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Momodou S. Jeng

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**DETERMINANTS OF EARLY CHILDBEARING AMONG
YOUNG FEMALE ADULTS IN THE GAMBIA**

by

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**Submitted in Partial fulfilment
of the requirements for degree of
Doctor of Philosophy**

**Faculty of Graduate Studies
The University of Western Ontario
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ABSTRACT

This thesis examines the determinants of childbearing among young Gambian women aged 13 to 24 and ranks the respective components (or groups of variables) in order of importance. An empirical analysis is done using bivariate and multi-variate statistical techniques. Based on these analyses, it is found that the factors of the empirical model (combining the reference group theory and a Bongaarts-type framework) vary in their effect on the fertility of young women. The most important of the socioeconomic, demographic and cultural (SEDC) variables are educational attainment, employment status, looking for work, area of residence, age, number of siblings, rank of siblings, number of desired children, and religion.

However, it is an important finding of this thesis that fertility is higher among young women in urban than non-urban areas in The Gambia. This is in contrast with earlier findings that fertility level tend to be higher in rural than urban areas. Although this finding is unexpected, it is not implausible. It can be attributed to changes in the behavioural and sociocultural profile of young Gambian women, as well as improvements in nutritional levels, better medical and health conditions, and developments in reproductive technology.

Also, it is clear from this thesis that childbearing is influenced by both knowledge of contraception and reproductive health as well as opinions and beliefs about relationships, sex, and marriage. Practices such as the sexual activity of friends and

attendance of educational programmes affect childbearing as well. Yet, these KAP variables can affect fertility only through the proximate determinants which have direct effects.

Except for age at first menstruation which serves as proxy for biological maturity of girls, all of the proximate determinants have been found to be important in predicting early childbearing. As for the outcome of ranking the major components of the model in order of importance, the proximate determinants are found to be more influential than the other major components that indirectly affect early childbearing. Also, the socioeconomic, demographic and cultural (SEDC) variables are more important than those of knowledge, attitude and practice (KAP). The thesis concludes with suggestions for future research and a review of policies and programmes of relevance in The Gambian context.

DEDICATION

This thesis is dedicated to my parents and family for their enthusiastic encouragement and support.

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Chapter 1: Introduction

1.1 The research problem

High fertility in The Gambia is a matter of concern to economic planners, policy makers and international organizations interested in the country's development and economic well-being (United Nations, 1981: 3-10). The fact that a woman in The Gambia will bear, on average, 6.4 children (compared to 1.7 children by a Canadian woman) during her reproductive lifespan has important implications for the health and well-being of the Gambian mother and her children. Such high fertility, which is so common in countries of sub-Saharan Africa, is unsurpassed in any other region of the world today (The World Bank Report, 1992: 270-271).

Concern with high fertility in The Gambia has drawn attention chiefly to that segment of the female population which is most likely to perpetuate the trend in the immediate future, namely, young female adults (Jeng, 1991: 1; The Gambia Family Planning Association, 1988: 1-3). The concern is centred around questions of adolescent sexuality and reproductive behaviours and how these translate into overall fertility. This is because fertility is the most influential demographic component in The Gambia.

Coupled with a steadily declining mortality and only a slightly increasing immigration, fertility has assured a steady and steep rise in the country's population growth over the last two decades (Central Statistics Department, 1988:27-35). Thus it has become important to promote birth control programmes and promote contraceptive use particularly among adolescents whose change in sexual behaviour promises meaningful fertility decline in the future.

Adolescent childbearing in The Gambia is common both within and outside marriage. But there are significant differences in adolescent childbearing according to area of residence. For instance, it is more likely that adolescent motherhood will occur within marriage in rural areas of the country while, in urban and semi-urban locations, it occurs with nearly equal likelihood among married and unmarried adolescents. This is partially related to differential ages at nuptiality according to place of residence. Also variation in timing of first birth affects the level of completed fertility of young female adults in The Gambia with its low levels of contraceptive prevalence (Jeng, 1991:1; The Gambia Family Planning Association, 1988: 1-3) more than it would in those countries with higher contraceptive prevalence.

This thesis examines the determinants of childbearing among young female adults in The Gambia¹. Specifically, it looks at patterns and variations in childbearing among Gambian women aged 13-24. The study is guided by the question of how variables or

¹Childbearing status of young women (i.e. parity 0 or 1+) is used as dependent variable.

groups of variables considered influence the fertility behaviour of young female adults in The Gambia. Answers to this research question are therefore based on the hypotheses that: 1) all of the individual determinants studied are relevant to early childbearing in The Gambia; 2) the group of variables (or major components) considered also have very similar impact on the fertility of young women.

Bongaarts (1978a) identified the proximate (or direct) determinants as the most effective component for predicting fertility. But he did not partial out the joint effects of indirect determinants such as the socioeconomic, demographic and cultural variables (SEDC) from those that are attributed to knowledge, attitudes, and practice (KAP)². Thus it is unclear whether these two components affect the fertility of women equally or not. This thesis attempts to overcome this shortcoming by assessing the order of importance of the major components and by recognizing the fact that SEDC variables do not influence proximate determinants directly but work through KAP variables. In order to rank the indirect components more appropriately, the proximate determinants are included as part of the analytical framework and evaluation process. The effects of each component on fertility can be partitioned only after such a procedure. Further discussion of methodology is in Chapter 3.

²In the demographic literature, KAP is associated with contraception; in this study, we use it to refer to the values and ideals concerning childbearing.

The main significance of this study is that it pioneers an area of crucial importance to the development of The Gambia. Apart from reports of The Gambia Family Planning Association (1988) and Jeng (1991), no other study exists on the fertility behaviour of the country's adolescents and young adults. Fertility data from national censuses are notoriously inadequate for meaningful estimation of demographic events. Moreover, the vital registration systems in Banjul (capital city) and other growth centres are of little value for demographic analyses. Previous efforts to obtain statistical evidence on fertility of young women have been confined to clinic and hospital records whose areas of coverage are restricted to their immediate proximities (Jeng and Thomas, 1985: 4-5). In The Gambia, as in most sub-Saharan countries, a large proportion of births occurs outside health institutions and therefore remains largely unregistered; this aggravates the problem of data availability. This thesis provides the first in-depth analysis of fertility of young women in The Gambia. It will be valuable for evaluating reports and records that might be gathered from institutions that deal with vital records.

The thesis also addresses a common theoretical weakness in most studies dealing with determinants of fertility of young women. Apart from the "reference group theory" which associates the sexual behaviour and childbearing of young women with influence and expectations of interest groups (such as the school, peers, parents, partners, and social clubs), studies of adolescent fertility behaviour and attitudes are rarely adequately grounded on a unified theory before proceeding to verify the validity of their predictions (Chilman, 1978:25). Also, unlike the more conventional "grand theories" of overall

fertility such as the demographic transition, the theoretical propositions on childbearing among adolescents and young female adults also tend to be narrower in focus. This thesis deviates from these tendencies by offering a broader perspective for addressing the problem by linking reference group theory to a Bongaarts-type framework for analyzing early childbearing.

1.2 A brief description of The Gambia

Although the preceding section provided useful information about the objectives of this thesis, it is important to highlight the geographic, economic, demographic and sociocultural background of The Gambia, since these characteristics affect the fertility behaviour of young women in various ways.

The Republic of The Gambia is the smallest country in English-speaking West Africa. It is virtually surrounded by Senegal except on the western side where it overlooks the Atlantic Ocean (see Figure 1). The country's total land area of 10,369 square kilometres (sq. km) was inhabited by an estimated population of 861,000 persons in 1990. This yields a population density of 80 persons per sq. km (United Nations, 1992:165).

Agriculture constitutes the most important occupation of the people, with small scale farming involving approximately 75 percent of the entire population. In fact, agricultural production constitutes 58 percent of the gross domestic product (GDP), out of which 37 percent comes from groundnut cultivation. The groundnut export trade is the backbone of the country's economy and is directly linked with the growth of most of the other sectors of the economy. Other primary economic activities include millet, sorghum, cotton, rice cultivation and fishing. In addition to agriculture, tourism is also a significant contributor to the economy (Jeng, 1991:3).

During the period 1980-1986 the economy of The Gambia grew by 17 percent. Per capita GDP rose to US \$260 during the period which was significantly higher than the estimated US \$200 observed during the drought of 1976 to 1977. The current GDP estimate is US \$300. Rural per capita income is less than half of this amount (Jeng, 1991:3).

Despite the fact that The Gambia has a long history of census taking which began in 1901, the earlier censuses cannot be relied upon as sources of fertility data due to lack of information on age. They are also deficient in terms of country-wide coverage, accuracy and reliability. Their coverage was limited to the capital city of Banjul and its suburbs. The occasional head counts held in rural areas were of relatively little demographic value (Central Statistics Department, 1976:1, Jeng, 1979:4). Even the 1963 census which was the first to be conducted on a country-wide basis had some under-

coverage problems (Central Statistics Department, 1976:67) making its reliability doubtful.

The total population was reported as 315,486 in 1963, but it was argued that "this figure was likely to represent a minimum figure, and that the truth is probably a little higher" (Caldwell, 1975:495). The 1973 and 1983 censuses were more accurate compared to the earlier ones because they conformed to procedures and recommendations of the United Nations.

The reported total population of 1973 census of 493,499 shows an increase of 56 percent over 1963. This translates into an annual growth rate of 2.8 percent over the intercensal period. Almost 2 percent of this growth was attributed to natural increase (Oliver, 1965:22; Central Statistics Department, 1976:61). The population grew by nearly 39 percent between 1973 and 1983, that is, from 493,499 to 687,817 persons (Central Statistics Department, 1988:15).

With respect to fertility, the level has been quite stable in the past two decades. The total fertility rate (TFR) and crude birth rate (CBR) remained at 6.4 children per woman and 49-50 births per thousand persons respectively (Central Statistics Department, 1976:67; Central Statistics Department, 1988:32). It is difficult explain the country's low CBR of 39 to 40 per thousand prior to 1973; but, it can be speculated that differences are

due to improvements in nutritional status, maternal and child health care as well as the quality of data collected over time (Oliver, 1965:22; Caldwell, 1975:498-505).

With the significant intervention of primary health care programmes and the integration of family planning into ongoing maternal and child health projects, mortality has substantially declined during the past decade (Ministry of Health, Labour and Social Welfare, 1985:122-127). While infant mortality has fallen from 217 to 167 per thousand births between 1973 to 1983, both men and women now live beyond 40 years of age, as compared to the low life expectancy of only slightly over 30 years observed in 1973. Also, the crude death rate (CDR) has dropped from 29.0 to 21.2 during the period between 1973 and 1983 (Central Statistics Department, 1976:58-61; Central Statistics Department, 1988:48).

As the social and economic gap between urban and rural areas persists, internal migration has attracted particular attention. The influx of rural migrants into the capital city of Banjul and its suburbs of Kombo St. Mary has lowered the quality of environmental sanitation, housing and other amenities. About half the population now residing in the urban zone are migrants from rural areas. Also, the number of immigrants from neighbouring African countries has been increasing, especially those from Economic Community of West African States (ECOWAS) of Senegal, Guinea Conakry, Guinea Bissau, Mali, Mauritania, Sierra Leone, Liberia and Ghana (Central Statistics Department, 1976:67-69; Central Statistics Department, 1988:49-54).

The profile of The Gambia as outlined above is very similar to that of other West African countries such as Nigeria, Liberia and Sierra Leone. Gyepi-Garbrah (1985a, 1985b, 1985c) has associated the fertility of adolescents and young female adults in these countries to low per capita income and widespread poverty, uncontrolled rural to urban migration, improvements in nutritional status and maternal and child health care. These may also be influential in The Gambia. It is clear, however, that declining maternal and infant and child deaths in The Gambia are the results of improved primary health care. These experiences are also similar to those of Nigeria, Liberia and Sierra Leone and are associated with early childbearing in these countries.

1.3 Organization of the study

This study is organized into five chapters. The theoretical background and literature review are covered in Chapter 2. The first part of this chapter deals with propositions of earlier studies and factors affecting both overall fertility and early childbearing. In the case of overall fertility, an effort has been made to cover the important theoretical perspectives on socioeconomic, cultural, demographic, environmental as well as biological and behavioural determinants of fertility. Included in this preview are: macro theories like the demographic transition which focus on aggregate fertility, especially on the patterns and levels of change; and micro theories like "the value of children" approach concentrating on differences in fertility of individuals. Since most frameworks for analyzing early childbearing tend to be narrowly focused and not

adequately theoretically unified, the perspectives of interest here are those relating to the demographic composition hypothesis, the effects of education and economic background of young people and those of their parents, as well as their biological and behavioural factors; in addition, sociocultural and psychological aspects and the reference group theory are reviewed.

A review of the literature on childbearing in North and West Africa, and how the situation in those regions compare with that of the Gambia, is presented in the second part of Chapter 2. This is followed by a general overview of early childbearing practices in North American and a number of other African countries. The fertility differences between these two regions provide interesting contrasts with important implications for theory and policy. The final section of the chapter sets the research agenda of this thesis and provides a context of justification for the theoretical framework for the study.

Chapter 3 covers the survey design and instruments, and the sampling methods and materials used in the GFPA and CSD studies. The models for analyzing the data and their limitations are presented and the methods of variable selection for logit models are covered as well. The chapter also presents the operational definitions of concepts and specifies measurement procedures for the variables. A brief statement on statistical procedures used in the data analysis is made in the chapter as a way of reiterating the focus of the thesis.

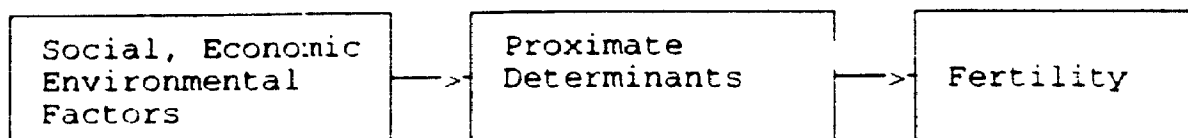
Chapter 4 presents the results of the analysis of determinants of early childbearing in The Gambia and ranks the respective components (or groups of variables) in their order of importance. This study involves two approaches of data analysis: one on bivariate relationships using basic methods of crosstabulations and correlations; and the other on multivariate analysis involving at least one control variable. Covariations of dependent and independent variables are established while controlling for other factors likely to interfere with the predicted results. Since the findings of the present investigation are not isolated from those of earlier studies, a comparative perspective is maintained while discussing the results of the analyses.

Finally, Chapter 5 outlines the summary of results and conclusions drawn of the empirical analysis. The need to supplement these results with future studies for better understanding of the phenomenon under investigation is emphasized, especially in areas relating to sampling, data quality control, redundancies in the data collected, verification of results, and application of path analysis. The chapter elaborates on the indirect policies of The Gambian government and their possible effects on fertility of young women, and proposes programs to remedy high fertility and early childbearing.

Chapter 2: Theoretical Background and Literature Review

2.1 Introduction

In order to examine the determinants of early childbearing in The Gambia, it is necessary to review a number of socioeconomic, cultural, demographic, environmental, biological and behavioural variables that impact on fertility. The influence of such variables on fertility not only varies between and within societies over time, but differs also in magnitude and direction. Whereas the biological and behavioural variables are the only ones that can affect fertility directly, other indirect determinants operate through them to influence fertility. Davis and Blake (1956) called the variables having a direct effect on fertility "intermediate variables", while Bongaarts (1978) referred to them as "proximate determinants". Any variation in fertility levels and trends are best explained by incorporating the direct and indirect determinants in a single analytical framework as in figure 2.



Source: Bongaarts and Potter, 1983:2

Figure 2: Relationships among Determinants of Overall Fertility.

Unlike the past when planners, policy makers and researchers were satisfied with explanations of a direct causal effect of socioeconomic factors on fertility, following Bongaarts (1978a), demographers now dismiss any automatic direct link between them. For example, one cannot take for granted that female education can significantly reduce the level of fertility without considering its association with other intermediate variable(s). Thus, as Bongaarts (1978a) shows, education affects fertility in part by bringing about increased awareness of birth control methods and proper use of contraception. Regardless of the variables involved, fertility is not fully influenced in any other way than through effective and large scale use of family planning methods.

A number of approaches in the study of fertility are evident in the literature. On the one hand, there are theories that approach the subject from the perspective of only one discipline. For instance, the theories of fertility advanced by economists focus chiefly on the effects of economic factors on fertility; disciplines such as sociology, anthropology, biology and psychology are similarly narrow in their focus. However, there are also interdisciplinary theories of fertility which combine socioeconomic, biosocial and social-psychological perspectives. But neither uni-disciplinary nor multidisciplinary theories of

fertility existing to-date specify all the relationships of the fertility components with respect to changes over time and, consequently, a dominant and comprehensive theory of fertility is yet to emerge (Bulatao and Lee, 1983:2 & 20).

In this chapter, we first review the relevant theories of fertility in order to determine a suitable approach to be adopted in this thesis and to establish the relationship between early childbearing and overall fertility. This is followed by a review of the literature on overall fertility and adolescent childbearing as well as related issues. A discussion of childbearing in Africa, with particular reference to the overall fertility experience of North and West Africa together with a brief country profile on The Gambia is undertaken. This broad spectrum is subsequently narrowed to the situation confronting adolescents and young female adults in Africa. The conditions of adolescents in North America is presented as contrast to that of Africa. The last section reflects on the research agenda of this thesis.

2.2 Review of theories

Theories of fertility can be broadly classified into two categories of micro and macro level types. Micro theories focus on the explanation of differences in fertility of individuals or couples without providing detailed analysis of the forces that determine the levels of overall fertility. The micro-theoretical approach which was introduced into demography by economic theorists like Leibenstein (1957) and Becker (1960) centred

primarily on analyses of relationships between fertility and income. A typical example of such theories is the value of children approach which attributes fertility decline to changes in the value and costs of children. Macro theories, on the other hand, concentrate on the aggregate fertility of society as a whole, especially on the patterns and levels of change (Simmons, 1985:34). Grand theories, like the demographic transition, are macro since the forces that affect both mortality and socioeconomic background are defined not at the family level, but at the higher aggregate of society (Simmons, 1985:32). Because of this clear distinction between micro and macro theoretical approaches, most fertility models necessarily fall into one or the other of these categories. Easterlin (1978, 1980) has, however, attempted to reconcile the micro and macro level approaches by arguing that fertility involves other non-economic forces such as biosocial factors, differences in taste, and the fact that sexual need does not necessarily reflect a desire for childbearing.

According to Bulatao and Lee (1985), fertility basically involves "the supply of children", from the biological and social aspects; the "demand for children", based on individual choices of family size; and "fertility regulation", to monitor any form of control. Here, the definitions of supply and demand differ from their everyday use in economic theory, since supply is not responsive to changes in demand, but to regulation of fertility. The supply of children, in this sense, is the number of surviving children without any deliberate form of contraception. In other words, this is the natural fertility of a couple, after considering only those who survived. The demand for children, on the other hand, refers to the number of children that a couple desires. Demand is the result

of taste for children and inconveniences on the couple, controlling for constraints of supply and costs of fertility regulation (Becker, 1960:48). Effective demand requires that choices of couples be met, and fertility regulation offers the means of achieving such an objective through contraception and induced abortion (Bulatao and Lee, 1985:6). Any change in regulation as well as the supply and demand of children would result in a corresponding change in fertility. These components are therefore quite influential in fertility transition research and, for that matter, most theories of fertility have been approached either from the demand side or on issues related to supply and regulation.

