of Clark and Hamplova (2013), and Muthuri *et al*. (2016). A plausible explanation is that increasing age increases the risk of women getting married, hence bearing and/or raising children within marriage/union or the likelihood of a single mother to (re)enter a stable relationship.

Women with some levels of education were found to be more likely to be single mothers compared to women with no education. This finding is consistent with the work of Odigmewu, Mutanda and Mbanefo (2017) who observed that educated mothers were more likely to be single mothers compared to uneducated mothers in Gabon. However, some existing evidence from both advanced and developing countries (Harkonen, 2017; Manning & Brown, 2014; Perelli-Harris *et al*., 2010) contradict with the finding of this study. For instance, Harkonen (2017) observed in 33 North American, Asian, and European countries that a major increase in the number of single mothers largely occurred among low- and middle-educated women. Perhaps, the observed association between higher educational levels and the higher likelihood of single motherhood may be due to the fact that higher levels of education wield women with some level of autonomy which is more likely to

break them loose of an oppressed marriage/union (Takyi & Broughton, 2006) hence increasing the likelihood of single motherhood among this group.

Mothers who were employed in the professional, sales and agricultural sectors were less likely to be single mothers compared to their counterparts who were not working. This finding corroborates the findings of Odigmewu, Mutanda and Mbanefo (2017) who observed a higher percentage of single mothers who were unemployed in countries like Namibia, Swaziland, and Gabon. Perhaps, this could be that in some instances, single mothers must forgo some economic activities to offer the needed care for their young babies. Also, studies have established that single mothers are over-represented among the uneducated (Harkonen, 2017; Manning & Brown, 2014; Nyarko & Potter, 2021) which may indicate their lack of the requisite knowledge and technical skills needed in the job market, especially in the formal sector. Consequently, they stay in relationships/marriages even under provocative circumstances, including intimate partner violence. For such women, staying in marriage at all costs is better economic and social alternative to single motherhood with its attendant economic constraints.

The finding that single motherhood was significantly less likely associated with older (25 years and above) ages at first sex and age at first birth compared to women who had their first sex and birth at less than 15 years old are not surprising, as it is consistent with normative and empirical evidence. Muthuri *et al*. (2016) found that women who had their first birth at older ages were less likely to be single mothers in Kenya. However, about the connection between age at first sex and single motherhood, the finding shows contradictory evidence compared to Odigmewu, Mutanda and Mbanefo (2017)

who found a positive association between age at first sex and single motherhood in Namibia. The inverse relationship found between older age at first sex and age at first birth, and single motherhood may be attributed to the fact that a higher risk of single motherhood because of unintended pregnancy and premarital birth may be minified with an increasing age at first sex and birth.

It was also noted that the likelihood of a woman becoming a single mother is positively associated with an increasing age of her children. Compared to women with children less than 5 years old, the likelihood of being a single mother is higher in mothers with children aged 15 years and older. This finding affirms the works of Xu *et al*. (2015) in China. Their study revealed that couples with younger children are less likely to divorce. The view is that the presence of younger children in a relationship offers a greater protective effect on the stability of the relation. One possible explanation for my finding could be because of lesser financial burden associated with raising older children compared to younger ones. Thus, raising older children could offer some form of financial autonomy to mothers as older children could take up some economic roles to support the household. Then, also, compared to younger children, older children may be more likely to live on their own or with the father after marital dissolution.

The study also revealed that the likelihood of single motherhood decreases with an increasing number of children that a woman has. Odigmewu, Mutanda and Mbanefo (2017) made similar findings when they reported a significant inverse relationship existed between the number of living children that a woman has and the likelihood of single motherhood. A

similar result was seen by Xu, Yu and Qiu (2015) in their study that assessed the impact of children on divorce risk in China based on the Chinese Family Panel study, 2010. They observed that the risk of divorce significantly declines with an increasing number of children a couple has. The possible explanation for this result may be inherent in the varied socio-cultural and financial obligations associated with raising children alone which may serve as disincentive to mothers to opt for either divorce or separation even if they desire to do so due to some oppressing circumstances.