2.2.1 Overall fertility

Early theories of fertility were mainly formulated on the basis of demand for children and it was not until recently that much attention was devoted to supply and regulation aspects (Wai, 1987:12). Theories relating to supply are mostly geared toward analyzing the fertility of developed countries, given the excess of biological potential to produce children (i.e. supply) over demand, and the low cost of birth control. This type of theoretical formulation is therefore of limited applicability to developing societies where demand mostly exceeds supply of children. In such environments, family limitation is minimal or non-existent. One should note, however, that these basic components (that is, supply, demand and regulation) are affected by a variety of socioeconomic, demographic and biological variables, including education, female employment, residency

status, income, age, religion, ethnicity and many other variables (Bulatao and Lee, 1985: 9-12).

Essentially, these variables are the nucleus of most theories of fertility such as the well-known demographic transition model. This theory was originally proposed by scholars like Thompson and Laudry in 1924 and 1934, but it was not until 1945 when Notestein formally synthesized its key ideas. Following scholars like Coale (1973), Teitelbaum (1975) and Beaver (1975), the demographic transition is conceived by Allman (1978) as a model which states that:

'during modernization, mortality passes from a high, unstable level to a low, relatively stable level and fertility passes from a high, non-contraceptive level, to a low controlled level. The fertility decline lags behind the mortality decline, thus giving rise to a transitional period of rapid population growth. This process of transition is usually divided into three (sometimes four) periods: (1) high mortality, high fertility, no or slow population growth; (2) declining mortality, high fertility, rapid population growth; (3) low mortality, declining fertility, declining growth. The third stage, or the post-transitional period, is seen as a period of low mortality and fertility, with fluctuations in fertility within a relatively narrow range due to political, social and economic conditions (p. 6).'

Numerous criticisms have been levelled against the demographic transition theory. Among these is the accusation that migration at the national and international levels is virtually ignored. Also, the framework is confined mainly to fertility reduction as a reaction to population pressures due to mortality decline; but fertility had started declining in some German societies prior to any significant reduction in mortality (Knodel, 1974:21). In as much as the framework covers many aspects of fertility change that can be analyzed, the demographic transition is often presented in a manner that makes it extremely difficult

to verify some of its postulates. It is not always considered as a theory, but as a summary of statements to reveal the pattern and trend of demographic change in Europe (Beaver, 1975:9; Easterlin, 1972:45; Davis, 1963:29; Coale, 1973:61).

Despite all these criticisms, the demographic transition approach has retained its powerful intuitive appeal to demographers. But it is not the only theoretical attempt to base fertility reduction on mortality decline; a similar proposition generally known as "the mortality-insurance hypothesis" has been developed by Carlsson (1966) and Heer (1967). The hypothesis relates any fall in mortality to a subsequent decline in fertility. This can be associated with the reaction of parents to the high infant and child mortality in developing countries. Parents would not reduce their family sizes without having a specified number of children and an assurance that most of them would survive to adulthood. Such a precaution against high childhood mortality is more prevalent among the lower classes of society than among the upper classes who are less affected by the infant and child mortality problem.

The mortality insurance hypothesis, according to Carlsson (1966), is weakened mainly by the fact that fertility would never decline if parents' demand for children is greater than their reproductive capacity. He also did not foresee any control in family size without adequate motivation for parents to change their position. The key issue here is to decrease the level of mortality in order to obtain a subsequent reduction in fertility. Since decreasing infant and child mortality implies greater chance of survival for children,

any increase in the supply of children would add more pressure on parents as well. Thus, parents will be more sensitive to the need to adjust their fertility.

The search for solutions to the weaknesses of the "mortality insurance hypothesis" and of the demographic transition have motivated Coale and others to propose an approach which is commonly known as the "innovation and diffusion perspective" (Wai, 1987:24-25). These authors argued that fertility decline largely depends on a process of innovation of effective fertility control measures and the fact that contraceptive knowledge and access can be diffused to the various segments of society, particularly from the upper to lower classes of society. Such a proposition emerged from studies of fertility transition in Europe. Coale (1967, 1973), for example, found several inconsistencies between the findings of European studies and the implied assumptions of the demographic transition. Since contraception was limited during the transition period, he was equally concerned about the little emphasis placed on the effect of contraceptive knowledge and use. From the rationale behind the innovation and diffusion perspective, it can be argued that the conditions involved are necessary prerequisites for fertility reduction.

Caldwell (1976a) has strongly criticized such macro-level analysis of fertility, arguing that:

'The threshold and innovational approaches share a common problem in explaining the onset of fertility decline. Their data are usually for considerable aggregates of population, and, hence, it is difficult to determine whether the measured drop in fertility is attributable to a single socioeconomic group or not....Both approaches have failed as yet to specify the kind of changes necessary

for individuals or couples to alter their fertility behaviour and why such alterations take place (p. 334).'

Caldwell's special interest on how individuals or couples change their fertility behaviour has led him to formulate the "wealth flow theory". By so doing, he focused on approaches of mortality and macro-structural theories.

According to Caldwell (1976a, 1976b, 1977c, 1978a, 1980), the basic idea of this theory is that fertility in any society, at all times, is rationally determined through the flow of wealth such as money, goods, services, and securities that people provide for each other. Here, the emphasis is not only on the flow of wealth, but more so on the intra-familial relations that determines the direction of "wealth flow". These relations are always influenced by the conditions existing at any given point in time. Thus, a reduction in the level of fertility can only occur because of changes in socioeconomic and attitudinal factors such as mass education, a switch from family-based economies to market oriented types, and the extent to which families are influenced to adopt Western values and lifestyle.

The critics of the theory like Schultz (1983) have focused specifically on the problems of conceptualizing these structural variables and the term "inter-generational wealth flow". It is unclear, in his view, whether Caldwell was referring to the effect of increasing income for both spouses or for husbands alone when he spoke of the advantages of the labour market as compared to the familial mode of production. Caldwell has also been criticized for not defining precisely the meaning of "inter-generational

wealth flow", that is, whether it referred to "wealth" or "income" of the people concerned. Schultz (1983) has also rejected the possibility that mass education could be easily attained in developing countries. In his opinion, compulsory universal education cannot be achieved, given the inability of developing countries to enforce such legislation. These criticisms, however, are insufficient grounds for rejecting the validity of the theory in all developing countries. The theory was largely formulated on the basis of Caldwell's research findings in Africa and Australia, and it certainly accounted for the key issues about fertility in these areas.

Whether we are dealing with the wealth flow theory or other theories which are related to the demographic transition, it is important that such predictions are not made exclusively by sociologists and demographers. Economists like as Leibenstein (1957) and Becker (1960), as indicated earlier, have similarly presented their versions of the fertility debate, but purely on economic terms. Their concern was with the existing relationships between fertility and income. They approached the subject on the basis of cost-utility functions, an analytical method which associates the cost of having a specific number of children with the corresponding satisfaction. Since children are regarded as a consumer good, parents would then have the option of comparing the utility of having them with other goods and services which might be needed (Grindstaff, 1989: 54-55). Such presumed economic rationality has led Becker to argue that parents with higher incomes are more likely to have both more and a higher quality of children. His statement

contradicts Leibenstein's finding that due to greater spending on children, richer families have fewer children than others. In Leibenstein words (1957):

'As per capita income increases, there is less need to utilize children as source of income. At the same time, the level of education and the general quality of the population implied by a higher income per head mean that more time must be spent on child training, education, and development, and therefore, less time is available to utilize the child as a productive agent. Therefore, the higher the income, the less the utility to be derived from a prospective child as a productive agent (p.163).'

As refinement of these ideas, later development of economic theories of fertility deviated from arguments about the effects of income on fertility, to a "broad-based type" of analytical framework which is interdisciplinary in form. Among the numerous efforts made in this new direction, Easterlin's supply-demand theory could perhaps be singled out as one of the most discussed. This framework, despite the criticism that it neglects the influence of social and normative variables on demand for children, does not only dwell on the cost and demand for children as was the case with the earlier models, but elaborates on social, biological, and cultural factors affecting the supply of children as well. The theory basically involves three concepts: the demand for children (cd), as the desired number of children if fertility control were costless; the potential output of children (cn), as the total number of surviving children of parents under strict natural fertility; and the actual cost of fertility control. If cd is more than cn then the absence of family limitation is implied; when cn exceeds cd , the ultimate control will be practised accordingly, if the costs of regulation are less than the motivation to limit childbearing. The inter-relationships between these key factors of supply, demand and regulation are therefore largely responsible for any decline in fertility levels (Easterlin, 1978:35).

Researchers like Hoffman and Hoffman (1973), have approached the fertility debate by quantifying "the value of children to parents" by not only focusing on much broader perspectives of social and economic aspects of childbearing, but also on demographic and psychological issues. The reasons for studying the value of children are four-fold: to influence motivations for childbearing; to estimate the necessary adjustments to be made if smaller families are achieved; to predict fertility and population trends; and to study the effect of such value assessment on parent-child relationships. Interest on these reasons has been associated with concerns about overproduction and the belief that parents' desire for children was much greater than the ideal number of children. According to this school of thought, an equilibrium between supply and demand for children cannot be achieved, unless parents are motivated to reduce their fertility, but only as a result of changes in the value and costs of children. Nevertheless, the value of children approach, like some of the theories discussed above, is not well suited for analyzing the fertility behaviour of population sub-groups such as adolescents and young adults without at least some modification. Despite the fact that both adolescent and adult childbearing practices are affected largely by social, economic, demographic, psychological, and biological characteristics, the magnitude and types of influences are completely different. The fact that adults are more able than young people to handle relationships and responsibilities, results in possible differences in their behaviour and attitudes toward sex and childbearing. Also, adults are more financially secure and can raise their children in healthier environments and, at the same time, provide them with better guidance and care. Because of such marked differences, some theoretical

approaches have been formulated to distinguish specific issues and concerns of adolescent parents from those of adults.

2.2.2 Adolescent fertility

Although theories of adolescent childbearing, like those of overall fertility, include demographic, social, economic, biological and psychological variables, the target populations are different. In overall fertility, the determinants are related to the experiences of all women in their reproductive ages, say between 12 - 49 years, while in the case of adolescents, they are restricted to a specific group of young people 12 - 19 years who have very different characteristics and lifestyles. Because of these differences, the frameworks for analyzing early childbearing have been altered slightly to suit these young women. In this thesis emphasis will be placed on the most commonly used and discussed formulations such as the "demographic-composition" hypothesis. This perspective suggests that patterns of marriage and childbearing--particularly with respect to race and ethnicity--differ substantially for young women in most societies. For young women in the United States, Abrahmse et al (1988) found that

'these group-specific marital and fertility patterns may reflect differences in the demographic composition of the groups. For example, blacks have less education, lower incomes, and greater welfare-dependency than whites, which may account for the divergent childbearing observed (p.12).'

The effects of educational background on early childbearing need to be considered. As one of the key explanatory variables, education is known to be negatively correlated

with fertility. A positive attitude toward education as well as higher educational attainment and clear educational goals can make adolescent fertility less likely (Grindstaff, 1988:46-49; Grindstaff et al., 1991:336; Udry, Bauman and Morris, 1975:69). According to Rindfuss and St. John (1983) and Rindfuss et al. (1980), young women who opt for high education are more likely to delay the first birth to achieve their educational goals. Low educational aspiration and attainment are some of the causes of pregnancies and childbearing among teenagers. In fact, Robbins et al. (1985) have advanced the "status-failure explanation" which associates early parenthood to a gloomy economic future for young women with low education. Education, however, interacts with the social, economic and psychological factors to affect the childbearing practices of young women. Based on the experience of developed countries, Chilman (1983) has cited an example of such an effect as follows:

'The student who does well in school is apt to come from a family background of higher socioeconomic status; to value achievement; to be more rational, controlled, and conforming in orientation; to be oriented to work rather than play; to operate on a higher level of cognitive development; and to be able to foresee and plan for the future. These same characteristics may make the student less likely to engage in non-marital intercourse during the high school years.... Especially for females, involvement in a sexual relationship may frequently mean lesser involvement in educational achievement. Conversely, involvement in educational achievement (and thereby pleasing her parents and teachers), may make the girl less interested in involvement with a male, or may make her less interesting to males (p.88).'

Apart from the impact of education, it is also important to recognize the effects of economic background. Although it is becoming increasingly clear that employed young women delay their first birth in order to keep their jobs, Chilman (1983) argues that unemployment and lack of job opportunities for adolescent girls and young women in the

United States may be responsible for changes in their motivation not to have a child. In fact, Presser (1975) associates the employment status of young women after a childbirth with previous employment situation. In this view, those not employed prior to having a child are more likely to remain jobless afterwards when they become parents. Although Presser did not pursue the connection between economic situation and early marriage, many researchers like Abrahamse et al. (1988) and Moore et al. (1986) have explained fertility differentials among young women by attributing marital problems and family formation to poor economic conditions. Elder and Rockwell (1976) attempted to verify this relationship, but found that women who marry early can face higher risks of childbearing, especially if their educational attainment is below high school by the time of first marriage. A high level education is mostly associated with better employment opportunities and it may also affect income (Grindstaff et al., 1991: 325-326).

A positive correlation may exist between income and premarital childbearing in developed countries such as the United States. Increasing income, for example, might lead young women to greater economic independence and higher non-marital births. On the other hand, low income can be associated with lower fertility, if birth control and abortion services are more accessible (Scott, Field and Robertson, 1981:22). In most cases, however, higher premarital fertility especially among young women, is mostly related to the relatively low levels of income. Marked disparities have been observed in this respect between blacks and whites in the United States. Udry Bauman and Morris (1975), for example, have found such racial differences when analyzing the relationship between

early non-marital intercourse and poverty. In their analysis, black teenage girls are more likely than whites to have sex earlier. The variation in non-marital sex among blacks and whites is due to differences in behaviour and attitudes toward early sex and childbearing in their respective communities.

Father's occupation can also influence the fertility behaviour of young women. But, this relationship is indirect and has been associated largely with the educational attainment of daughters (Kerckhoff and Campbell, 1977: 15-17; Sewell and Hauser, 1975: 182-185). Abdelrahman and Morgan (1987) found a strong association between a father's occupation and the educational attainment of daughters. Education affects age at first marriage since pursuing higher education requires staying in school longer. Families in which the fathers have high prestige occupations seem to support a delay in childbearing since they can afford the cost of higher education (Rindfuss and St. John, 1983:555). Because of their financial situation, the fathers with high status-job exert less pressure on their daughters about early marriages and, this, in turn, affects their fertility behaviour.

Fertility can also be influenced by specific biological factors. Many studies, like that of Conger (cited in Chilman, 1978), have shown that the significant decline in age at puberty in recent years can contribute to higher rates of sexual activity among adolescent and young women. This would lead to early childbearing in populations not using contraceptives effectively. Chilman (1983) also reports some variations in the sexual behaviour of teenagers based on the onset of maturation. According to her study, sexual

activity is more prevalent among boys who mature earlier than late maturing ones; teenage girls showed similar behaviour, but to a lesser degree. The findings of Presser (1978), however, did not fully support a strong relationship between age at first intercourse and age at maturity since a definite connection was noticed only for blacks and not for whites. Others like Money and Tucker (1975) deviated from issues around maturation and, instead, probed into biological issues of hormonal differences between individuals and their relation with adolescent sexual behaviour and attitudes. These connections between biological variables and behavioural ones can affect fertility, especially when contraceptive use is low or used ineffectively and inefficiently, and when tradition supports early marriage and childbearing. Most of these conditions, if not all, are prevalent in developing countries.

In addition to these observations, the cognitive and problem theorists have moved from biological to social-psychological perspectives. These include the "problem behaviour theory" which is one of the most widely discussed today. This theory examines the social-psychological characteristics significantly associated with non-marital coitus. A number of studies have been carried out in high schools and colleges to investigate the existence of such social-psychological differences. By analyzing the behaviour and attitudes of high school students, Cvetkovich and Grote (cited in Chilman, 1978) found that non-virgins (both male and female) were less religious; they were also less cautious about associating intercourse with intimacy and interpersonal relations. These authors also concluded that non-virgin females appeared to have lower ego strength as compared to

virgins and, this could be partly responsible for differences in the behaviour of young women³. As a result of these unusual and problem-related behaviours, young female adults with such characteristics may be less mindful of sexual intercourse and its consequences, and this puts them among the high risk group for early pregnancy and childbirth (Abrahamse et al., 1988:46).

Also underlying these differences are the effects of parent-child relationships on sexual behaviour of young women. Adolescents who see themselves as being unhappy at home and have a poor communication link with their parents are more likely to begin premarital sex earlier (Chilman, 1978:139). DeLameter and MacCorquodale (1979) have argued that greater independence of young adults from parents is similarly correlated with their sexual activity. This study focused mainly on the transitional stages of involvement in premarital sex: by moving from non-dependence on parents, to peer involvement, to love relationships and, then, to sexual partnership and, probably, to motherhood.

Other scholars, like Williamson et al. (1982) and Reiss and Foreman (1975) focused on the sexual behaviour, contraceptive use and childbearing practices of young women and how they are influenced by reference groups. According to this perspective,

³ Jessor and Jessor (1975) also arrived at similar results. They found a higher rating for non-virgins on matters about independence, positive attitudes toward sexual intercourse, non-acceptance of parental control, as well as parental and peer acceptance of teenage deviant behaviour. Because of their lower expectations of achievement, non-virgins had lower academic grade averages. The findings of Jessor and Jessor also portray non-virgin females as rebels against social traditions.

young women who regularly associate with such groups develop differential behaviour and attitudinal patterns about childbearing. There are limits to which young women are dominated by one or more reference group(s) and this largely depends on their commitment and acceptance of the observable norms and values of the group (Shaw, 1976:246). It is the extent of conformity to such psychosocial mechanisms of control that determines the fertility behaviour of young women and many other issues which later affect their fertility behaviour.

Two types of reference groups (formal and informal) are important in determining the childbearing behaviour of young women by controlling the social and cultural settings of their members through interactions and interpersonal relations (Williamson et al., 1982 : 239). The nature of influence and expectations of the formal groups, referring to the institutions like the school and religious organizations, differ largely from that of informal groups consisting of peers, parents, social clubs and other interest groups. Whereas the school adopts a formal approach to teaching students about sex education, birth control and the consequences of an untimely childbirth, an informal relationship exists between individuals through which young adults are influenced to conform to or ignore the values, norms and behaviour of reference groups. However, the degree of influence by reference groups depends largely upon the level of conformity or non-conformity of individuals on how they may avoid unwanted pregnancy and childbirth.

Reiss and Ehrmann (cited in Libby et al., 1978) have studied the relationships between premarital sexual permissiveness and level of involvement and affection among young lovers. In the opinion of these researchers, the affection and emotional involvement of young people is positively correlated with their permissiveness about premarital sexual intercourse. They also argued that self-will to initiate sexual intercourse is more frequent among young people who are deeply in love and committed to be married at a later date than those with little involvement. Walsh et al. (1976) have reported Davis's findings about "sex on campuses" of some American institutions,

'Of the females who thought sexual intercourse was acceptable when a person is in love, who were in a highly involved dating relationship, and who thought that several of their female friends had engaged in sexual intercourse, only 21 percent had not had sexual intercourse. Of those who were at the opposite extreme on these factors, all were still virgins.' (p. 497)

Being sexually active, however, is not necessarily followed by pregnancy and childbirth. Much depends on existing use of contraceptives. Furstenberg (1976) asserts the stability of the sexual relationship as the main determinant of contraceptive use. Young women in more stable relationships tend to use contraceptives to protect themselves from pregnancy and unwanted childbirth. However, the nature of relationships and sexual unions affecting young female adults are not only related to contraceptive use; it is also contingent upon existing sociocultural norms, values and institutions of societies concerned.

Unlike the experience of developed countries discussed above, Abdelrahman and Morgan (1987) put forth a proposition which incorporates the institutional context of

family formation in a developing country like Sudan. Rather than focusing exclusively on individual choices of people, they argued that the institutional intervention (by the family or religion) is of utmost importance since it "determines who makes the marriage decisions, the range of options seriously considered, and choices made within this range". For example, parents often play a pivotal role: parents participate in the choice of a partner for their son or daughter; they frequently also determine the timing of marriage (Caldwell, 1983:348).

Parental concerns and choices regarding the marriage partners for their children often conform to existing societal norms and values. Also, early marriages and childbearing are widely prevalent because of society's tolerance of wide age differences between spouses, religious influence (especially in Muslim countries), approval of polygamy, and low education of young women. The extended family system which is still very much alive in most developing countries tends to encourage young people to marry early because of the social support networks guaranteed to young couples. Such support becomes even more substantial when the couples begin childbearing. According to Abdelrahman and Morgan (1987),

'Extended residence has long been thought to promote early marriage and a rapid tempo of childbearing because (a) the economic cost of children and the inconvenience and effort of the child care was borne by the extended family; (b) both spouses were motivated to have children as soon as possible and in considerable number to improve or solidify status in the family; and with the extended family assisting in the arrangement of marriages, age at marriage was low (p. 404).'

These practices show the strong cultural web in the process of family formation and point to how they impact on factors affecting early childbearing in Africa.

2.2.3 Synopsis of issues

The literature reviewed in the foregoing section provides evidence of the richness and variety of theoretical discussions surrounding early childbearing practices. The issues raised cover both interdisciplinary and multidisciplinary perspectives, and include, among other variables, age, sexual maturity, hormonal differences, educational attainment, employment status, level of income, and effects of parent-child relationships. Some of these variables cannot singly influence the behaviour of young women but do so by interacting with each other.

Similar interrelationships exist in the case of overall fertility, except that the influential variables are analyzed at broader theoretical frameworks than those of early childbearing. Unlike the more elaborate "grand theories" of overall fertility such as demographic transition, the frameworks of early childbearing are narrower in scope and focus.

Also, the interrelationships among theories of overall fertility are different from that of adolescents and young female adults. Apart from the fact that most of the theories

of overall fertility are direct or indirect reactions to the demographic transition, the few that are not were proposed to improve rather than replace that perspective. This is not the case with early childbearing. The theories that relate to the fertility of young women are independent of each other; they tend to have a unique focus which does not interrelate with other existing theories.

Both overall and adolescent fertility, however, fall on three broad theoretical categories of supply, demand and regulation. Of these perspectives there is full discussion in the case of overall fertility, but the a brief review of adolescent childbearing that focuses mainly on supply and risk factors. Most theoretical formulations on adolescent fertility have North American and European focus which explains the imbalance in the coverage of developing societies. Developed societies have ample biological potential for the reproduction (supply) of children, but very low fertility levels. Consequently, theoretical concerns in developed societies tend to centre around supply factors. Indeed the low birth rates in these societies is expected given the low cost of birth control and the low infant and child mortality.

On the other hand, theoretical and policy concerns of developing societies focus on a high demand of children. For instance, adolescents and adults alike have little or no means of fertility control in Africa where family limitation is minimal. Here, demand may exceed supply of children and, hence, fertility is high because of the following reasons:

- 1) Parents are concerned about the high infant and child mortality which, in their opinion, must be neutralized by having many children.
- 2) As Van de Walle and Omideyi (1988) put it: 'numerous children are an economic asset and always welcome; they work and they provide old age security for their mother and their father and family.' (p. 2.2.38)
- 3) As Caldwell and Caldwell (1987) have indicated, 'the African structure typically places reproduction decision making in the hands of the father.' Men dominate and control the reproduction of children since they depend greatly on women and children as viable source of labour supply, a key factor of production (Van de Walle and Omideyi, 1988: 2.2.37). Men therefore maintain this supply of labour through their control of marriage conditions and the prevalence of polygamy which allows them to have wives and children.
- 4) Men prefer large families for continuation of the lineage and kinship.
- 5) Men are motivated to have large families in order to obtain full respect and status that having many children can bring. In fact, some African men associate their power with having many children.
- 6) Women in a traditional African society marry not only to love a husband, but especially to bear children. They do so to prove their fertility, to fulfil expectations of society that they should have children, to please their husband, and to gain respect in society. In contrast, it is not obligatory for European couples to have a child since it is exclusively the decision and choice of the partners concerned (Van de Walle and Omideyi, 1988: 2.2.42).

For these reasons, the fertility of adolescents in Africa, married and unmarried, is understood better in terms of demand theory which reflects their own aspirations and the expectation of their partners, families, peers, kin groups and society as a whole. Demand for large families will decrease only with improved sanitation and nutrition, as well as better medical and health conditions, to reduce infant and child mortality. Reduction in demand for children can also be achieved through improvement in the status of women, modernization and better economic conditions. A strict and efficient regulation to minimize the risks of unprotected sex and early childbearing can be successfully enforced when supply exceeds demand.

Comparative research is therefore necessary so as to disentangle some of the differences implied in the theories of fertility advanced in the foregoing review of the literature. Some attention will be devoted also on the situation in Africa and North America. Because of a serious paucity of data on The Gambia's fertility situation, no direct comparative analysis can be made with North America. But The Gambia shares similar socioeconomic and cultural conditions with most of the other African countries. Therefore, the fertility experiences of other African countries are relevant to a discussion of fertility experiences in The Gambia and we draw upon such experiences liberally in this thesis. The North American experience serves here as a contrast since it differs radically from the African situation today. Also, the majority of fertility theories and a great deal of the literature on adolescents and young female adults are based on studies

done in North America. The sections that follow review the literature on overall and adolescent childbearing in these regions.

2.3 Childbearing in Africa

There is a growing concern in most African countries about the persistently high levels of fertility. This is more so in those countries where fertility is constant at very high levels. Some unease over the issue persists equally in those countries that have recorded some magnitude of decline in the recent past. Many of these countries would like to balance the rate of childbearing with the positive advances already made towards mortality reduction. The imbalances of these two major demographic components have consistently frustrated development objectives and overburdened the socioeconomic infrastructures of African countries (The World Bank, 1992: 7-13). So far, very few countries in Africa, if any, have attained a low enough fertility rate to curb population growth and to ease the enormous constraints of population growth on development. It is thus imperative to direct research and action programmes towards policies of family size limitation. Efforts to further reduce mortality levels should be equally accompanied by commitments to influence the relatively uncontrolled fertility behaviour of people, particularly the early onset of childbearing.

One should note, however, the developing disparity of fertility levels among African countries. A considerable variation exists in the continent depending on the level

of socioeconomic development and cultural setting as well as efforts of individual governments and their success in promoting family planning and more responsible parenthood. Some North African countries, with an average fertility rate of nearly 5.5 in 1989, have been able to reduce childbearing by at least one child per woman, as compared to the average total fertility of 6.1 found in the sub-Saharan region. At the sub-regional level, according to Table 2.1, the Eastern part of Africa seems to have the highest fertility rate of 7.0 children per woman compared with 6.1 for Central Africa, 4.6 for southern African countries and 6.7 for the Western region. The present average at the country level range from 4.1 in Gabon to 8.0 in Rwanda (Weeks, 1988:15; Goliber, 1989:7; Bongaarts and Frank, 1988:2.1.8; Lightborne et al., 1982:3-6). The fertility of Gabon is exceptionally low due to high sterility of women in the area (Bongaarts and Frank, 1988:2.1.8).

Overall, however, it is evident that fertility decline is almost negligible in the sub-Saharan Africa where fertility rates are among the highest in the world. Women in this area have a net reproduction rate of at least 2 to 3 children. It is suspected that desired family size is large because most societies still observe traditional and religious beliefs which hold the notion that children are a gift from God and thus promote large families. Although there is little data to substantiate these beliefs, it is still important to understand the attitude of Africans toward childbearing in the context of history.

**Table 2.1: Total Fertility Rates by Respective
Sub-regions in Africa**

Sub-region	Total Fertility Rate
West Africa	6.7
East Africa	7.0
Central Africa	6.1
South Africa	4.6
North Africa	4.8
Sub-saharan Africa	6.1
Africa	6.1

Source: Population Reference Bureau, 1992.

2.3.1 The North African experience

Unlike the persistent and homogeneously high fertility of the sub-Saharan zone, except for Gabon, Botswana, and South Africa, fertility levels of the northern African region are generally much lower. This is especially true of Egypt, Morocco, and Tunisia where decline in fertility has been observed. Such decline was noticeable in Egypt shortly after the inception of a national family planning programme as far back as the 1960s. In Caldwell's words, the relatively low fertility in Egypt being experienced for most of this century may be regarded as an anomaly in the Arab World. A birth rate of 44 per thousand has been noticed since 1920s and was maintained until 1961 (Caldwell, 1981:102-103). Today, the birth rate is 34 per thousand and an Egyptian woman bears, on average, about 4.5 children by the end of her reproductive life span. A similar level

of fertility decline has been found in the case of Morocco and Tunisia, except that a steep fall was registered later than in Egypt, i.e., in the 1970s (Caldwell, 1981:103). The birth rate of Morocco and Tunisia in 1992 was estimated at 33 and 27 births per thousand and the total fertility rate at 4.2 and 3.4 children per woman respectively. Even though such levels of fertility are almost double the average of about 2 children in developed countries like Canada, it is low by African standards.

On the other hand, high fertility of women in Algeria, Libya and Sudan closely parallel those of Africa south of the Sahara. In 1992, for instance, Algerian and Libyan women bore about 5 children; in Sudan they had a much higher reproduction rate of 6.4 children. Table 2.2 indicates the significant variations in the fertility behaviour of women in these countries.

Table 2.2: Total Fertility, Contraceptive Use and Knowledge of North African Countries

Country	Total Fertility Rate	Contraceptive Use (percent)	Contraceptive Knowledge (percent)
Algeria	4.9	-	-
Libya	5.2	-	-
Sudan	6.5	5.0	51.0
Egypt	4.4	24.5	90.0
Morocco	4.2	20.0	84.0
Tunisia	3.4	31.0	95.0
North Africa	4.8	-	-

Source: Population Reference Bureau, 1992 and UN, 1987

The key question regarding the North African situation is the possible cause of fertility differences between individual countries. One explanation for the disparity is often attributed to differences in contraceptive use. This is clearly seen in the case of Egypt, Morocco and Tunisia. The success of these countries in lowering their fertility is partly the result of a greater awareness and acceptance of contraceptives. Although this information is not available for adolescents, the United Nations (1987) has reported very high prevalence of contraceptive awareness and acceptance among ever-married women in these three countries (see Table 2.2). Whereas 90 percent or more of these women know at least one contraceptive method, more than half of them have used a method before. Women who have no intention to participate in future family planning programmes, as an indication of resistance to possible use of contraceptives, were relatively few.

This is not the case in Libya, Algeria and Sudan where the majority of women have no future plan to use contraceptives. Less than 32 percent of women in these countries have used a contraceptive at least once, while about 70 percent have heard about it. Contraceptives have always been available in some areas of Algeria, Libya and Sudan, but its impact on childbearing is relatively low. Married couples in these high fertility countries do not often use contraception until after attaining the desired family size. Even where the need is realized, the availability of effective means of birth control may not always be feasible. The weak nature of family planning programmes in these countries has made services inaccessible to most potential users as well (Caldwell, 1981:111-112).

Although a lack of effective communication programmes and skills is not mainly responsible for the low level of contraceptive use, it is an important constraint facing family planning organizations in North Africa. Unlike Egypt and Tunisia where the media, women support groups, and poster displays have been used to sensitize people to the need for smaller families, countries such as Libya, Algeria and Sudan have done very little in this respect. Similar promotion campaigns are less intensive in Morocco where people have already realized the need for limiting their family size.

Egypt, Morocco and Tunisia have been able to produce an urban middle class in the 1960s and early 1970s who favoured the reduction of family size. These countries were able to provide the necessary infrastructure for reaching interested groups and disseminating ideas about effective and reliable contraception (Caldwell, 1981:111). The fact that these countries have successfully integrated family planning as part of their maternal and child health programmes has made it easier to contact potential users. Postnatal clinics in hospitals and medical centres are identified as suitable places to reach the target populations. Apart from counselling on family planning matters, such clinics also provide prescriptions and supplies of contraceptives. Because of such differences in family planning facilities and educational programmes, contraceptive use also vary considerably between countries. However, there is no information about the level of contraceptive use among adolescents.

Another factor which has had a major impact on fertility in North African countries is the degree to which changes have occurred on the status of women and, consequently, on family structures. Safilios-Rothchilds (1970) claimed that most indicators of women's status are directly imported from western civilizations. But, other researchers like Nagi (1983) have argued that changes in the status of women are linked with women's proficiency in identifying issues about their marital rights, divorce, education, work, and participation in public affairs. Such changes in attitude and awareness toward meaningful gains in status recognition tend to compete with childbearing and child-rearing activities (Weeks, 1988:25). However, these changes are not easily attainable. African women still have not experienced much change in gender discrimination despite government and non-government support and intervention programmes.

Egypt and Tunisia have been dedicated to promoting equality among men and women. A typical example of such commitment is the prominent role of the Tunisian Government in supporting women's rights shortly after independence in 1956. According to Beaujot (1987) and Tessler et al. (1978), the adoption of Tunisia's personal status code made it possible to abolish polygamy and husbands' monopoly of decision making over marital dissolutions. The code stipulates a minimum age at first marriage and provides for women's consent on marital arrangements as well. Both Egypt and Tunisia have regarded the official raise in female age at marriage as a main contributor to lower fertility. In comparison to eight Arab countries, Tunisia is among those having a marked achievement in raising the age at marriage by over two years during the period between

1965 to 1975 alone. Age at marriage in Tunisia is now stable at about 22 years for women and 27 years for men (Beaujot, 1987:1-3; Beaujot and Behir, 1984:26; Caldwell, 1981:110-112). The average age at marriage for Egyptian women has increased from 17 to 21 years within the last three decades (Egyptian Demographic and Health Survey, 1990:6). Similar changes are slower in Sudan, Algeria and Libya, partly as a result of existing political ideologies and insistence on preserving traditional values and norms.

The economic and political crises in Sudan have largely hindered implementation and monitoring of women's emancipation programmes in that country (Caldwell, 1981:110-112). All these impediments impose serious constraints to the process of modernization, a prerequisite for any fertility reduction. As May-Ahdad-Yehia (1977) notes:

'Recent research in developing countries has consequently singled out...modernity as one of the main themes in the analysis of economical, social, and cultural change. It has been assumed that the macrostructural transformations that are part of modernization processes, namely, urbanization, literacy, industrialization, all bring about distinctive psychological changes in attitudes, values, and behaviour patterns on the part of individuals exposed to them. Included in these changes are such elements as efficacy, planning ahead, reliance on mass media for information and political participation, an egalitarian orientation toward the family, women's rights, acceptance of birth control, and finally an increasing desire to have fewer children.' (p.173)

The differences in fertility behaviour of North Africans could also be related to the position of individual countries along the modernization continuum. As women are provided with more access to services and opportunities, the high fertility regime breaks down to much lower levels over time (Bulatao, 1984:2-6). There is ample evidence that

rising educational attainment and modern-sector employment for women are key elements of fertility reduction in Egypt, Morocco and Tunisia. Although information on these differentials are unavailable for adolescents, the Egyptian Demographic and Health Survey Report (1990) has clearly shown the significant decrease in Egypt's fertility as women's levels of education increase. This report further indicates that "Egyptian women with no education are having 5.7 children on average, while those with secondary or higher education are having only 3.2 children, a difference of two and one half children". Similar inverse relationship between education and fertility was found in Tunisia and Morocco. Higher education did not only reduce fertility in these countries, but it also gave women higher income, better employment opportunities and improved standards of living, all of which can further influence childbearing practices (Caldwell, 1981:107-112).

Since there is no evidence of the impact of female employment on North African fertility, it is rather difficult to establish the validity of the employment effect in this instance. Yet, it is worth mentioning that differences in non-agricultural economic activities of Moroccan and Libyan women, for example, may be affecting their fertility levels. In an oil rich country like Libya where the dominant activity of women is home-making and where only 20 percent of women are involved in non-agricultural activities, fertility may be relatively high compared to Morocco with almost 56 percent of employed females in non-agricultural sectors as far back as 1971 (U.S. Bureau of the Census, 1980:35). There is need, however, for further research on the relationship between female

employment and fertility in these countries before valid conclusions can be drawn about their effects.

Similarly, urbanization cannot be used as a criterion for differentiating fertility in the sub-region. The United Nations (1983), for instance, has reported the level of urbanization in Libya as the highest in the area, yet its fertility is among the highest. It is therefore more appropriate, in this instance, to restrict our study to the effect of urbanization on fertility within countries and examine urban and rural differences rather than making comparisons between countries. One cannot however dispute the fact that urbanization does not merely attract the rural population of developing countries into the cities and, eventually, erode their traditional values in the course of time, but that it also breaks extended family ties and reduces the interdependence of parents and children. Such experience is against the expectations of parents for having large families.

2.3.2 The West African experience

As in the case of North African countries like Sudan, childbearing in West Africa has been stable at very high levels over the past two decades. With the exception of Cape Verde and Guinea Bissau, none of the remaining fifteen countries in the sub-region have a total fertility rate of less than 6 children per woman. Indeed, the levels of fertility in these countries are very similar to those found in other parts of sub-Saharan Africa. United Nations (1991) found that all West African countries are either at the pre- or early

stages of the fertility transition; this was the situation of Alsace in France prior to 1870 (McQuillan, 1987:5). No country in the area has, so far, reached the advanced and low fertility transition stages of Latin American and developed countries (United Nations, 1991:20).

There are some areas with signs of fertility increase, but the paucity of data in the sub-region has made it difficult to verify such information (United Nations, 1987:332-333; Van de Walle and Omideyi, 1988:2.2.35). Based on the trends and levels of childbearing, it appears that a marked decline in fertility may not be forthcoming for the next quarter century or so (Gyepi-Garbrah, 1985a:5). However, a majority of West African Governments, if not all, have now realized the importance of reducing the currently high levels. The position today differs from the pro-natalist stand adopted earlier to offset the effects of the Atlantic slave trade in depopulating the sub-region (Klein, 1987:51-54). Because of such reasoning and the low population densities in places like Mauritania, compared to most Asian countries, some governments had, in the past, opted for more population and not less. Since 1986, however, the former pro-natalist countries like Burkina Faso, Cape Verde and Guinea-Bissau are all convinced of the need for lower fertility in the sub-region. Yet, the nature of population policies and degree of intervention still differ a great deal. While some countries such as Ghana have been bold enough to institute direct intervention measures to reduce fertility and population growth through family planning methods, others like Senegal have adopted policies favouring only

indirect government involvement. Cultural and/or religious pressures are probably the reasons for the latter position, especially in traditional societies.

However, there is a need to understand the basic causes of high fertility in West Africa. The idea of family is mainly associated with parenthood and not marriage (Gaisie, 1969:45; Caldwell, 1967:117). The traditional beliefs about parenthood are still very strong and influential. As Fortes (1978) has discovered, the line of questioning on family matters is mostly on "do you have children?" and not "are you married?" This is reflected in Burton Benedict's observation (cited in Fortes, 1978) that:

'A woman does not gain full adult status until she is a mother not just a wife. Her future depends not on old age pension but on having sons who win her the respect of her husband and her mother-in-law.' (p. 18)

However, this does not mean that marriage is unimportant. Unlike the experience of Western Europe and North America where marriage for both sexes occurred at relatively late ages as far back as the industrial revolution, coupled with a high incidence of celibacy (Hajnal, 1965:35), the West African situation is precisely the reverse. Marriage in West African countries is almost universal and usually contracted as early as age twenty or younger (Romaniuk, 1968:217; Fortes, 1978:20; Brass, 1975:90). Other types of arrangements such as consensual or casual unions are also recognized in most West African countries, and may be formed even by teenagers (Van de Walle, 1968:186). As in the case of Canada, childbearing takes place in both conjugal and temporary unions (Rajulton and Balakrishnan, 1988:29).