Differences in wealth status appeared to be particularly strong, with richer and richest women less likely to be single mothers than poorest women. Theoretically, this finding contrasts with the economic independence hypothesis which asserts that improvements in women's economic status have the tendency to promote marital dissolution which is more likely to fuel the extent of single motherhood. Nonetheless, my findings are consistent with some previous evidence (Odigmewu *et al*., 2017; Jodal *et al*., 2013; Nyarko & Potter, 2021). For instance, Odigmewu, Mutanda and Mbanefo (2017) observed a higher likelihood of single motherhood among women with lower economic status than higher economic status in Congo Brazzaville and Swaziland. Nyarko and Potter (2021) proffer a possible pathway to this finding; women from affluent households appear considerably less likely to have children out of wedlock compared to women from poor households. As depicted by the findings of this study, single mothers are over-represented among women with lower wealth status. This could be that women's education is more likely to be truncated due to teenage pregnancy or unintended pregnancy which may have long-term effects on their

developmental capacity regarding the acquisition of the required skills and knowledge to be gainfully employed to boost their wealth status. Also, it could be that due to high responsibilities associated with child upbringing, a single mother may have to forgo some personal development skills and jobs to invest more of their productive time in raising their children, which may affect their economic development. In contrast to the finding of this study, Muthuri *et al*. (2016) found that single mothers were highly represented among women with higher economic status in Kenya. Indeed, it has been demonstrated in this study that in contrast to the economic independence hypothesis, women with lower economic status were more likely to be single mothers compared to those with higher economic status.

The rural-urban dichotomy also played an important role in predicting single motherhood, with women in the urban areas more likely to be single mothers compared to women who reside in the rural areas. In Kenya, Muthuri *et al*. (2016) found that women living in rural areas were less likely to be single mothers compared to their urban counterparts. These findings are, however, contrary to Odigmewu, Mutanda and Mbanefo (2017). The possible explanation for the result may be that women who reside in rural areas are more likely to marry at a younger age compared to their counterparts in urban areas, who marry about 3.5 years later than rural women (see, Ghana Statistical Service (GSS), Ghana Health Service (GHS), and ICF International, 2015). Thus, women in rural settings are more likely to give birth within marriage/union. Accordingly, the risk of premarital childbearing among mothers in rural settings is expected to be lower compared to their counterparts in the urban setting. The mixed results may be due to the

differential national contextual factors in countries. Hence, further studies are needed to explore deeply into contextual factors that can explain these contextual variations.

Religious variations also featured as an important determinant of single motherhood. Women who profess Islam were less likely to be single mothers compared to women who had no religious affiliation. This finding corroborates the results of some existing literature (Addai, 2000; Jones, 2000). Jones (2000) observed that divorce customs and laws serve as a deterrent to perpetual divorce rates due to rigorous religious practices in Islamic religion. Hence, the observed significantly inverse relationship between women who profess Islamic religion and single motherhood may be partly explained due to the possibility of a lower contribution of divorce rates to single motherhood among Muslim mothers compared to mothers with no religious affiliation. Also, another possible explanation for the less likelihood of single motherhood among Muslim women compared to women with no religious affiliation may be the lower rate of premarital sex among Muslim women compared to women with no religious affiliation as observed by Addai (2000). Thus, compared to women with no religious affiliation, a lower prevalence of premarital sex among Muslim women is more likely to reduce their risk of premarital childbearing which emerged as the major pathway to single motherhood.

The study also revealed varying regional differences in predicting the likelihood of a woman being a single mother. Compared to women from the Western Region, women from the Northern, Upper East and Upper West Regions were less likely to be single mothers. This finding could be attributed

to the fact that, compared to Western Region, Northern, Upper East and Upper West Regions have a lower median age at first marriage (GSS, 2015), and this could indicate that childbearing is more likely to occur in marriage in Northern, Upper East and Upper West Regions than Western Region, hence, the lower likelihood of single motherhood in those respective regions. The finding is partly in line with the works of Nyarko and Potter (2021) who observed lower childbearing risks of non-marital births in Upper West Region.