Despite the practice of childbearing out of wedlock and fewer concerns about religious doctrines against illegitimate births, there is still a high respect for legitimate childbearing. Tradition has always honoured chastity by offering virgins a higher bride price, more gifts and, above all, more respect, and trust from their husbands. Thus the norm that girls remain virgins up to their wedding nights was a barrier against extramarital childbearing. But this practice is diminishing. Given the disruption of the traditional setting and its fertility control mechanisms, an effective way to prevent unwanted births is by using modern contraceptives which, unfortunately, are not always available especially in the rural areas of West African countries.

The inaccessibility of contraceptives in the sub-region is often exacerbated by the limited number of distribution points and often they can be obtained only from specialized agencies such as family planning clinics, pharmacies and government health centres. These are mostly located in cities, towns and a few selected rural areas. Because of the general poverty of the rural populations, they cannot afford modern contraceptives regularly even if they were motivated to use them. Thus, fewer than 10 percent of women in West Africa make use of effective and safe contraceptives, yet there is evidence that at least one-half of ever-married women are familiar with some method of contraception. Some people rely on unreliable traditional and crude methods of pregnancy avoidance and termination procedures such as abstinence, withdrawal and use of herbal prescriptions, and on insanitary methods of disturbing the fetus with sharp-edged leaves or objects during

early pregnancy. Also, these methods are partly responsible for the high incidence of sterility and hazardous complications of pregnancy outcomes (Omu et al., 1981:497-498).

These complications of pregnancy together with inadequate medical attention during the pre-natal and post-natal stages, as well as other factors like poor sanitary and environmental conditions, are responsible for the high infant and child mortality which helps motivate parents to have high fertility. Since the infant mortality rate of West Africa (115 per 1000 in 1991) is the highest in the sub-Saharan region and since a substantial number of children born would eventually die before reaching age five (Billewicz and McGregor, 1981:220), it has been a common practice to try to have as many children in order to ensure the survival of a few of them under such hostile mortality conditions.

Another factor encouraging high fertility is the existing form of family structures. The practice of nurturing newly-wed couples for many years in their parents' household until they become financially secure encourages early marriage and childbearing. Young couples are likely to take advantage of such practices that make it possible for them to avoid the economic obligations of marital life and family formation. Within such arrangements, the burden is shifted to parents and relatives who are expected to assist as fulfilment of elderly persons' goodwill and/or extended family obligations.

Other factors like the rate of literacy which ranges from 12.4 percent in Burkina Faso to 56.4 percent in Ghana contributes to the high fertility of West Africans. Some

researchers have shown the importance of education as an intervening variable of fertility, especially at levels beyond the primary school stage. Education is expected to raise the social and economic status of women by making them more emancipated. It also tends to increase the social awareness and responsibilities of men about gender inequalities. Education further helps in critical examination of certain religious beliefs and rationales behind teachings that favour high fertility (Jain, 1981a: 29). Efforts directed to increasing the levels of educational attainment and opportunities of women can therefore be seen as aiding to lower fertility in the long run.

2.3.3 The Gambian experience

Like many other West African countries, childbearing is the central role of marital life of The Gambian women, whether Christian or Muslim. Women bear an average of 6.4 children during their reproductive life span (i.e. from the age of menarche to menopause) and childless women suffer heavy social censure and scorn. It was a common practice in the past among the Mandinkas, the country's largest ethnic group constituting 38 percent of the population, to dissolve childless marriages in order to give the couple concerned an opportunity to remarry in search of fertile partners (Jeng, 1983:11).

It should be stated, however, that childbearing is not confined to marriage in this country. As is the case in Ghana (Jain, 1981:88), it is suspected that The Gambia also has substantial childbearing outside marriage (especially in urban and semi-urban areas), but

there is no readily available information to verify the existing situation. If such practices exist in the rural areas, the numbers involved will be relatively small since it is more common to have children within marriages than outside in such settings.

Marriage is, however, universal in The Gambia. The most popular way of entering into a marriage union is through religious institutions such as the mosque or church. Most people do not enter into civil marriages and those who do are usually educated youngsters from different religious backgrounds. Civil marriages are uncommon, partly due to the complications involved in getting divorce. Christians, particularly Catholics, also have rigid divorce laws, and Catholic wives tend to have much security. Muslim wives seem to be the least protected. For divorce to become legally binding, a husband only needs to repeat thrice in the presence of a witness that he has divorced his wife. Wives, being less powerful than their husbands, may ask for divorce in writing to protest against cruel husbands, provided that they can refund the dowry. For these reasons, marriage and remarriage are more frequent among Muslims, although a period of four months must elapse for widows and divorcees to remarry. Since it is believed in accordance with the Koran that a mature and healthy Muslim woman should be in a marriage in order to achieve eternal salvation, most Gambian women prefer to remain married at all times. It is therefore common for these women to be in polygynous marriages.

One wonders sometimes how polygyny works in a society such as The Gambia's where there are almost equal numbers of men and women (i.e. taking into account a sex

ratio of 103 men per 100 women). But the answer lies in the fact that in such societies women marry very early at menarche whereas men do not marry until their late twenties and thirties (Caldwell, 1975:521). Men's marriage is usually delayed as it takes a much longer time to save for the expensive bride's dowry. Polygyny is popular only among rich men and Muslims who practice it. Islam permits men to have up to four wives, but the socioeconomic conditions in urban and semi-urban areas do not seem to be well suited for such practices. However, multiple wives are a sign of wealth and power in rural Gambia and for those who can afford the practice in urban and semi-urban areas. Dowry and marriage formalities are less elaborate for widows and divorcees. These practices of marital formation encourage high fertility when age at first marriage is low.

As in most West African countries, the extended family system predominates in The Gambia. Within the extended family system, total obedience is accorded the eldest male as the head of the compound which may constitute one or several households. It is strongly believed, particularly in rural areas, that the wisdom of the elders is always paramount, since their knowledge is perceived to be derived from experience and is passed on over generations. The members of such extended families jointly struggle for survival and for their collective welfare. Adoption of a child by other relatives seems to further the formation of extended families. The adoption effect tends to relieve poorer relatives of the costs of their children's upbringing and family responsibilities and thus lessens their concern about the number of children they should have. The nuclear type of

family has recently appeared among the educated few, but they still owe their allegiance and responsibilities to their extended families (Jeng, 1983:11).

For these reasons, the idea of limiting family size is fairly recent in The Gambia. Very little use of contraceptives was recorded before the inception of The Gambia Family Planning Association (GFPA) in 1969. MOH (1979) has estimated that 3 - 4 percent of women at risk of being pregnant were active contraceptive users in the late 1970s. Although there is no published information about current use of contraceptives among women, it is reasonable to expect that users in The Gambia are within the range of 3 to 12.4 percent estimated for West Africa (Senderowitz and Paxman, 1985:15). The proportion of women currently using traditional methods such as safe period and withdrawal may be relatively low. There is yet no evidence of the effectiveness of local methods like herbal prescriptions and charms to guard against pregnancy. Abstinence is becoming less popular, as the tradition of separating women from their husbands is fading with modernization. Nowadays, women rarely return to their mothers' houses during the third trimester of pregnancy for help in late pregnancy and/or early child caring (Caldwell, 1976:196-198).

There is very little information on the effects of factors like low levels of modernization and low status of women, although it can be presumed that they do contribute to the country's high fertility. Apart from the evidence of some differences in fertility levels and structures for certain categories like education, tribe and urban-rural

residence, no other information is available on such issues. Jeng (1983) and CSD (1988) have reported estimates by level of education based on the 1973 and 1983 censuses. In Jeng's study, illiterate women are reported to have a much higher fertility rate of 6.8 compared to 5.5 and 4.4 for women with primary and secondary levels of education respectively. The CSD report estimates a total fertility rate of 6.4 for illiterates compared to 5.7 for those with primary and more education. At the same time, women in urban settlements have one child less than those living in rural areas (i.e. 5.9 compared to 6.9 children per woman).

There are also some differences in fertility according to ethnic groupings. The Wollof, Serhuli, Serere, and Manjago all have a TFR of more than 7 children compared to Mandinkas and others with a fertility level averaging 6 or less children per woman. These results are comparable with the overall level of 6.4 children estimated for the country (Jeng, 1983: 57).

2.3.4 Synthesis

Based on the above review, one can clearly see that fertility is not homogeneous throughout Africa. Unlike the high levels found in the sub-Saharan region, fertility in North Africa is generally much lower. Yet, the current low levels of fertility in North African countries like Egypt, Morocco and Tunisia are still high in comparison with the rates in Europe and North America. The relatively constant fertility of West Africa of

about 6 children per woman is certainly among the highest levels throughout the world. Despite the differences between the fertility levels of North and West Africans, there are a number of similarities in behaviour and attitudes toward childbearing. These include the finding that the users of contraceptives are mostly married women and that they use it effectively only after attaining their desired family size.

Regardless of region of residence, there is a common perception among all Africans about the value of children and the security they provide to parents in old age. Because of the absence of pension schemes and national social security programmes, parents invariably depend on their children for economic insurance in old age. Moreover, most people prefer to have their children within wedlock, a fact which explains the universality of marriage throughout the continent. But there is also a major difference between North and West Africa particularly on acceptability of childbirth out of wedlock. West Africans are far more tolerant about such practices since they are accepted in some of their cultures. This is perhaps because of a stronger pull of tradition than of religion.

Kamuzora (1987) and others have reported that most sub-Saharan Africans rely more on tradition than religion. These researchers have now switched from the theory of relationships between religion and fertility in Africa to that associated with traditional beliefs and practices. Thus, it is unreasonable to rely on allegations that Islam is mainly responsible for higher fertility and lower status of women. Otherwise, the North African countries of Egypt, Morocco and Tunisia, with more than 80 percent Muslim populations,

will not have lower fertility than Liberia and other West African countries with fewer Muslims. Differences between countries may be due to socioeconomic and other cultural factors, and not just religion (Weeks, 1988:26-31).

As indicated earlier, contraceptive use accounts for most of the national and sub-national differences in fertility levels. Whereas 25 percent or more of the female population in Tunisia, Morocco and Egypt have used contraception at least once, only 5 to 10 percent of West African women have ever used them. Contraceptives are not at all popular in West Africa. At the same time, their widespread use very much depends on the status of women and level of modernization attained and these are higher in North than in West Africa. As women are given more opportunities in education and employment, it can be expected that they would use contraceptives more to regulate fertility. This is applicable to all women, adolescents included.

2.4 Overview of early childbearing practices

Evidence from the study by Trussell and Menken (1981) among others, have shown the positive relationship between early childbearing and lifetime fertility. These authors have associated early motherhood to higher lifetime fertility. In their analyses, women who have children earlier in life tend to have shorter birth intervals. This not only limits the length of spacing between children of the same family, but it results in more frequent pregnancies and, subsequently, to an increase in the total fertility of women in

countries such as Africa where there is very little use of contraceptives. Therefore, it is clear that early childbearing and lifetime fertility are strongly correlated.

It is worth noting, however, that the high frequency of pregnancies and high birth rates of teenagers and young adults in developed countries, as widely publicized as they may be today, cannot be considered a recent phenomenon. Many countries like the United States and Canada experienced some increase in childbearing and sexual activities of young people shortly after World War II. This period, often referred to as the baby boom era, also witnessed a global and drastic change in adolescent sexuality, attitudes and experience. The arrival of the baby bust period in the 1970s, however, was accompanied by a reduction in the level of adolescent fertility in North America (Senderowitz and Paxman, 1985:3-8). Thus, adolescent fertility declined to a large extent in concert with that of older women.

The reasons for such decline in young parents are mainly the result of changes in age structure, i.e., from a younger to older populations and a decrease in teenage pregnancies through development of intervention measures in the form of abortion, contraception and sex education programmes. Such a decline in births of adolescents which started as far back as the late 1960s and early 1970s in North America, is likely to continue for sometime with improved programmes and more precise solutions to the problem of unwanted pregnancies (Furstenberg et al., 1981:128). Is it therefore necessary to be concerned with adolescent fertility now that birth rates and the teenage pregnancies

are lower? The answer is yes. We are concerned mainly because of recent changes in pattern and norms of early childbearing in the context of marriage. Unlike the past when women had children strictly in wedlock, childbearing is now frequent outside marriage.

Most adolescent births prior to the first World War occurred within marriage which reduced the risk of unsafe sex and abortion. It is also an advantage to have a child within wedlock if we are concerned about the social and economic well-being of mothers and their children. Furstenberg et al. (1981) have argued that young mothers and children are much better off within marriage than in "lone home" families in spite of the welfare and child care support provided by the U.S. and Canadian governments. Because of the fact that a similar situation also exists in Africa, it is necessary to review the patterns and trends, as well as determinants and consequences of adolescent childbearing for both North Americans and African countries.

2.4.1 North American studies

In North America, the pattern of childbearing among adolescents varies greatly between countries and in terms of cultural disparities within each country (Senderowitz and Paxman, 1985:5-6). Despite many similarities in economic infrastructure and social settings, teenage fertility is relatively higher in the United States than in Canada (Westoff et al. 1983:13; Maciak et al, 1987:2069). It has been noted that for every one thousand Canadian teenagers aged 15-19 in 1987, 23 of them have had a live birth (Wadhera and

Silins, 1990:28) compared to 51 for their American counterparts in 1985 (Henshaw and Van Vort, 1989:85). The difference in pattern is much larger as the age of adolescents increases. This is noticeable if we classify age into selected groups like less than 15, 15-17, and 18-19. Whereas the less than 15 year-olds, for example, reported 5 births for every 1000 girls, the 15-17 and 18-19 year-olds had 31 and 81 births in the same year of 1985 (Henshaw and Van Vort, 1989:85). Two years later, the births of young Canadians aged 15-17 and 18-19 was reported as 12 and 39 per thousand respectively (Wadhera and Silins, 1990:28). A marked disparity has been found for earlier ages before 18, while the fertility gap between the two countries extends to the late teenage ages of 18-19 years.

Both in the United States and Canada, the adolescent birth rates have been consistently declining in the last two decades. While the teenage birth rate for 15-19 year-olds fell from 60 to 35 per thousand between 1959 (i.e. during the peak of the Canadian baby boom) to 1975, a more remarkable decline to 23 per thousand was recorded in 1987 (Wadhera and Silins, 1990:28). The birth rate in the U.S. for the same period declined from 97 births per thousand in the 1950s to 58 and 51 births in 1974 and 1985 respectively (Jones et al., 1986:40-41; Maciak et al., 1987:2070; Henshaw and Van Vort, 1989:86). Teenage birth rates in the U.S. are high because of the significant proportion of unwanted pregnancies as well as irregular and improper use of contraceptives by sexually active adolescents (Trussell, 1988:262).

A similar decrease has been reported in the pregnancy rates of adolescents in both countries. The patterns and trends of teenage pregnancy and abortion rates, are much lower in Canada than in the United States. Such inequality was noticed as far back as the mid-1970s (Herold, 1984:115; Wadhera and Silins, 1990:27-28; Maciak et al., 1987:2069; Henshaw and Van Vort, 1989:86).

The differentials of adolescent pregnancies and birth rates are quite marked in terms of race and ethnic groupings. For example, Trussell (1988) found that the pregnancy rates for blacks in the U.S. are almost double those of whites. Such black/white differences are not apparent in Canadian society since blacks constitute only a small proportion of the Canadian population. However, some racial differences may exist also in Canada (Wadhera and Silins, 1990:27).

The differences in adolescent pregnancies and childbearing practices are mainly attributed to changes in behaviour and attitudes. Senderowitz and Paxman (1985) argue that changes in adolescent behaviour are mainly caused by a combination of socioeconomic, cultural and biological factors which have produced a "new and stressful condition" for young people. These, they argue, include the effects of education, early menarche and sexual activity, changing societal values, attitudinal changes, social and economic factors, and use of contraception and family planning services.

Today, the sexual activity and fertility of young people, often tied up with modernization, begins very early as it is partly determined by what some authors have called the "biosocial gap," arising from normative changes in their behaviour and early maturity of adolescents; and this tends to increase the chance of having a child during the period between puberty and adulthood. The apparent disappearance of parental and societal control on the sexuality and childbearing practices of young women have been partly responsible for changes occurring in both the U.S and Canada. Adolescent values have drastically changed in these societies because of the marked influence of the media on young people, particularly with respect to the permissive manner that sex is portrayed in T.V. programmes. This has led to marked changes in attitudes toward sexual intercourse and childbearing (Trussell, 1988:265).

Similarly, the level of socioeconomic status attained by young women also affects their attitudes and behaviour toward childbearing. Income, education, religiosity, family size, and nature of relationships of adolescents and their parents are linked with early pregnancy and childbearing. The influence of these factors, however, depends on whether adolescents use contraceptives or not (Ashken and Soddy, 1980:18).

The low and inefficient use of contraceptives is important and counts among the main causes of early childbearing in North America. The problems of low use and non-use of contraceptives are exacerbated by the tendency of men to shift the bulk of birth control responsibilities to women, and that "contraceptive behaviour of young women is

inconsistent at best and often ineffective" (Senderowitz and Paxman, 1985:17). While peer groups and the mass media openly discuss issues around sex, parents and institutions like the church seem to discourage early access to contraceptive information and services. Reluctance to give adolescents and young women the full responsibility for contraceptive knowledge and use results in many unwanted pregnancies among them. Studies have shown that U.S. teenagers delay between 9 to 12 months, while their Canadian counterparts wait for a period between 6 to 24 months before seeking clinical assistance after their first sexual encounter. This, more or less, leaves about 85 percent of young Canadians exposed to the risk of pregnancy at this critical moment of uncertainty and indecision over safe sex (Zabin and Clark, 1981:8; Senderowitz and Paxman, 1985:22-23).

The consequences of adolescent pregnancy and childbearing are numerous and severe. They are psychological, social, economic, demographic and health-related in nature. Moreover, the repercussions of early childbearing are detrimental to both the young mother and her partner, the infant, and other family members concerned with her well-being as well as to society as a whole (Alan Guttmacher Institute, 1976:5).

Furstenberg (1976) reports a clear link between adolescent childbearing and certain psychological and emotional problems. He found that early parenthood disturbs the future expectations and psychological well-being of young adults. Nearly 6 out of the 9 characteristics of abusive families are directly related to early childbearing--including forced marriage, early marriage, unwanted pregnancy, premarital conception and financial

difficulty (Grindstaff, 1987:6). Baldwin (quoted in Senderowitz and Paxman, 1985:25) has associated adolescent fertility with reduced mental capability and lower intelligence among children of adolescent mothers compared to those of mature women.

Teenage mothers also suffer social isolation and, sometimes, parental rejection. In most cases, society offers them very little chance to correct previous mistakes and to re-integrate into a more prospective family life. In the U.S., only about one-half of teenage mothers get the opportunity to complete high school, as compared to 96 percent of their childless colleagues. Similarly, teenage fathers have higher drop-out rates at the secondary school level (Card and Wise, 1978:204). The negative connection between low education of teenagers and their future occupational status and income are of great concern as well (Alan Guttmacher Institute, 1976:35).

The health-related consequences of early motherhood are equally severe. Most of them life-threatening, these are mostly complications of pregnancy and delivery and include toxemia, anaemia, pelvic and cervical tightness, prolonged and difficult labour and premature delivery. Medical complications which face babies of adolescent mothers include low birth weight, premature birth, stillbirth and prenatal mortality (Alan Guttmacher Institute, 1976:32-37; Senderowitz and Paxman, 1985:24).

2.4.2 African studies

Research on early childbearing in Africa has been neglected until recently when concern about the effects of early childbearing began to be raised throughout the continent. The change in attitudes and awareness came as a result of careful scrutiny of the experiences of developed countries and through reanalysis of problems of African development, as well as pressures involving rural-urban migration, rapid urbanization, overcrowding and housing shortages. In as much as some of these socio-demographic processes are by-products of development, they are often accompanied by numerous complications which directly or indirectly affect young people. Many of these complications have not been adequately addressed by post-independence African governments either because of scarcity of resources or due to unawareness of the magnitude of their effects.

Recent evidence suggests that adolescents contribute a significant proportion of Africa's total fertility. Gyepi-Garbrah (1985a) found that 10 percent of the total births were delivered by adolescent women aged 15-19 and that percentage varies considerably from one country to another. For example, adolescents in Tunisia and Morocco contributed only 3 and 5 percent of the TFR as compared to those in Sierra Leone and Mauritania with 17 and 20 percent respectively. This is not surprising given that the African population is relatively very young compared to the aging populations of Europe and North America. Female adolescents aged 15-19 alone account for 8 percent of the

population of most African countries (Senderowitz and Paxman, 1985: 7-11). Such a relatively high proportion of young female adults has been quite stable over the past thirty years or so, and has been a major contributory factor to the region's constantly high fertility over the years.

Senderowitz and Paxman (1985) found that out of the top 20 countries with the highest adolescent fertility in the world, 13 are from sub-Saharan Africa with a birth rate above 125 per 1000 for young women aged 15-19 years. At the continental level, adolescent fertility ranges from a low level of 35 per thousand in Tunisia to a much higher rate of 302 per thousand in Mauritania. Such variation is largely attributed to differences in age at first marriage, socioeconomic background and non-use of contraceptives by adolescents. It is interesting to note, however, that Mauritanian women marry much later at age 20 as compared to those of most West African countries, and that they reproduce faster as well. This may indicate the unpopularity of family planning methods in Mauritania.

Apart from these differences in levels of childbearing, adolescents appear to have much in common, particularly in urban areas. For example, Klein (1988) has confirmed the similarities of sexual behaviour and factors associated with early childbearing by comparing urban Nigerian and Liberian adolescents to their American and European counterparts. As the African cultural systems for grooming adolescents into adulthood became weaker in the urban areas through the influence of the mass media and closer

contacts with Western lifestyles, the local institutions that formally controlled and supported the traditional values of virginity and absolute sexual restraints gradually crumbled. Thus the meaning and respect for virginity has diminished among urban adolescents. In the past, circumcision of both boys and girls was not only perceived as a surgical procedure of the genitals, but as initiation into adulthood, and as an occasion for the education of the youth about societal norms and expectations. More importantly, it was an occasion for teaching the youth the virtues of sexual abstinence and responsibility. The ceremonial aspects of the event is misconceived by North Americans that circumcision in Africa only involves the surgical procedure of the genitals. Such misperception is also exacerbated by the abhorrence of female circumcision by African educated elite and Western society.

Apart from weaknesses in traditional control and support systems of African societies, the education of adolescents in rural areas, on average, is very low and has little influence on fertility (Jeng and Taylor-Thomas, 1985:4). As a result of a high early school dropout rate, educational wastage is very high in these areas. For example, 2 percent of girls in Zambian schools are expelled every year because of pregnancy; this figure may be higher in other countries. Almost 18,700 Tanzanian girls dropped out of school in 1982 because of pregnancy (Senderowitz and Paxman, 1985:26). In some cases, boys who are responsible for these pregnancies are expelled as well. In addition to peer group and social pressures, these problems endured by both boys and girls are partly the reason for

illegal abortion among Nigerian school girls and, as may be expected, many other young Africans (Gyepi-Garbrah, 1985b:29-31; Senderowitz and Paxman, 1985:26).

Instead of devoting attention on the reproductive process and dropout rates in the educational system, other researchers like Burchinal (1959) have looked into the effect of early marriage on marital dissolution. Marrying as a teenager is mostly linked with marital instability and eventual divorce. This is partly attributed to the poor economic condition of young people and their inability to maintain stable union. Such marital problems not only affect young mothers, but their children as well. Children from "broken homes" are known to be more disadvantaged as compared to others whose parents are married. Some African cultures, however, do not encourage divorce. Since marriage in such cultures is not only a bond between the couple concerned, but a community affair, elders and other concerned persons are always very active in reconciling couples.

Another serious consequence of early childbearing relates to the high rates of maternal mortality for both married and unmarried adolescents (Bah and Jeng, 1991:1). It has been reported in the Pathfinder studies of adolescent fertility in sub-Saharan Africa that pregnancy-related deaths are common among female adolescents aged 15-19. For Sierra Leone alone, most of the 30 percent of pregnancy-related complications of those aged 15-24 are attributed to the 15-19 year-olds. Gyepi-Garbrah (1985a) has presented a similar tabulation for the 15-24 year-olds for ten other countries ranging from 21 percent in Zambia to 42 percent in Chad. Among the most common illnesses and causes of death

of young mothers and their children are malaria, meningitis, pneumonia, malnutrition, ineffective health education programmes, and adverse prenatal and postnatal complications (WHO, 1979:17; Gyepi-Garbrah, 1985c:5; Senderowitz and Paxman, 1985:24).

Nevertheless, early childbearing is significantly reduced when a high proportion of young women are sub-fecund. Farley and Belsey (1988) show that sub-fecundity of women varies greatly between and within countries in Africa. These authors show that women in sub-Saharan Africa have higher rates of sub-fecundity than other areas of the developing world. This problem is more prevalent in Central Africa (Cates et al., 1985:97-98; Frank, 1987:7-8).

Like all females, adolescents and young women are in the high risk group since they are also affected by complications associated with such reproductive problems (Caldwell and Caldwell, 1983:30-34). The main causes of sub-fecundity among young women in Africa have been found to be very closely associated with the adverse complications during pregnancies and childbirth. In countries where clandestine abortion are high, both postpartum and post-abortion sepsis contribute a great deal to sub-fecundity (Farley and Belsey, 1988: 2.1.26). Also, sexual transmitted diseases (STDs) are known to be important. Although reliable data are scarce, the findings of Mabey et al. (1984; 1985) suggest a steady increase of STD related cases among women observed in antenatal clinics in The Gambia.

2.4.3 Comparative review

Adolescent childbearing in Africa differs greatly from the North American situation despite the diffusion of Western values in urban areas of these countries. For example, while in 1985 fertility in North America was below 55 births per thousand girls aged 15-19, the rate was far above 100 births per thousand in the sub-Saharan region (Senderowitz and Paxman,1985:9). Early marriage and lack of use of contraceptives account for much of the difference. Whereas the majority of young Canadian and American mothers remain single and are more knowledgeable about contraception, their African counterparts marry earlier and have little knowledge and access to contraceptives during their teenage life. For these reasons and many others attributed to modernization and cultural differences, the North American teenagers now have fewer babies than their African counterparts.

Given the fact that most babies in rural Africa are delivered at home and not in medical institutions, the young women concerned are also exposed to higher risks of either dying or losing their babies. African countries are among those with the highest infant and childhood mortality in the world. The mothers of these babies similarly face higher mortality and morbidity rates. This is because maternal and child care is more readily accessible to adolescents in the United States and Canada than in Ghana or Kenya. Differences in level of modernization can account for such variation as well.

In terms of education, the young mothers in North America have brighter prospects than their African counterparts. There is no provision in the educational policies of most African countries to accommodate young mothers in schools. A typical example of such a situation is found in The Gambia where pregnant girls are immediately expelled from school and are not accorded a second chance to return to school (Jeng, 1983:47). These strict measures place young African women in a more vulnerable position compared to their counterparts in North America.

The North American adolescents are also more knowledgeable about reproductive health information and programmes. Unlike most African countries where sex education is still unavailable in most schools, the North American programmes are fully developed and accessible. Whereas access to non-oral contraceptives in most African countries is only possible by parental consent, or within marriage and parenthood, the North American programmes have been tailored to the demand and needs of youngsters. Most adolescents and young adults in the United States and Canada, whether married or not, can always have access to family planning services. Abortion laws are also less restrictive in these countries compared to most African countries where institution-based abortion can be performed only on medical and health grounds. Maternal mortality is high in most African countries partly because of unsafe "backyard" abortions (Senderowitz and Paxman, 1985:27-38).

2.5 Research agenda

The very high levels of childbearing among adolescents and young female adults is increasingly capturing research attention. This is because of the recognition that the lives of these young mothers are often adversely affected as are those of their children and family. Such adverse effects moreover strain the resources of the societies in which they live. The diversity of such concerns is reflected in the variety of theoretical frameworks that are adopted to analyze the process through which fertility is affected by socioeconomic, cultural, demographic, biological and behavioural variables. As discussed earlier, the fertility of adolescents and young female adults has been attributed to: (1) the role of cultural and institutional values as well as expectations about relationships and sexual unions (Chilman, 1983:78; Scot, Field, Robertson, 1981:21); (2) the socioeconomic background of young women and that of their parents, especially with respect to educational attainment and the rationale of costs and benefits of having a child (Abdelrahman and Morgan, 1987:405; Rindfuss and St. John, 1983:563; Scott, Field, and Robertson, 1981:18-24); (3) the social and psychological problems of adolescents (Jessor and Jessor, 1975: 473-483); (4) the nature of involvement of the couples or partners in relationship (Libby et al., 1978: 79-82); (5) the biological maturity and fecundability of young women (Conger, 1973: 103-130; Presser 1978: 94-96); and, (6) the influence of reference groups (Williamson et al, 1982:239).

Among these theoretical frameworks, the reference group theory--which associates the sexual behaviour and fertility of young women to the influence of their peers, parents, partners and other interest groups like the school and social clubs--is the most relevant to this thesis. Apart from the argument that other theoretical propositions on early childbearing are inadequately grounded in a unified theory, they also tend to be much narrower in focus. Given that Gambian society is family-oriented and referents, including the family, affect fertility behaviour and attitudes of adolescents and young people in general, the application of the reference group theory becomes appropriate. Mirande (1968: 572) as one of the pioneers of the reference group theory, has considered the framework "useful for understanding behaviour in pluralistic societies where persons experience multiple group memberships and are frequently caught in the cross-pressures of contradictory expectations"; this is presumed to apply to The Gambia.

Suitable answers to the research questions of this thesis will be sought by combining the reference group theory with a modified version of the Bongaarts framework. With this combined approach, the determinants of early childbearing among young Gambian women age 13 to 24 and the order of significance of the major components of both direct and indirect factors will be studied. Whereas the Bongaarts-type framework is used for assessing the significance of proximate determinants and socioeconomic, cultural and demographic variables, the reference group theory relates to the KAP variables.

Although the theory cannot be fully tested in this thesis because of insufficient information about the direct influence of reference groups on individuals, it is indirectly related to the KAP variables. The influence of reference groups is not perceived here in terms of direct effects, but on the assumption that referents affect the knowledge, attitudes and practices of young women toward childbearing. The reference group likely to affect young women in The Gambia are the men who control their lives, kin groups that gives women little choice in decision making, their peers, family, parents, social clubs, the school and religious institutions. These groups control the perception of young women about marriage, sexuality and fertility behaviour. Whereas peers and kinship may impinge on their behaviour and attitudes, especially when choosing a partner or husband, men dominate their lives by monopolizing the important decisions about contraception and union formation. Women cannot use contraception without the approval of their husbands. They do not also contest their husbands' polygamous life since men dominate and control decisions in the household. The weak position of young women is likely to affect their fertility significantly.

In addition to these concerns about the reference groups, it should be noted, however, that the Bongaarts framework cannot be strictly applied here since this thesis is confined to the fertility of young women aged 13-24 and not women age 15-49. Although the socioeconomic, demographic and cultural factors can affect these two groups differently, the most conspicuous differences are notable in the case of proximate determinants.

Bongaarts (1978) has clearly indicated that overall fertility can be affected directly only through: proportion of married women, contraceptive use, induced abortion, lactational infecundability, frequency of intercourse, sterility, spontaneous intrauterine mortality and duration of fertile period. But all these are not included in the present investigation. Variables such as proportion married, induced abortion, lactational infecundability, sterility and duration of fertile period are excluded. Instead, the proximate determinants in this study include contraceptive use, age at first marriage, age at first intercourse, age at maturation, frequency of intercourse and intrauterine mortality. The composition of the indirect determinants are different as well. Figure 3 shows the proposed model for analyzing the impact of the three major components of early childbearing.

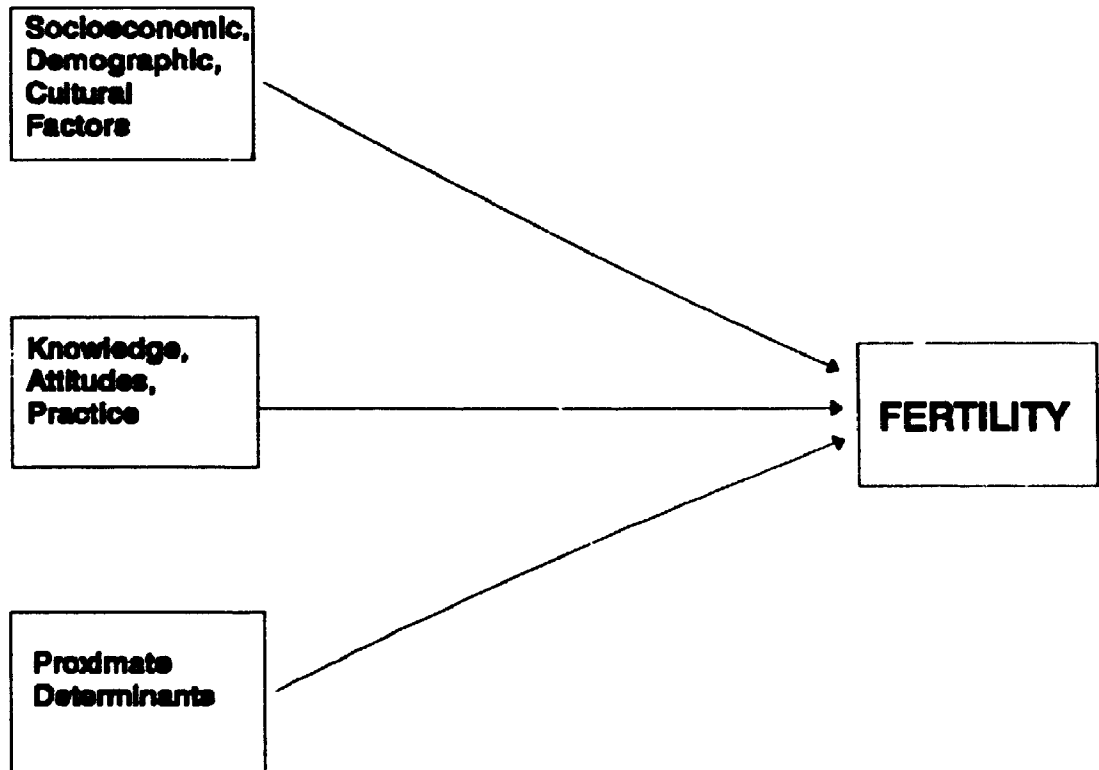


Figure 3: Relationships among Determinants of Early Childbearing.

Chapter 3: Research Methodology

3.1 Introduction

This chapter focuses primarily on issues around data collection, analytical methods, operational definitions and measurement of variables. As stated earlier, the data used in this analysis provide the only available and comprehensive information on fertility behaviour of adolescents and young female adults in The Gambia. Other than this, there are only inadequate information from censuses, an incomplete vital registration system, and fragmented records of clinics and hospitals. The guidelines and instruments of data collection procedures were very similar to those of the World Fertility Survey (WFS) in order to establish and maintain the high standards already set forth by this global programme.

3.2 Scope and limitation of data

Two data sets are used in this thesis: one from the Gambia Family Planning Association (GFPA); and the other from the Central Statistics Department (CSD) surveys. The GFPA study entitled "Reproductive behaviour of young adults in Greater Banjul area" was conducted in collaboration with Family Health International, the Pathfinder Fund and CSD between November, 1986 and January, 1987. The CSD survey, called the "Adolescent Fertility Survey of Semi-urban and Rural Areas," was conducted between December, 1987 to January, 1988 as a supplement to the GFPA survey. Although problems of unwanted pregnancies and births are more prevalent among adolescents and young female adults in urban areas, more needs to be known about life in semi-urban and rural areas where almost 75 percent of the country's population reside. This thesis therefore benefits from the rural-urban composition of these two data sets and is consequently able to report variations in rural-urban fertility of young female adults.

Some limitations of the data should be noted. Like most developing countries, The Gambia suffers from serious deficiencies in data availability and reliability owing to low literacy rates (Jeng, 1983:5; Central Statistics Department, 1976:39). The estimates of these surveys (i.e. the GFPA and CSD) must not therefore be accepted without critical evaluation. In addition, the failure to tape record a sample of the field interviews has made it difficult to measure the accuracy of the surveys.

Some instances of age misreporting have been detected in the two surveys, particularly for ages ending in 0, 5, and in even numbers. At the same time it has been difficult to establish whether the observed distribution of the survey population by single year was a result of improper allocation of the samples by age or merely due to misreporting errors. Nevertheless, there are more young people at younger ages and this is consistent with the distribution of 1983 census (see Table A1b in Appendix 7). The reported information on socioeconomic, cultural and demographic variables also appear to be consistent with estimates based on previous censuses (The Gambia Family Planning Association, 1988:14; Jeng, 1991:19).

Due to rigorous field organization procedures adopted during the GFPA and CSD surveys, some strict data quality control measures were applied. Because interviewers and their supervisors were obliged to update their enumeration area (EA) maps while listing all eligible respondents in each household, omission errors were less likely. Content errors were also minimized through active on-the-spot verification. Interviewers were able to call back on respondents to correct any error detected as soon as a sample of their completed questionnaires was checked. Each supervisor was assigned to cover only five interviewers in order to ensure the required quality of field editing procedures.

3.3 Data collection procedures

3.3.1 Survey design

The GFPA and CSD studies are similar both in terms of survey design and methodology. In fact, the CSD adopted GFPA'S survey instruments and procedures used in urban centres for use in semi-urban and rural areas. Most of the methods and materials used were similar to those of the World Fertility Survey (WFS) in order to allay doubts about the final results. It was also evident that the expediency of having representative and reliable information from these surveys would largely depend on identification and application of appropriate survey methodology and instruments. As such, the survey design not only concentrated on suitable theoretical approaches but also emphasized practical application of the adopted sampling method. It was necessary to device appropriate strategies to overcome difficulties which lay in the way of successfully reaching the target population.

A cross-sectional or snap-shot approach was adopted to collect the required information on adolescents and young adults. Although this method has been criticized for its inability to trace the processes of change, the cost of implementing the procedure far outweighed this shortcoming. A balance was therefore struck between cost factors and a slightly limited coverage. Longitudinal surveys are not suitable in the Gambian context. In societies with relatively low literacy rate, there is always a problem of matching the

information collected at different points. It also becomes very difficult to follow the respondents contacted at the initial interview. The process of calling back on absentees can be expensive and time consuming.