Another interesting observation from this study concerns the significant influence of kinship affiliation on single motherhood. In addition to the commonly used socio-economic and demographic determinants of single motherhood, our African data also show that our kinship systems practised may be relevant to our understanding of motherhood decisions and outcomes. Overall, the findings from the study suggest that women with matrilineage were more likely to be single mothers compared to their counterparts with patrilineage. Controlling for the effect of socio-economic and demographic variables known to influence motherhood outcomes did not do away the effect of kinship affiliation on single motherhood. This finding partly confirms the works of Takyi and Gyimah (2007) who observed that the likelihood of divorce is higher among women with matrilineal origin compared to those with non-matrilineage. Also, in assessing the differences in divorce trends between the matrilineal Akan ethnic groups and the patrilineal non-Akan ethnic groups in Ghana, Clark, and Brauner-Otto (2015) found strong evidence that divorce is higher among the matrilineal Akan.

The observed evidence points to the rejection of the null hypothesis that there is no statistically significant relationship between kinship affiliation and the likelihood of a woman becoming a single mother. The observed association between kinship affiliation and single motherhood may be explained partly due to variations in some inherent cultural norms and practices that may subtly promote or inhibit an aspect of the various pathways to single motherhood such as premarital childbearing, divorce, or separation. Several studies affirm that sociocultural differences resulting from differences in ethnicity between individuals could influence perceptions, beliefs, attitudes, and practices towards issues related to sexual and reproductive health behaviour (Okonta, 2007; Ikamari, 2008; Garenne & Zwang, 2008) including premarital birth. Another possible explanation for the observed association between kinship affiliation and single motherhood may be in line with the observation made by Takyi and Gyimah (2007) that women from matrilineal societies enjoy some level of autonomy and support from their kin compared to their counterparts from patrilineal origin, which in effect may weaken the conjugal bond leading to divorce, thereby, fuelling the contribution of divorce to single motherhood among women with matrilineage compared to their non-matrilineage counterparts.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Single motherhood remains one of the key concerns to public health due to its associated consequences on cognitive, emotional, and social health of children (Amato, 2005; Kim, 2011), and poor economic outcomes on both single mothers and their children (Thomas & McLanahan, 2012). Amidst these range of consequences lies in lack of adequate social and welfare programmes or policies critical to protect single mothers and their children. This study was undertaken to analyse the trends and levels in single motherhood in Ghana from 1993 to 2014, examine socioeconomic and demographic predictors of single motherhood, and finally, ascertain the connection between kinship affiliation and single motherhood in Ghana.

Three key theoretical perspectives (Becker's economic theory and independent hypothesis; and social ecological system theory) were synthesised to broaden the outlook of the study and this resulted in the use of the positivist philosophy, where quantitative techniques were legitimate in this study. Both descriptive and inferential statistics were employed to examine the set objectives of the study. In this chapter, highlights of key findings, conclusion, recommendations, and suggestions for further studies are presented.

Summary of Key Findings

The study used data from the last five rounds of the Ghana Demographic and Health Survey (GDHS), thus 1993, 1998, 2003, 2008 and 2104. The target population was women with ages between 15 and 49 years who had their child(ren) living with them. A total number of 18, 0652 of the

mothers were living with their children. Using pooled dataset from the GDHS, evidence shows a consistent increase in the proportion of single motherhood in Ghana. In the descriptive analysis, the findings revealed divorce rate as the major pathway to single motherhood in the 1990s in a declining rate. However, premarital childbearing was identified as the current major pathway to single motherhood in Ghana, which is consistent with existing literature (Nyarko & Potter, 2021). Overall, 16% of the respondents were single mothers. Single motherhood increased from 14.1% in 1993 to 19.5% in 2014. A major proportion of single mothers were identified to be affiliated to the matrilineal ties.