Nevertheless, the sampling design was drawn in such a manner that adolescents and young adults in all sample areas were well represented. In the first place, the overall sample was stratified into two groups in each of the surveys. Whereas the GFPA sample clearly separated Banjul (the capital city) from its suburbs of Kombo St. Mary area, the CSD chose to establish a similar distinction between semi-urban and rural areas. A two-stage probability sample was adopted in all areas. The first-stage involved a selection of Census Enumeration Areas as the Primary Sampling Unit (PSU). Such selection was done by means of systematic sampling with the probability of choosing an enumeration area (EA) being proportional to the population size of the area. EAs were arranged according to geographic order before applying the probability proportional to size (PPS) selection procedure. The list of EAs compiled during the 1983 Population and Housing census was used as a sampling frame (Gambia Family Planning Association, 1988:6; Jeng, 1989:13).

Since all adolescents in a selected EA would not be surveyed, a system of streamlining the required number of eligible respondents was devised. This was achieved through a procedure of dividing the selected EA into segments. The random selection of one segment among those within a particular EA was referred to as the second stage sampling procedure. Segmenting was done by making a quick "cruise count" of all

households in each EA and then plotting these households or clusters of households in their appropriate location on sketched maps. The EA was divided into segments of nearly equal number of households. But, it should be noted that the estimated number of households in a selected EA was the sole determinant of the number of segments involved. The approximate segment size was calculated by dividing the total number of households recorded in the "cruise count" by the estimated number of segments. Where an EA was equivalent to only one segment, then the entire EA was chosen as the segment. The idea behind segmenting was to spread the sample more widely (Gambia Family Planning report of 1988: 8; Jeng, 1989: 11).

Once a particular segment was selected within an EA, the next step was to choose every other household in this area. Such a skip pattern of selecting households was necessary to obtain the required sample size. All eligible female adolescents and young adults in a selected household were automatically qualified to be included in the sample.

A sample size of 1730 females was covered in 50 EAs chosen by the GFPA out of a total of nearly 500 EAs found in urban areas. The CSD sample was equally large with 1546 married and unmarried females selected from 65 EAs out of 1,375 EAs delineated in both semi-urban and rural areas. More than one percent of the target population was included in both the GFPA and CSD surveys.

Although it was originally intended to restrict the sample population of the CSD to those aged 13-20, it was eventually extended to those 13-24 years of age. This was done to achieve comparability with the GFPA survey. According to the GFPA (1988),

'Although 20-24 year-olds are not considered adolescents, many young men and women in this age group (both married and unmarried) have recently experienced the consequences of adolescent or premarital pregnancy. Furthermore, a large proportion of both males and females aged 20-24 are still not married and may also face the problems of premarital pregnancy.' (p. 5)

For these reasons, this thesis will focus on young women age 13-24 years and not on adolescents alone.

3.3.2 Survey instruments

The required information about the sample population was obtained by administering a questionnaire to each eligible respondent. The GFPA questionnaires used for the "Reproductive Health Survey of Young Adults in Greater Banjul Areas" were partially adopted by the CSD study on "Adolescent Fertility in Semi-urban and Rural Areas". Both questionnaires⁴ of the two surveys were similar, even though some parts of the GFPA forms were excluded from the questionnaires of the CSD. The length of interviewing time per respondent was considerably curtailed because of the skip pattern built into the questionnaire (see Appendix 8).

⁴ The questionnaires used for the GFPA and CSD surveys were similar to that of WFS. Because of my position as Head of the Demographic section of the CSD and a consultant to the GFPA, I participated in developing and testing both questionnaires.

The field staff was classified into four categories, namely the interviewers, supervisors, senior field supervisors and project coordinator. Apart from the project coordinator who was based at the CSD and GFPA, the remaining staff were all answerable to the senior field supervisors (SEP). Every SEP was responsible for implementing directives from headquarters. They were also required to monitor the work of both the supervisors and interviewers. Responsibility for implementing and organizing the surveys lay with the project coordinator.

A pilot study was conducted in both surveys to evaluate the survey instruments and methodology. In each survey, three enumeration areas were randomly selected from different parts of the country. The need to reformulate and restructure the order of some questions and survey plans was easily identifiable from the pretest results. All aspects of the survey instruments and methodology were finalized based on the pretest.

The pilot surveys also indicated the need to sensitize both interviewers and supervisors about errors from translating the questionnaire from English to local languages. Thus, an intensive training programme was organized separately for interviewers and supervisors. Because of the need for supervisors to acquaint themselves with the various field problems, it was compulsory for both teams to attend the training sessions. The interviewers were given both in-class training and field practice. A special course was held a week later to consolidate the focal role of supervisors as well. It should be indicated that a training manual was compiled especially for interviewers and

supervisors. The manual was drawn up to address certain parts of the questionnaire which required more careful completion. It also covered the obstacles which were likely to arise during the field work.

3.4 Analytical methods

3.4.1 Framework of analysis

A graphic presentation of the relationships between the respective components of the direct and indirect determinants affecting early childbearing is presented in Figure 3 of Chapter 2. This model, as a modification of the Bongaarts framework for analyzing overall fertility has been designed for adolescents and young women. Apart from the comprehensive coverage of variables that affects early childbearing, the model shows the relationships between the major components of fertility and how they influence each other. In this regard, the socioeconomic, demographic, and cultural (SEDC) characteristics of women do not impact directly on the proximate determinants, but do so through the knowledge, attitudes, and practice (KAP) variables.

Since this thesis focuses on the determinants of fertility among adolescents and young female adults in The Gambia, the main interest here is on the impact of individual variables and components (or group of variables) and not the paths through which fertility is affected. Because of this, the subsequent analysis is confined only to multivariate contingency and logistic regression and excludes path analysis. The emphasis in this study

is on the measurement of relationships between early childbearing and specific variables and components; issues regarding causality are not entered into. As mentioned in Appendix 6, the present analysis does not include any missing value.

Also, the proposed framework of analysis does not include all the important determinants of early childbearing, given the limitations of the available data. Consequently, this study is confined only to the information collected during the recent surveys on adolescents and young female adults. Also, given the assumptions underlying the logistic regression method, this analysis does not include all the variables which were initially considered relevant to the proposed model. It excludes variables such as marital status and education planned by age 25 since these are highly correlated with age at first marriage and educational attainment and are also considered less important to the investigation. Although it is useful from an analytical point of view to consider differences in parity distributions and timing of respective births, this study is not concerned with these issues. The main focus here is narrowed down to factors that differentiate the fertility of young female adults.

3.4.2 Model building

Several methods have been proposed recently that assist in the selection of variables for logit models. Kay and Little (1986) have suggested an approach which begins with a logistic regression of the outcome variable on a single independent variable.

All the covariates of interest are screened in this manner until the influential ones are selected. As a criterion for selecting the variables, a specific level of acceptance of 0.25 or less is often used to identify the important variables to be included in the multivariate analysis.

Another method of variable selection is based entirely on statistical techniques like stepwise regression which specifies procedures for including or excluding variables from the model. According to the two methods of stepwise regression, variables are omitted from the analysis through a process of forward or backward elimination (Pedhazur, 1982:154-158; Norusis, 1983: 163). There is also a procedure commonly known as the "best subset selection method". It identifies the "best subsets" of variables to be included in the model based on a specific selection criteria. But this procedure has not been extensively used as yet (Lawless and Singhal, 1987:117 - 122).

The method used in this thesis simultaneously includes all variables of interest into the multivariate analysis regardless of the results of the bivariate relationships between the outcome variable and covariates concerned. This approach is adopted on considerations of not only sample size, but also the number of respondents in each category of dependent and independent variables. This method can produce unstable estimates and overfitted models if the sample size is small or there are few respondents in categories of selected variables. Overfitting yields unreliable and large estimates of the logit coefficients and standard errors (Hosmer and Lemeshow, 1989:83). None of these

problems were encountered in this analysis, since the sample sizes of both the surveys and the number of cases in categories of dependent and independent variables were relatively large.

The rationale for simultaneously entering all the variables of interest is that individual variables may show confounding effects in a bivariate relationship but confounding problems may not be encountered when entered as a group (Hosmer and Lemeshow, 1989:106). Also, the procedure was found to be flexible in accommodating theoretical concerns during the process of variable selection. It is not as deterministic as stepwise regression which fulfils mainly specific statistical requirements with little or no theoretical considerations.

Apart from these concerns, efforts have been made to verify that variables were properly categorized. For both discrete variables, the number of cases in their respective categories were non-zero and reasonably distributed. Comparing the results of respective models of the major components of direct and indirect determinants, the coefficients and

standard errors of these variables were stable and appeared reliable based on existing theoretical information⁵.

An important consideration in modelling was to verify whether the primary independent variables of interest interact with other covariates in affecting the outcome variable. Hosmer and Lemeshow (1989), among others, have found that:

'when interaction is present, the association between the risk factor and outcome variable differs, or depends in some way on the level of the covariate. That is, the covariate modifies the effect of the factor.' (p.64)

For this reason, the significant two-way interactions of theoretical relevance to the present investigation were included in the modelling process. Three-way and higher order interactions were ignored partly because of the large number of variables involved and to avoid possible difficulties in interpreting the results.

⁵ It is also necessary not to ignore differences in the composition of models. The respective models in this analysis were tested both at .01 and .05 level of significance. But each model differs in terms of number of variables; therefore, it is statistically inaccurate to adopt a uniform approach for all models. According to Miller (1966), the Bonferroni t-statistic is the most suitable correction technique to be applied. Basically, it is expressed as $C=A/N$; where C is the correction factor, A is the t-statistic (either .01 or .05) and N is the number of variables involved. For example, in modelling all eleven socioeconomic, demographic and cultural (SEDC) variables, the correction factor of 0.0045 (i.e. $A/11=0.05/11$) was used instead of 0.0083 (i.e. $A/6=0.05/6$) as in the case of the proximate determinants. A similar adjustment has also been made for other models.

3.4.3 Statistical applications

The statistical procedures of the present study involve two approaches, namely, bivariate and multivariate analyses. Bivariate analysis is used to estimate the associations between early childbearing and some selected variables of interest. The bivariate relationships not only help in understanding the fertility of young women, but also assist in interpreting the results of the multivariate analysis. However, since bivariate relationships are inadequate when other confounding factors are involved, two different approaches of multivariate analysis have been adopted to counter such deficiencies. Whereas the multivariate contingency table analysis is essentially restricted in this thesis to measure the relationship between three variables, the logistic regression models deal with the situation when more than three factors are involved. Details of these applications are further discussed in Chapter 4.

3.5 Operational definitions and measurements

As demographers are yet to be consistent about the exact determinants of fertility among adolescents and young female adults, this section defines the variables of particular interest in the empirical presentation. It is assumed that the variables included here are relevant and may reasonably explain the fertility of young women. Since this study is not only concerned with the variables affecting early childbearing but also with the impact

of individual components of direct and indirect determinants, it is necessary to classify each one along with others of similar category as discussed in Section 3.4.2.

3.5.1 The dependent variable

The childbearing status of young female adults, including adolescents, is treated as the dependent variable. This variable is categorical and takes value 1 for women with at least one child (i.e. parity 1+) and 0 for childless women (parity 0). The probability of having at least one child is based on this information.

3.5.2 Independent variables

Based on our earlier theoretical discussion and review of the literature on determinants of fertility, it is clear that many factors are involved in predicting the fertility of young women. Of these, only the variables that are pertinent to the present study are selected. These variables will be used in both the bivariate and multivariate analysis in chapter 4.

3.5.2.1 Socioeconomic factors

The socioeconomic factors consist of five variables of importance in determining early childbearing, namely, level of education, employment status, looking for work, living arrangement and area of residence. Although these variables do not affect fertility directly, their indirect effects are likely.

Young women with higher education often experience low fertility compared to those with no education at all. Not only are the educated aware of contraceptives and their effectiveness, but they are also more likely to use them for avoiding unwanted pregnancy and childbirth (Oni and McCarthy, 1990: 106). Educational attainment is divided into two categories, that is, below post-primary school level (including no education and primary education) and post-primary level.

Employment status has two categories: employed and unemployed. Employed women usually have lower fertility compared to those who are unemployed. Among the unemployed, some are looking for work and others who are not. Those who are searching for work are part of the labour force and may be more careful to avoid unwanted births in order not to jeopardize their chances of employment. Those who are not in the job market can be expected to behave differently.

The variable "living arrangement" is classified into three categories: young women living with their mothers only, those living with both parents, and others (including partners, husbands and relatives). DeLameter and MacCorqudale (1979) have associated greater independence of young women living away from parents with greater involvement in premarital sex and consequently, to early motherhood. Also, Hogan and Kitagawa (1985) found that adolescents in single parent families in the United States are more likely to have a child early compared to those living with both parents.

Demographers have devoted much attention on the differential in characteristics of the urban and rural population, especially in fertility studies. Many demographic investigations such as the World fertility surveys and decennial censuses have regularly collected information on residential area. The present study has also included this variable which is classified into urban and non-urban (i.e. semi-urban and rural) areas.

3.5.2.2 Demographic variables

Like the socioeconomic factors, demographic variables are also important in determining fertility behaviour. Age, for instance, can be used as a control variable for examining differences in fertility behaviour of young women. Theoretically, age is known to have a positive relationship with early childbearing. That is, as age increases, the

number of young women with children would also rise steadily. In order to examine this phenomenon, the age of respondent is maintained as an interval/ratio variable⁶.

The number of siblings which varies considerably for respondents in developing countries has been grouped into four categories: less than 2, 3-4, 5-6 and 7 plus. Robbins et al.(1985) found the number of siblings to be positively associated with pregnancy of young women and subsequently to early motherhood. Rindfuss and St. John (1983) argued in their study of "social determinants of age at first birth in the United States that

'The larger the family...the greater the economic and psychological push to leave and to assume adult roles, including that of motherhood, at an earlier age.... Furthermore, the larger the family of orientation, the greater the likelihood that the girl's mother started having children at a very young age. Early childbearing norms may be transmitted inter-generationally. Finally, if the family is large, direct parental guidance may be limited, and this might increase the probability of accidental motherhood at an early age.' (p. 555)

It is also probable that girls who see their older sisters become parents at very young ages are more likely to accept the practice as a way to reach adulthood. At the same time, it may be less distressful for parents whose older daughter(s) have had a child

⁶ Five interval/ratio variables are used in the logistic regression models of this study: age of respondent, age at first marriage, age at first intercourse, age at maturation, and contraceptive knowledge. As the best method for assessing and transforming the scale of continuous variables, the Kay and Little approach is used to determine whether variables should be grouped or not. The procedure "illustrates how examination of marginal distribution of covariates within outcome groups may help suggest the appropriate scale" (Hosmer and Lemeshow, 1989: 90-91). Based on the results of this method, the above five variables are maintained as interval/ratio variables. Others such as "best age for girls to have sex", "best age for women to wed", and "best age for women to have 1st child" which were originally interval/ratio and did not meet the assumptions of linearity of the logits are grouped instead.

if the experience is repeated by younger siblings. These parents have already gone through the trauma and may be more capable of handling it because of their earlier experience. The "rank among siblings" is thus a useful variable that relates to early childbearing. For the purpose of this exercise, the variable is divided into two categories: whether the respondent is the eldest child of her mother or not.

Apart from "rank among siblings", the "number of children desired" is also included. In pronatalists societies like The Gambia where children are regarded as a blessing and a gift from god, young women are likely to "state a number of their desired children reflecting what they foresee as their future expectations" (Ghana Fertility Survey, 1983:60). Childlessness is undesirable and totally incomprehensible to Gambian women. Because of these reasons, the number of children desired may be somewhat related to early childbearing. The variable is partitioned into three respective groups who desired to have 1-3 children, 4-6 children, and 7 children or more.

3.5.2.3 Cultural variables

Two significant cultural factors are expected to influence early childbearing among young female adults in The Gambia, i.e. religion and ethnicity. Since Muslims are known to have relatively high fertility levels, religion is classified into two groups, Muslims and non-Muslims.

Ethnicity may have an indirect influence on fertility. Long (1970) found that marked demographic differences between ethnic groups of apparently similar socioeconomic characteristics often arose from contrasts in cultural practices such as the duration of postnatal sexual abstinence. He further argues that most fertility differentials attributed to socioeconomic or cultural background are in some cases chiefly the result of ethnic differences. Goldscheider and Uhlenberg, cited in Gurak (1978), offer a different conceptual framework which they call the minority status hypothesis. According to this, the fertility of minority groups may be affected because the members belonging to such groups are more sensitive to social constraints on behaviour than those in majority groups. In order to study ethnic difference, this variable is classified into two categories: the Mandinkas versus all other groups. This classification is based on the 1983 census information that Mandinka is the largest group constituting 36.6 percent of the population and others are small ethnic groups.

3.5.2.4 Knowledge

Testing young women's knowledge on reproductive health involves two variables: contraceptive knowledge and "information about menstruation before having the experience for the first time". There is increasing evidence in the literature that the knowledge of both sexes on reproductive physiology is much lower compared to knowledge of contraceptive methods. Maynard-Tucker (1989) argued strongly that "the use of contraceptives is hindered by folk concepts of human anatomy and physiology, as

well as fears about the function of contraception in the body" (p. 221). It is expected, therefore, that being informed about menstruation before having an intercourse experience would at least sensitize young women to important reproductive health issues. In order to find differences in awareness on this critical subject, the variable is partitioned into two categories: those who knew about menstruation before and those who didn't.

It is important to recognize the fact that young people in both developed and developing countries are not completely ignorant about contraception and this somewhat brightens the prospects for subsequent changes in attitudes toward effective contraceptive use (Oni and McCarthy, 1990: 106; Frank, 1987: 187; Monteith et al., 1988: 287; Mbizvo and Adamchak, 1991: 37; Ajayi et al., 1991: 207). Some scholars like Ntozi and Kebera (1991) have reported that in Ankole district of Uganda, the majority of young people report knowing at least one modern method of contraception, traditional ones included. The modern methods commonly known are the pill, condom, IUD and spermicide, while the popular traditional aids are withdrawal, rhythm and sexual abstinence. The purveyors of this type of information are the mass media, school, friends, peers, relatives and sexual partners (Thompson and Spanier, 1978:482-484); Ajayi et al., 1991: 213; Oronsaye et al., 1982: 411). Older teenagers are more knowledgeable about contraception than the younger ones. Knowledge of contraception also appears to increase with higher education and among urban dwellers. Since men in most developing countries are more literate, they also tend to be more acquainted with the subject of contraception (Maynard-Tucker, 1989: 221; Boohene et al., 1991: 267; Ntozi and Kabera, 1991: 119; Khalifa, 1988: 237-242).

With this in mind, unlike most studies which attempt to measure the level of contraceptive knowledge through the average number of methods known, a special scale has been constructed in this study to shed light on a respondent's overall knowledge of available family planning methods. Thus, contraceptive knowledge is not only measured in terms of knowing about all the available methods, but also in terms of knowledge about effectiveness of the methods concerned. Knowledge would therefore differ if respondents were prompted by describing the contraceptive methods or not prompted at all. In this instance, contraceptive knowledge is measured along a continuous scale which ranges from 0 to 41. Details of the index of contraceptive knowledge finally obtained are discussed in Appendix 1. Cronbach's reliability test is used for verifying whether the scale adequately measures contraceptive knowledge and whether the items are additive. The alpha estimate of 0.88 indicates that the scale has measured the concept of interest.