Generally, the evidence points to the rejection of the two null hypotheses. Indeed, there were statistically significant relationships between socio-economic and demographic characteristics, and single motherhood, and kinship affiliation and single motherhood.

In examining the socio-economic and demographic correlates of single motherhood, the study identified some covariates such as age, level of education, occupation, age at first sex and birth, current age of children, number of living children, wealth status, religion, place of residence and region as significant determinants of single motherhood.

The findings revealed a declining likelihood of single motherhood with an increasing age of women. Women with some levels of education were found to be more likely to be single mothers compared to women with no education. The study found that mothers who were employed in the professional, sales and agricultural sectors were less likely to be single mothers compared to their counterparts who were not working.

The results show that single motherhood was significantly less likely associated with older (25 years and above) age at first sex and age at first birth compared to women who had their first sex and birth at less than 15 years

It was observed that the likelihood of a woman becoming a single mother is positively associated with an increasing age of her children. Compared to women with children less than 5 years old, the likelihood of being a single mother is higher in mothers with children aged 15 years and older.

The study also revealed that the likelihood of single motherhood decreases with an increasing number of children that a woman has. Differences in wealth status appeared to be particularly strong, with richer and richest women less likely to be single mothers than poorest women.

The rural-urban dichotomy also played an important role in predicting single motherhood, with women in the urban areas more likely to be single mothers compared to women who reside in the rural areas.

Religious variations also featured as an important determinant of single motherhood. Women who profess Islam were less likely to be single mothers compared to women who had no religious affiliation.

The study also revealed varying regional differences in predicting the likelihood of a woman being a single mother. Compared to women from the Western Region, women from the Northern, Upper East and Upper West Regions were less likely to be single mothers.

In addition to the commonly used socio-economic and demographic determinants of single motherhood, another interesting observation from this study concerns the significant influence of kinship affiliation on single

motherhood. Overall, the findings from the study suggest that women with matrilineage were more likely to be single mothers compared to their counterparts with patrilineage. Controlling for the effect of socio-economic and demographic variables known to influence motherhood outcome did not fade away the effect of kinship affiliation on single motherhood.

Conclusions

The close universality of marriage in Africa attests to the value Africans place on childbearing within marriage, yet there are indications that increasing number of women are giving birth and raising children outside marriage, much like reports concerning single motherhood in the Western world. Although reference is usually made to some common conventional socio-economic and demographic factors as important determinants of single motherhood in the region, the relevance of cultural factors (particularly kinship system) has not been echoed. Unfortunately, no quantitative analysis has been undertaken to examine the connection between kinship systems and single motherhood. Against this backdrop, I used nationally representative data from the GDHS, which has a strong matrilineal tradition, to test the role of a cultural variable, manifested in kinship systems, on the likelihood of single motherhood.

The proportion of single motherhood continues to increase rapidly in Ghana over the period 1993-2014. Although the contribution of divorce rates which used to be the major pathway to single motherhood has been tremendously declining over the years, recently, premarital childbearing has emerged as the major pathway to single motherhood. Available evidence

suggests the importance of socio-economic and demographic factors in predicting single motherhood.

Findings from this study show the relevance of individual level factors such as age, educational level, occupation, age at first sex, age at first birth, number living children, current age of child, contraceptive use, as well as contextual factors (wealth index, religion, region and residence) in predicting single motherhood.

The study further underscores the importance of kinship affiliation in predicting single motherhood. After controlling for some individual and contextual factors known to influence single motherhood, kinship affiliation (which was used as a proxy for measuring cultural norms and practices) was significant in predicting the outcome. In arguing that cultural norms and practices are pertinent for our understanding of motherhood outcomes in Ghana, I suggest that, in addition to the widely reported covariates associated with structural changes, researchers and decision-makers need to consider the cultural influences that could confound motherhood decisions and outcomes in other regions where kinship systems are salient in everyday discourse to address the menace of single motherhood and its associated effects.