3.5.2.5 Attitude

Attitudes, an important construct in social psychology, are often associated with the inclination to behave in a specific way toward persons and situations. According to Williamson et al. (1982),

'Attitudes are one of the most important factors in the dynamics of social behaviour by virtue of their links with the key processes of motivation, learning, and perception. Together with values and norms, attitudes structure our orientation to the social world, and their dynamic nature is expressed in a tendency to cross over into behaviour.' (p.226)

In this study attitude is defined as a cognitive construct representing the beliefs, opinions, and values of young women toward a range of issues indirectly affecting fertility. Because a person's attitudes largely depend on the sociocultural and institutional settings, knowledge about the influence of these settings on attitudes is necessary for better understanding of the fertility of young women. Ben and Newcomb et al. (cited in Williamson et al. 1982) attribute the major impact on attitudes to reference groups, particularly peers. The individual's attitudes are formed and strengthened mostly through such groups.

Since an attitude is inferential and cannot be directly observed, the questions used in this thesis to represent attitude include: (1) best age for girls to have sex; (2) best age for women to marry; (3) opinion about virginity before marriage; (4) best age for women to have a first child; (5) opinion about polygamy; (6) opinion about women working outside the home; (7) opinion about unmarried pregnant girls; (8) index of sexual permissiveness for unmarried women (discussed in Appendix 2); (9) index of sexual permissiveness for unmarried men (discussed in Appendix 3); and, (10) Index of opinion on abortion (discussed in Appendix 4). All of these are 2-category variables except for: "best age for a girl to have sex", "best age for women to marry", "best age for women to have first child", and "opinion about unmarried pregnant girls". These four indicators have 3 categories.

3.5.2.6 Practice

In the context of this investigation, the practices that seem to be indirectly influential in determining the fertility of young women are: the sexual activity of friends and attendance of family life education lectures. Both of these are hypothetically affected by reference groups of respondents. Whereas the sexual behaviour of a person may be influenced by peers, attendance of family life education lectures mainly depends on both formal and informal groups such as the school, church, peers, family, and other institutions. Responses for each of these variables are classified into two categories, that is, "attend at least once" or "did not attend".

3.5.2.7 Proximate determinants

Given the sociocultural setting of The Gambia, the proximate determinants of overall fertility discussed in chapter 2 and often associated with Bongaarts (1978a) are not well suited to analyzing the fertility of young women. Only six factors were considered relevant: (1) age at first marriage; (2) age at maturation; (3) age at first intercourse; (4) frequency of intercourse; (5) intrauterine mortality; and (6) contraceptive use. Inter-pregnancy practices and experiences such as abstinence and post-partum amenorrhea were left out mainly because their intervals are short for most Gambian women. Bongaarts (1983) has also considered these factors less significant for predicting

fertility. Greater attention will be devoted to both contraceptive and non-contraceptive effects.

Age at first marriage reflects the age at which a legal union of persons is recognized by civil, religious or customary law. Although childbearing is confined within marriage in most countries, some societies have "allowed" the practice as appropriate within stable sexual unions. A low age at first marriage may therefore result in early childbearing, especially in the absence of effective and widespread use of contraceptives. Age at first marriage is divided into three categories: less than 14, 15-19, and 20-24.

Age at maturation indicates the onset of fecundity, and relates to the appearance of menses. It is the lower level of the two points marking a woman's reproductive life span⁷. The age at maturation is mostly associated with the nutritional status of young women. As indicated earlier, age at maturation is an interval/ratio variable.

Age at first intercourse is important in the present study not only because it marks the beginning of sexual relationships of young women but it is also expected to correlate highly with early pregnancy and, consequently, with childbirth. In societies such as those of developing countries, a young age at first intercourse may correspond with a youthful first birth since contraceptive use is almost negligible. This is particularly true for mature

⁷ Since the upper level of the fecund period is the age at menopause, attention is only devoted to the lower bound.

young women who did not use any contraceptive or may have used an ineffective type at the time of first intercourse. Age at first intercourse is classified as an interval/ratio variable.

The next indicator of the proximate determinants is frequency of intercourse during the past four weeks which can affect fertility through an increased risk of becoming pregnant and even having a child. In the absence of contraception, this is possible for young women who are sexually active. Intercourse is more frequent among married couples, especially newly weds. Three categories, namely none, 1-3 times and 4 plus constitute the respective categories of this variable.

With regard to intra-uterine mortality only two categories are included: those who ever had an induced abortion, miscarriage or stillbirth and those who never had these experiences. This variable is important because not all pregnancies necessarily reach full gestation period and may not result in a live birth. Another concern is the definitive evidence that intrauterine mortality will be experienced repeatedly after the first incident. Leridon (cited in Chandrasekaran and Hermalin 1975) contends that intrauterine mortality may be repetitive, and that young women who have had an induced abortion or stillbirth are also likely to encounter repeated experiences. Yet, it is still important to know the cause of short lived pregnancies. Apart from the effects of disease as a genuine explanation, unsanitary and poor medical conditions in which illegal abortions are

performed in developing countries can be a contributing factor (Chandrsekaran and Hermalin 1975:99-118).

Intrauterine mortality which is often associated with temporary or permanent infertility and known for directly affecting the fertility of young women, can be avoided if obstetric care is improved and voluntary family planning becomes more acceptable (Fortney et al., 1985:4; Rajulton et al., 1990:2-4). An effective family planning programme not only provides treatment for sub-fertile women, but also makes information and contraceptive methods more readily available.

The use of contraceptives among young adults requires certain conditions. Studer and Thornton (1987) have highlighted variations in contraceptive use among adolescents. In their opinion,

'the use of contraception is deeply embedded in the social and psychological context of the adolescent's expression of sexuality. Just as socio-cultural factors have been found to play a significant role in governing the manner in which sexuality is expressed, they appear likely to have an impact on the process by which an adolescent decides which contraceptive to use.' (p.117)

Contraceptive practice is remarkably low and erratic among young people in developing countries (Oronsaye and Odiase, 1983: 426; Ezimokhai et al., 1981:483; Ajayi et al., 1991:205). This pattern deviates from the norm in developed countries such as Belgium, Denmark and United Kingdom, where more than 70 percent of married women are active contraceptive users. Beneficiaries of modern contraceptives in teenage marriages are about

53 percent in Hungary and the United States. Overall, the users are fewer in Africa where family planning practice is relatively new and the traditional desire for large families is still strong. Among the few people who benefit from contraception in African countries, many prefer to use the pill, condoms, spermicide and traditional methods. Adolescents are deliberate avoiders of methods which might require professional advice and/or approval in order to maintain the secrecy of their sexuality (Senderowitz and Paxman, 1985: 15-17; Kisher, 1985: 89). In the light of this, contraceptive use is divided into two categories in the present analysis, that is, ever and never users.

3.6 Summary

This chapter has outlined the research instruments and methodology for the present study. Data collection procedures, analytical methods, and operational definitions have been reviewed and measurement procedure for the variables specified. The GFPA and CSD studies are very similar both in terms of survey design and instruments used. Also, the methods and materials, in terms of sampling procedures, administrative aspects, questionnaire design, and other field operation documents are compatible with those of the World Fertility Survey (WFS). The sampling design, in particular, was drawn in a manner that adequately covered adolescents and young adults in all sample areas.

A combined approach of reference group theory and modified Bongaarts framework has been adopted in this thesis for analyzing the fertility of young women. Except for the comprehensive coverage of variables affecting fertility, the suggested framework also shows the relationships between the major components of early childbearing and their interrelationships. A flexible modelling procedure is adopted when analyzing the relationships of interest within the selected framework. The model building is done in such a way that it accommodates theoretical concerns during the process of variable selection. This procedure, which simultaneously includes all covariates of interest into the model regardless of the state of bivariate relationships between the dependent and independent variables, is not as deterministic as stepwise regression which depends largely on statistical conditions.

In view of the objectives of the present analysis, the proposed model will be analyzed using bivariate and multivariate analysis. Both analytical procedures are included to measure associations between variables of interest but no causality will be inferred. The statistical techniques used therefore involve crosstabulations, correlation, multivariate contingency table analysis, and logistic regression. Details on the definitions and measurements of variables in the statistical analysis have also been outlined in this chapter. Based on the overview of variables included in the major components of direct and indirect determinants, the relevant covariates identified for this study will hopefully explain the fertility behaviour of adolescents and young female adults in The Gambia.

Chapter 4: Results and Discussion

4.1 Introduction

This Chapter presents the findings on determinants of early childbearing in The Gambia. The study involves two approaches to data analysis: one deals with bivariate relationships: between some key variables of interest and the other focuses on a multivariate analysis. The bivariate analysis is covered in section 4.2 and the multivariate analyses follow in section 4.3. The summary of findings is discussed in section 4.4.

4.2 Bivariate analysis

An attempt is made here to analyze the relationship between early childbearing among young women aged 13-24 years and covariates of interest; but this is preceded by the analysis of relationships between independent variables to provide some background information about young Gambian women. This is done in three ways: 1) through cross-classifying some independent variables against the dependent variable, i.e. early childbearing status; 2) through cross-tabulating selected independent variables against each

other; and 3) through analyzing the measures of association based on the scale of variables concerned. Different measures of association are examined in order to reveal the likely relationship between the dependent and independent variables. For example, contingency coefficients and Phi statistics are used as measures for correlating early childbearing with nominal scale variables, while Kendall's Tau-b and Gamma statistics are applied to the ordinal scale variables. The zero order correlations are used for measuring association between interval scale variables and the fertility of young female adults (Leonard II, 1976: 267-337). Thus, we begin with a two-way cross-tabulation of variables in sub-section 4.2.1, and the correlation of dependent and independent variables by level of measurement follows in sub-section 4.2.2.

4.2.1 Cross-tabulations

As observed earlier in section 3.2, the target population was well represented in both GFPA and CSD surveys. The sample population not only covered young women of all the ages and in different locations, but also of various education backgrounds. At the level of residential area, for example, 1730 young women (53 percent) were interviewed in urban areas and 1546 (47 percent) in non-urban settlements (i.e. semi-urban and rural areas) out of a total number of 3276 respondents⁸. The level of education of these young women, however, varies between residential places. Among the urban residents,

⁸ The distribution of the sample population for variables included in this study is presented in Table A1a in Appendix 7.

according to Table 4.1, 34 percent had no education compared to 72 percent in non-urban areas. As the table shows, 28 and 21 percent of respondents have attained primary education in urban and non-urban areas respectively. This narrow difference can be attributed partly to the effects of The Gambia's universal primary education programme which was introduced in September, 1976. Up to 1983, only 13 percent of the total population had some education (CSD, 1976:47). But, there are significant differences at the post-primary school level. Compared to 7 percent for non-urban settlements, 38 percent of young women in urban areas had attained some education beyond the primary level including those from vocational training centres, secondary technical schools, high schools, colleges and universities.

Table 4.1: Distribution of Young Female Adults by Highest Level of Educational Attainment and Area of Residence

Level of Education	Area of Residence					
	Urban		Non-urban		Total	
	Number	%	Number	%	Number	%
None	592	34.2	1106	71.5	1698	51.8
Primary	487	28.2	327	21.2	814	24.8
Post-primary	651	37.6	113	7.3	764	23.3
Total	1730	100.0	1546	100.0	3276	100.0

A total of 42 percent of the sample population were ever married and 58 percent were unmarried. As Table 4.2 suggests, among those in the sample 38 percent of young women in wedlock were teenagers and 62 percent were in their twenties. Some teenage marriages were contracted as early as age 13. Whereas the likelihood of being married

is higher during the late teenage years and early twenties, it is clear that celibacy steadily decreases with age. Brass et al. (1968) have reported the existence of early marriages and universality of marriage not only in The Gambia, but throughout the West African sub-region.

**Table 4.2: Distribution of Young Female Adults
by Single Year of Age and Marital Status**
Marital Status

Age	Never Married		Ever Married		Total	
	Number	Percent	Number	Percent	Number	Percent
13	309	95.4	15	4.6	324	100.0
14	404	94.4	24	5.6	428	100.0
15	336	80.4	82	19.6	418	100.0
16	184	66.9	91	33.1	275	100.0
17	149	66.8	74	33.2	223	100.0
18	158	54.3	133	45.7	291	100.0
19	106	52.0	98	48.0	204	100.0
20	100	29.5	239	70.5	339	100.0
21	45	30.8	101	69.2	146	100.0
22	43	23.8	138	76.2	181	100.0
23	47	22.9	158	77.1	205	100.0
24	32	13.2	210	86.8	242	100.0
Total	1913	58.4	1363	41.6	3276	100.0

Table 4.3 shows that 33 percent of the sample reported have parity 1+ compared to 67 percent for parity 0. Both parity groups are also well represented in urban and non-urban areas. Whereas young women with parity 1+ constitute 35 and 31 percent for urban and non-urban areas respectively, 65 and 69 percent of those with parity 0 were in these areas.

Other notable differences are also apparent in Table 4.3. It is clear that education influences the fertility of young women in The Gambia. A selection bias is suspected among illiterates and those having post-primary education, and this may be true for all parity groups. Unlike respondents with parity 1+ constituting 18 percent of those at the primary level, 43 percent of young women with parity 1+ were illiterates and 26 percent had post-primary education. It is therefore reasonable to suspect that there is still some linearity between education and early childbearing. Owing to the finding that only 12 percent of Gambian women age 15 plus were literate in 1983 (CSD, 1986: 192-194), it is not surprising that illiterates were more represented in the parity 1+ group.

Table 4.3 also shows that 68 percent of ever married young women are in the parity 1+ group compared to 8 percent who are never married. This is consistent with the findings of Jeng (1983) that it is common among Gambian women to have a child within wedlock but that childbearing outside marriage is still important, particularly in urban and semi-urban areas.

Table 4.3: Selected Characteristics of Young Female Adults in The Gambia by Parity

Variable	Parity 1+	Parity 0	Total	Number
Overall sample:	32.9	67.1	100.0	3276
Residence:				
Urban	34.7	65.3	100.0	1730
Non-urban	30.9	69.1	100.0	1546
Education:				
None	43.2	56.8	100.0	1698
Primary	18.3	81.7	100.0	814
Post-primary	25.7	74.3	100.0	764
Marital Status:				
Never Married	7.7	92.3	100.0	1913
Ever Married	68.4	31.6	100.0	1363
Employment Status:				
Employed	47.1	52.9	100.0	760
Not employed	28.7	71.3	100.0	2516
Age at First Marriage:				
Less than 14	65.9	34.1	100.0	340
15 - 19	67.1	32.9	100.0	820
20 - 24	71.2	28.8	100.0	163
Use of Contraception:				
Ever Used	77.7	22.3	100.0	372
Never Used	27.2	72.8	100.0	2904
Knowledge of Contraception:				
No Knowledge	17.7	82.3	100.0	1294
Some Knowledge	31.9	68.1	100.0	935
Much Knowledge	52.7	47.3	100.0	1047
Frequency of Intercourse:				
None	5.5	94.5	100.0	1702
1 - 3 Times	59.2	40.8	100.0	402
4 Plus	36.2	63.8	100.0	1172

Note: Contraceptive Knowledge and age at first marriage are measured here as an ordinal scale, but it is an interval scale elsewhere.

It is also evident that employment status differentiates the fertility of young women. Among those employed, 47 percent have parity 1+ and 53 percent are childless. Out of those not employed, 29 percent are in the parity 1+ group and 71 percent have zero parity. Employment is low for women in both urban and non-urban areas. Until recently, women in The Gambia were predominantly homemakers with very little activity outside the home apart from subsistence farming. Childbearing and domestic duties ranked high in their priorities. Like most African countries, the majority of women in The Gambia are still inactive in non-agricultural and non-domestic sectors (The World Bank, 1992:27 - 32).

Apart from low participation of women in non-agricultural sector, a great deal also depends on their age at first marriage. According to Table 4.3, the majority of young ever married women have at least one child regardless of their age at first marriage. The proportion of young women with parity 1+ marrying for the first time at the age of 14 or less (66 Percent) is similar to those who marry at ages 15-19 and 20-24 respectively (67 and 71 percent). Based on the evidence in Table 4.2 that 5 percent of young women age 13 were ever married, it is clear that the traditional practice of early marriages is still observed.

Contraceptive use also showed some interesting variations among the respondents. A greater use of contraceptives is observable among women with at least one child. The ever users of contraceptives were 78 percent for parity 1+ and 22 percent for the zero

parity group. Never-users comprised 27 percent for parity 1+ compared to 73 for parity 0. Table 4.3 also shows that contraceptive knowledge is greater among young women with parity 1+. Unlike 53 percent for parity 1+, 47 percent of women in the zero parity have had "much knowledge" about contraception. Those with "no knowledge" of contraception comprise 18 percent of the parity 1+ group and 82 percent have zero parity. The estimates for young women with at least "some knowledge" of contraception are 32 and 68 percent respectively for the parity groups. However, it is not surprising that both contraceptive knowledge and use are more among young women with parity 1+ and not those in the 0 parity group. GFPA (1981) underscored the fundamental role of family planning in The Gambia for proper child spacing as well as for birth prevention. This family planning effort however ignores childless women as part of the potential acceptors of contraceptives.

Table 4.3 further indicates that young childless women are more sexually active than those having at least one child. Of the young female adults interviewed, 36 percent with parity 1+ had more than 4 sexual contacts within the four weeks prior to the survey compared to 64 percent for those in the 0 parity group. Those who had sexual intercourse 1-3 times were 59 percent for parity 1+ and 41 percent for parity 0. Young women who did not have any sexual contact during the reference period for parity 0 and 1+ were 94 and 6 percent, respectively. One would expect, however, an increase in the level of fertility among young women in a condition of high frequency of intercourse and little

use of contraceptives. Woods et al. (1985) have emphasized the relevance of such relationship in the Liberian context.

4.2.2 Measures of associations

Although the cross-tabulations of the preceding section have provided some basic information on the relationships between variables, these percentages have not been verified by means of statistical tests. It is necessary to use appropriate indices to measure the degree of association and also to test the hypothesis that no relationship exists between variables. Since the independent variables in this analysis vary in scales of measurement, appropriate statistics were selected for measuring the relationship between early childbearing and the covariates concerned. Three chi-square based measures were used for examining the associations between nominal variables and early childbearing and these include the contingency coefficient (C), phi coefficient and Cramer's (V). These measures are similar in that they have a common numerator and a slightly different denominator. But, as Table 4.4 shows, the estimates of Cramer's (V) can be obtained only for some variables and not for others. Leonard II (1976) indicates that the phi coefficient can accurately be estimated for 2 X 2 tables, but beyond that dimension, it becomes more appropriate statistically to derive Cramer's (V).

**Table 4.4: Correlations Between Nominal scale Variables
and Childbearing Status of Young Female**

Variable	(C)	Phi	Cramer's (V)
Employment Status	.04	.04	
Looking for work	.16*	.17*	
Area of Residence	.20*	.20*	
Living arrangement	.35*		.37*
Rank among siblings	.03	.03	
Religious group	.05	.05	
Ethnic group	.09		.09
Informed about menses before	.09	.09	
Opinion about polygamy	.03	.03	
Opinion about virginity	.01	.01	
Opinion about women working	.001	.001	
Opinion about pregnant girls	.02		.02
Opinion on abortion	.05	.05	
Sexual activity of friends	.20*	.20*	
Attendance of family life education	.04	.04	
Sexual permissiveness for girls	.07	.07	
Sexual permissiveness for boys	.08	.08	
Contraceptive use	.32*	.34*	
Intra-uterine mortality	.29*	.29*	

Note: 1. (C) is the contingency coefficient.

2. * indicates significant associations.

Table 4.4 also shows that of the 19 variables with nominal scale, only 6 seem to be associated with early childbearing. These include: area of residence, contraceptive use,

looking for work, living arrangement, sexual activity of friends and intra-uterine mortality. But contraceptive use and the living arrangement of respondents are more important than all the other variables. The contingency coefficient (C) and phi estimates for contraceptive use are 0.32 and 0.34 respectively, compared to an estimated contingency coefficient of 0.35 and a Cramer's (V) of 0.37 for respondents' living arrangement. Intrauterine mortality appears to have some relationship with childbearing and this is evident in both estimates of the contingency and phi coefficients (0.29). The fertility of young women is also associated with not employed persons who were looking for work.