Recommendations

1. Government's social intervention programmes such as the Livelihood Empowerment against Poverty should target single mothers and their children to empower them financially since this family structure is overrepresented among the economically poor.
2. The Ministry of Education and Ghana Health Service should strengthen the existing intervention and campaign on Girl Child

Education and Adolescent Sexual and Reproductive Health education to ensure a delay in sexual debut and early childbearing in other to mitigate single motherhood associated with premarital childbearing.

3. Traditional and religious leaders must actively be involved in programmes and intervention responding to single motherhood since cultural norms and religious beliefs play a critical role in predicting single motherhood.

Reflection on Conceptual Framework

The elements of the conceptual framework applied to this study are the economic independent hypothesis and the social ecological system theory. Overall, there was a good fit between the research objectives and the conceptual framework that guided this study. The conceptual framework was clarified through an analysis of the socio-economic and demographic factors which were captured as individual and contextual factors based on the social ecological system theory. The analysis of the socio-economic and demographic factors demonstrates a significant association with the outcome. The analysis also demonstrates the strength in combining both individual and contextual factors in predicting single motherhood as captured in the framework. Premarital childbearing emerged as the major pathway through which the various individual and contextual factors interplay in predicting single motherhood. Under the contextual factors, kinship affiliation emerged as an important determinant of single motherhood.

Contribution to Knowledge

To the best of my knowledge, this study is the first study that have examined trends and predictors of single motherhood in the country based on a

nationally representative data (GDHS). It therefore provides other researchers with the bases to explore the phenomenon further.

Existing studies on the determinants of single motherhood in sub-Saharan Africa and other parts of the world had largely focused on some common conventional measures such as age, educational level, type of residence, employment, economic status, and age at first marriage and first birth (Odimegwu *et al*., 2017; Clark & Hamplova, 2013; Muthuri *et al*., 2016). This study, therefore, added to the expanding literature on the potential influence of internal and institutional structures such as kinship systems on single motherhood status in the country.

Also, a portion of the thesis has been published in a peer-reviewed journal (Ayebeng, Dickson, Seidu & Amo-Adjei, 2022). Abstract of the published article is attached to appendix 2.

Areas for Further Research

Although this study examined the trends and predictors of single motherhood from 1993 to 2014, a lot more can be done on issues surrounding single motherhood. The following areas may be considered for further research:

1. The life course approach may be adopted in studying the phenomenon to provide an in-depth picture of the trajectory from non-single motherhood to single and vice versa
2. In addition to some common conventional measures, researchers need to consider the cultural influences that could confound motherhood decisions and outcomes in other regions where kinship systems are salient in everyday discourse.

3. Although the data reported here show a strong connection between kinship systems and the outcome, I was unable to test how the various pathways discussed are more relevant in explaining the relatively high single motherhood rates among the matrilineal women. Carefully designed qualitative studies may be used to explore the specific pathways in which matriliny affects motherhood status.

Strengths and Limitations of the Study

Although this study has shed some light on the discourse of single motherhood, in general, and, particularly, the effect of cultural processes on single motherhood in Ghana, I must emphasise that the study is not without limitations. First, although ethnicity was used as a proxy measure of kinship ties, it is a limited measure because mothers who were identified as Akans may not necessarily subscribe to all the tenets of matrilineage. Hence, future studies should focus on specific ways in which mothers deal with the "lineage issue" within their relations. Although, kinship affiliation was found to be relevant variable in predicting single motherhood, causal pathways cannot be established since the study relied on cross-sectional data.

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APPENDICES

Appendix 1: Approval letter from Measure DHS to download dataset

Nov 17, 2020

Castro Ayebeng
University of Cape Coast, Ghana
Ghana
Phone: +2330544395764
Email: castro.ayebeng@stu.ucc.edu.gh
Request Date: 11/17/2020

Dear Castro Ayebeng:

This is to confirm that you are approved to use the following Survey Datasets for your registered research paper titled: "Trends and Predictors of Single Motherhood in Ghana":

Ghana

To access the datasets, please login at: https://www.dhsprogram.com/data/dataset_admin/login_main.cfm. The user name is the registered email address, and the password is the one selected during registration.

The IRB-approved procedures for DHS public-use datasets do not in any way allow respondents, households, or sample communities to be identified. There are no names of individuals or household addresses in the data files. The geographic identifiers only go down to the regional level (where regions are typically very large geographical areas encompassing several states/provinces). Each enumeration area (Primary Sampling Unit) has a PSU number in the data file, but the PSU numbers do not have any labels to indicate their names or locations. In surveys that collect GIS coordinates in the field, the coordinates are only for the enumeration area (EA) as a whole, and not for individual households, and the measured coordinates are randomly displaced within a large geographic area so that specific enumeration areas cannot be identified.

The DHS Data may be used only for the purpose of statistical reporting and analysis, and only for your registered research. To use the data for another purpose, a new research project must be registered. All DHS data should be treated as confidential, and no effort should be made to identify any household or individual respondent interviewed in the survey. Please reference the complete terms of use at: https://dhsprogram.com/Data/terms-of-use.cfm.

The data must not be passed on to other researchers without the written consent of DHS. However, if you have coresearchers registered in your account for this research paper, you are authorized to share the data with them. All data users are required to submit an electronic copy (pdf) of any reports/publications resulting from using the DHS data files to: references@dhsprogram.com.

Sincerely,

Bridgette Wellington

Bridgette Wellington
Data Archivist
The Demographic and Health Surveys (DHS) Program

530 Gaither Road, Suite 500, Rockville, MD 20850 USA +1.301.407.6500 +1.301.407.6501 fax icf.com

Appendix 2: Abstract of a Published Article from the Thesis

Humanities & Social Sciences Communications

ARTICLE

https://doi.org/10.1057/s41599-022-01371-6 OPEN

Single motherhood in Ghana: analysis of trends and predictors using demographic and health survey data

Castro Ayebeng[1✉], Kwamena Sekyi Dickson[1], Abdul-Aziz Seidu[2,3] & Joshua Amo-Adjei[1]

The rising rate of single-mother families has gained scholarly and policy attention. Understanding the dynamics in the socio-economic and demographic transformations that have led to the relatively high single-mother families in Ghana is important to advance policy and intervention to mitigate adverse effects of single motherhood. The study sought to examine the trends and predictors of single motherhood in Ghana from 1993 to 2014. This paper was based on data from the last five waves of the Ghana Demographic and Health Survey. Descriptive statistics of proportions with Chi-square test and binary logistic regression were used to assess individual and contextual factors associated with single motherhood in Ghana. The proportion of single motherhood increased significantly over the period from 14.1% in 1993 to 19.5% in 2014. Premarital birth emerged as the major pathway to single motherhood. Among individual factors, the likelihood of single motherhood declines as age at first sex [OR = 0.58; 95% CI = 0.48,0.70] and first birth [OR = 0.43; CI = 0.32,0.59] were 25 years and above. Also, Contraceptive users were less likely to be single mothers than non-users. Contextually, women who profess Islam [OR = 0.58; 95% CI = 0.46, 0.74] were less likely to be single mothers than women who had no religious affiliation. We observed that, after accounting some important factors, women with higher economic status—richer [OR = 0.76; 95% CI = 0.59,0.96] and richest [OR = 0.57; 95% CI = 0.31,0.56] were less likely to be single mothers than poorest women. The findings give an impression of single mothers being over-represented among economically poor women. Policies and programmes meant to mitigate adverse effects of single motherhood should also focus on empowering single mothers and their children as a way of alleviating poverty and improve the well-being of children in this family type, as well as enhance Ghana's capacity to attain the Sustainable Development Goal 1, particularly target 1.2.

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