For variables with ordinal scales, the Tau-b and Gamma estimates show a strong relationship between early childbearing and age at first marriage and also with frequency of intercourse, according to Table 4.5. Whereas the Tau-b and Gamma coefficients for age at first marriage are 0.79 and 0.55, the estimates for frequency of intercourse were 0.58 and 0.32 respectively. The best ages for a woman to wed and have a first child are somewhat related to the fertility behaviour of young women (i.e. an estimate of 0.15 for Tau-b and 0.28 for Gamma). Education is associated with childbearing as well (Tau-b = -0.19 and Gamma = -0.36).

**Table 4.5: Correlations Between Ordinal Scale Variables
and Childbearing Status of Young female Adults**

Variable	Tau-b	Gamma
Education attainment	-.19	-.36
Number of siblings	-.02	-.03
Number of children desired	.11	.21
Best age for a girl to have sex	.19	.09
Best age for a girl to wed	.14	.28*
Best age for a woman to have 1st child	.15	.28*
Age at first marriage	.79*	.55*
Frequency of intercourse	.58*	.32*

Note: 1. * indicates significant associations.

2. When age at first marriage is used in an analysis, the sample is restricted to the ever married population.

With regard to interval scale variables, the Pearson's correlation coefficient in Table 4.6 indicates a weak correlation for age at maturation and age at first sexual activity, but not for age of respondent and contraceptive knowledge. A moderately strong correlation of 0.64 was estimated for the relationship between early childbearing and age of respondent while an estimate of -0.59 was observed for contraceptive knowledge. There is the possibility, however, that these bivariate relationships may involve other factors which could affect the predicted results.

Table 4.6: Zero Order Correlations Between Interval Scale Variables and Childbearing Status of Young Women

Variables	Pearson's (r)
Age	0.64*
Age at maturation	-0.02
Age at first sexual activity	0.04
Contraceptive knowledge	-0.59*

Note: * indicates significant associations.

4.3 Multivariate analysis

This analysis investigates the most important determinants of early childbearing among young female adults aged 13-24 years. Unlike the bivariate analyses of section 4.2 involving only two variables, the concern here is to use a multivariate analysis to measure the relationship between three or more variables. Multivariate techniques have a number of distinct advantages over bivariate methods. In particular, bivariate relationships can be spurious, especially if other confounding factors are involved. Multivariate contingency table analysis and logistic regression are better techniques to eliminate or, at least, reduce such confounding effects.

The results of the multivariate contingency table analysis are reported in sub-section 4.3.1, followed by logistic regression analysis in sub-section 4.3.2. Since this analysis involved 31 independent variables, it is more realistic and convenient to use

logistic regression where multiple factors are to be controlled. Also, the possibility of variables interacting with each other can further complicate the use of multiple contingency table analysis.

4.3.1 Multivariate contingency table analysis

The bivariate analyses in section 4.2 revealed two-variable relationships between early childbearing and some selected variables. Here too, a similar approach was pursued including the introduction of a statistical control to remove the impact of any factor that might affect the bivariate relationships⁹. Attention was focused therefore on the effect of controlling for a third variable which was theoretically known to affect the fertility of young women in developing countries such as The Gambia. In this particular case, the controlled variables are age, marital status, area of residence and contraceptive use.

According to Table 4.7, there is evidence that age had a partial effect on the associations between early childbearing and marital status. This is based on the phi

⁹ Since it is impractical to apply each of the 31 variables as a control factor for the bivariate relationships of interest, an exploratory attempt is made to select a few. Thus, it is unnecessary to use 31 variables in the contingency table analysis, given the cumbersome computations involved and irrelevance of presenting such results in this thesis. The selection of process adopted here is based on the findings of Gyepi-Garbrah (1985a, 1985b and 1985c) that the selected variables (like age, marital status, area of residence and contraceptive use) are known to affect early childbearing in African countries like The Gambia.

coefficients of 0.55 and 0.42, respectively, for age groups less than 19 and 20 plus. These estimates describing the "conditional" association under different conditions when marital status is controlled are less than 0.64 (the situation shown in Table 4.6 for age).

**Table 4.7: Percentage Distribution of Respondents
Classified by Parity and Marital Status
and Controlled by Age**

Age Group	Marital Status		Total
	Parity	Never Married Ever Married	
Less than 19:			
	Parity 1+	2.9 46.2	13.2
	Parity 0	97.1 53.8	86.8
	Total	100.0 100.0	100.0
	Number	1646 517	2163
		Phi = 0.55	
20 Plus:			
	Parity 1+	27.5 81.9	71.2
	Parity 0	62.5 18.1	28.8
	Total	100.0 100.0	100.0
	Number	267 846	1113
		Phi = 0.42	

The partial effect of age on the bivariate relationship of early childbearing and marital status can also be observed from the percentages of each age group in Table 4.7. For respondents who were never married, those age 20 plus were twelve times as likely to have at least one child compared to those age less than 19 (i.e. the ratio of 27.5 to 2.9

percent). Among ever married young women, the 20 plus age group are almost twice as likely to have at least one child compared those age less than 19 (i.e. the ratio of 81.9 to 46.2 percent). Age does not seem to explain all the differences between "never married" and "ever married" respondents, however. Young women who were ever married were still more likely to have a child regardless of age. The difference in percentages of parity 1+ for less than 19 and 20 year olds were reduced in the case of both never married and ever married respondents compared to the situation where age was uncontrolled. One can therefore conclude that age partially explains the bivariate relationship between early childbearing and marital status. Pedhazur (1982) has strongly emphasized the need for controlling age in behavioural research since it can cause spurious correlations. In his opinion, "there is bound to be a high correlation between any two variables that are affected by age, when the latter is uncontrolled" (p.100).

The fact that 54 and 18 percent, respectively, of ever married young women aged less than 19 and 20 plus were still childless deserves some attention. Infecundity may not be the only explanation for such unusual rate of childlessness among ever married women. Cultural factors also contribute to the observed outcome. Some marriages are not consummated in rural areas of The Gambia until the bride's dowry is fully paid. As strange as it seems, this condition may remain until such obligation is met. Such practice is not common in urban areas where such traditional values are less popular.

As one of the most theoretically relevant proximate determinants, it is also important to control for contraceptive use when dealing with a relationship such as early childbearing and education. Based on the estimates of Tau-b in Tables 4.5 and 4.8, there is no doubt that the bivariate relationship between early childbearing and education is better understood if contraceptive use is controlled. Contraceptive use is indeed a more effective explanatory factor of fertility among young women than educational attainment.

Table 4.8: Distribution of Young Female Adults by Parity and Education, Controlled for Use of Contraception

Contraceptive Use	Parity	Educational Attainment			Total
		None	Primary	Post-Primary	
Ever use:					
	Parity 1+	89.0	77.5	66.0	77.7
	Parity 0	11.0	22.5	34.0	22.3
	Total	100.0	100.0	100.0	100.0
	Number	154	71	147	372
Tau-b = 0.24					
Never use:					
	Parity 1+	38.7	12.7	16.0	27.2
	Parity 0	61.3	87.3	84.0	72.8
	Total	100.0	100.0	100.0	100.0
	Number	1544	743	617	2904
Tau-b = 0.24					

This is evident only if we consider the estimates of Tau-b for both controlled and uncontrolled bivariate relationships. The Tau-b estimate of 0.19 obtained from an

uncontrolled condition which considered only fertility and education is lower than the estimate of 0.24 when contraceptive use is controlled. It is not clear however whether the equality in Tau-b estimates for ever users and never users is due to other intervening factors outside the three-way relationship between early childbearing status, education and contraceptive use. This issue may be resolved through use of logistic regression models involving more than one control variable at a time.

It is worth reiterating, however, that contraceptive use is more popular among young women with at least one child compared to those who are childless. For both ever users and never users of contraceptives, it appears that fertility decreases with more education. For example, Table 4.8 shows that in the case of ever users of contraceptives, the proportion of young women with parity 1+ decreases from 89 percent for respondents with no education to 66 percent for those who attained post-primary school education. The proportions for similar groups of women who are never users of contraceptives decreases from 39 percent for those with no education to 16 percent for those with post-primary education. Analysis of data from WFS surveys for eight countries also show a strong negative relationship between education and fertility - a higher level of education attained by women tends to lower fertility (United Nations, 1980:4).

However, it is also important to control for the effects of age and marital status. Table 4.9 presents the situation when contraceptive use is related to early childbearing while marital status is held constant.

Table 4.9: Distribution of Young Female Adults and Use of Contraception, Controlled for Marital Status

Marital Status	Parity	Use of Contraception		Total
		Ever Used	Never Used	
Never Married:				
	Parity 1+	45.0	5.4	7.7
	Parity 0	55.0	94.6	92.3
	Total	100.0	100.0	100.0
	Number	111	1802	1913
		Phi = 0.34		
Ever Married:				
	Parity 1+	91.6	62.9	68.4
	Parity 0	8.4	37.1	31.6
	Total	100.0	100.0	100.0
	Number	261	1102	1363
		Phi = 0.24		

It is apparent here that contraceptive use was more common among ever married young women with at least one child. For those who have ever used contraceptives and were married before, 92 percent are classified as parity 1+ compared to 8 percent for parity 0¹⁰. A difference of 10 percent is observed for never married respondents with parity 0 and 1+ who had used contraceptives at least once. This is not surprising since only 6 percent of the unmarried young women have ever used contraceptives. Because of few ever users among this group, the phi coefficient for unmarried respondents shown in

¹⁰ This result does not imply that contraceptives are ineffective for pregnancy avoidance or birth spacing. The majority of young women only use contraceptives after having their first child.

Table 4.9 does not differ from the case when the relationship between early childbearing and contraception was uncontrolled (Table 4.5). An estimate of 0.34 was obtained in both cases, meaning that contraceptive use is not common among unmarried young women. There appears to be some effect on ever married young women, however.

Marital Status is also important when used as control factor for correlations between early childbearing and area of residence. Based on the phi-coefficients of Table 4.10 and Table 4.4 for controlled and uncontrolled condition, it seems marital status is less important than area of residence. The phi-coefficient of 0.14 and 0.17 for unmarried and ever married young women is much lower than the estimate of 0.20 for the uncontrolled condition when only childbearing status and area of residence are considered. The percentages of Table 4.10 also reveal the effect of marital status on the relationship between early childbearing and area of residence. Childbearing is more frequent among ever married young women in both urban and non-urban areas. Unlike the findings of Jeng (1983) that fertility is higher in rural than urban areas, the results obtained here are just the opposite.

Although this result requires a cautious interpretation, it is not impossible for fertility to be higher among young women in urban than non-urban areas. When such a situation exists, fertility can be attributed to four possible explanations. First, it may be due to differences in age structure; secondly, it may be related to behavioural differences in fertility of young women in urban and non-urban areas; thirdly, it may be due to

differences in cultural practices between the two areas; fourthly, the difference may be the effect of sampling problems.

Table 4.10: Distribution of Young Female Adults by Parity and Area of Residence, Controlled for Marital Status

Marital Status	Parity	Area of Residence		Total
		Urban	Non-urban	
Never Married:				
	Parity 1+	10.9	3.2	7.7
	Parity 0	89.1	96.8	92.3
	Total	100.0	100.0	100.0
	Number	1106	807	1913
		Phi = 0.14		
Ever Married:				
	Parity 1+	76.9	61.2	68.4
	Parity 0	23.1	38.8	31.6
	Total	100.0	100.0	100.0
	Number	624	739	1363
		Phi = 0.17		

In a country like The Gambia where the use of contraceptives is very low in both urban and rural areas, such results are probable if there are noticeable differences in childbearing practices. Childbearing in non-urban areas is low partly because it is mostly confined within wedlock while a significant proportion of young women in urban settlements have children outside marriage. This is clearly noticeable in Table 4.10 where never-married young women with parity 1+ constitute 11 percent of respondents in urban

areas compared to 3 percent in non-urban settlements. Marriages involving young women in rural areas of The Gambia are often not consummated until dowry is fully paid, and this also tends to have a non-deliberate effect of reducing early childbearing. Such traditions are less common in urban areas.

Sample allocation may also be partly responsible for differences in urban and non-urban fertility. Since table 4.10 indicates that both never-married (58.4 percent) and ever-married young women (41.6 percent) are well represented, a sampling problem can possibly be ruled out. The observed distribution by marital status somewhat coincides with expectations that never-married young women constitute the majority of the target population. Also, given the large sample size of the GFPA and CSD surveys, it is probable that the results of any analysis based on such allocation may not drastically affect the present results.

In addition to these concerns about area of residence and marital status, it is also important to study the relationship between age at first marriage¹¹ and early childbearing. According to Central Bureau of Statistics (1983), age at first marriage is among the most important variables that affect fertility in developing countries like Ghana where contraceptive use is low. Young women who marry early are exposed to a longer period

¹¹ Table A2a shows the number of cases, mean and standard deviation of interval/ratio variables like age at first marriage, age of respondents, age at first intercourse and age at maturation.

of childbearing, assuming that other factors are held constant. Age at first marriage was used therefore to study differences in residential area and level of education. According to Table 4.11, the average age at first marriage is 1.5 years higher among young women in urban (17.1 years) than non-urban areas (15.6 years). It is evident, however, that the average age at first marriage increases with education in both urban and non-urban areas.

Table 4.11: Number and Average Age at First Marriage of Young Female Adults by Parity, Area of Residence and Level of Education

Area of Residence/ Level of Education	Parity 1+		Parity 0		Total	
	Number	Average Age	Number	Average Age	Number	Average Age
Urban:						
None	266	16.4	83	16.6	349	16.5
Primary	73	16.6	16	16.6	89	16.6
Post-primary	88	19.3	33	17.3	121	19.3
Total	427	17.0	132	17.3	559	17.1
Non-urban:						
None	404	15.3	248	15.5	652	15.4
Primary	37	16.0	37	15.8	74	15.9
Post-primary	22	18.1	16	17.1	38	17.7
Total	463	15.5	301	15.6	764	15.6

There is virtually no difference in average age at first marriage comparing the estimates of parity 1+ and 0. Although there is very little variation by parity, it is clear that age at first marriage differed considerably by area of residence and level of education. A similar

relationship has been established by Central Bureau of Statistics (1983) in their study of Ghanaian fertility behaviour.

Attempts to measure the average age at first intercourse also showed interesting results in Table 4.12. On average, it is found that sexual relationships start in The Gambia around age 16. This is very similar to the situation of Nigeria where a "substantial number of adolescents have had sexual relationships, with many starting as early as age 15 or even younger" (Ladipo et al., 1983:26). Young women in non-urban settlements experience earlier sexual relationship around age 15 compared to age 16 for urban residents. In general, intercourse begins around the same time among young women regardless of their childbearing status.

Table 4.12: Number and Average Age at First Sexual Activity of Young Female Adults by Parity and Area of Residence

Area of Residence	Parity 1+		Parity 0		Total	
	Number	Average Age	Number	Average Age	Number	Average Age
Urban	591	16.3	312	16.6	903	16.4
Non-urban	468	15.4	308	15.5	776	15.5
Total	1059	15.9	620	16.1	1679	16.0

Education appears to be a significant determinant of age at first intercourse not only for childless young women and those with at least one child, but also between urban and non-urban areas. Table A2b in Appendix 7 shows a higher age at first intercourse of about 18

years for those with post-primary education compared to 16 for illiterates and others at the primary level. Late sexual exposure is therefore associated with increasing education regardless of parity and residence. Young women at the post-primary level appear to have a much higher age at first intercourse which shows that education tends to delay intercourse in The Gambian context. It is clear also that age at first intercourse is among the most important variables not involving contraception and still affects the fertility of young women apart from age at first marriage. Kahn et al. (1988) found that young women who initiated intercourse earlier in life have a child early as well.

Similarly, it is age at maturation which determines the starting point when a girl is biologically capable of becoming a mother. Results of the analysis of age at maturation by area of residence and parity is reported in Table 4.13.

Table 4.13: Number and Average Age at Maturation of Young Female Adults by Parity and Area of Residence

Area of Residence	Parity 1+		Parity 0		Total	
	Number	Average Age	Number	Average Age	Number	Average Age
Urban	572	13.9	307	13.9	879	13.9
Non-urban	462	13.4	307	13.3	769	13.3
Total	1034	13.7	614	13.6	1648	13.7

The results show that the average age at maturation in The Gambia ranges between ages 13-14 (i.e. 13 for non-urban and 14 for urban respondents). Although these estimates approximate those of Ghana (Central Bureau of Statistics, 1983: 86), there is no

explanation for the similarities between urban and non-urban estimates. Moreover, similarities in age at maturation may not be fully explained only by area of residence. Other factors can also be involved, and such concerns are discussed in the following section on logistic regression.

4.3.2 Analysis of logistic regression

In the preceding sections we reported the results of analysis of bivariate relationships between the fertility of young female adults and another variable of interest while controlling for the effects of a third factor which could possibly affect such prediction. Theoretically, the fertility of young women, among other things, involves more than three factors. The covariation of the dependent and independent variables can therefore be established only if all the other factors likely to affect such bivariate relationships are controlled. A logistic regression procedure was applied to deal with such theoretical concerns.

Logistic regression models are able to predict the relationship between the outcome (or dependent) variable and a set of covariates (independent variables) especially when the dependent variable is dichotomous as is the case with the outcome variable in this analysis. The outcome variable being the status of childbearing among young female adults, including adolescents, is coded 1 for those with at least one child (i.e. parity 1+)

and 0 otherwise. The covariates are mostly categorical variables that are socioeconomic, demographic, cultural, psychological, behavioural, and biological in nature. Only age-related variables and knowledge of contraceptive methods are continuous. The model considered here is:

$$\ln [p_1 / (1-p_1)] = \sum_1^n B_1 X_1$$

where $\ln[p/(1-p)]$ denotes the odds that a young female adult has at least one child, B_i is a vector of the regression coefficients, and X_i is a vector of the covariates.

The odds of occurrence "is the ratio of the number of events to that of nonevents", whereas the odds ratio, as a measure of association, is the ratio of the event occurring to its not occurring. The odds ratio is therefore the ratio of the two odds. For example, the odds of getting a one on a single throw of an unloaded die is $1/6=0.17$ and that of not getting it is $5/6=0.83$. The odds ratio is $0.17/0.85=0.2$. Nurosis (1983:B43) refers to the odds ratio as "the factor by which the odds change when the i th independent variable increases by one unit. If B is positive this factor will be greater than 1, which means that the odds are increased; if B is negative the factor will be less than 1, which means that the odds are decreased. When B is 0 the factor equals 1, which leaves the odds unchanged". For instance, as shown in Table 4.14, when we consider the difference between those living in urban and non-urban areas, the odds of childbearing increase by

a factor of 1.59. This means that urban residents have a higher chance (1.59 times) of bearing a child than non-urban residents.

The variables included in this analysis are not the only ones that can possibly affect fertility in The Gambia. Other variables have been excluded mainly because they were unavailable or inadequate for measurement purposes as a result of unreliable responses given. For example, it would have been interesting to include information on a woman's knowledge and use of contraception at the time of first sexual encounter.

Moreover, the logistic regression does not include all the variables which were initially identified for use in the modelling process. Some variables were dropped because they were highly correlated with others in the models concerned. For example, marital status was excluded mainly because of its collinearity with age at first marriage¹². These two variables have a "never married" category which causes collinearity. The never married category cannot however be excluded from the variables concerned because of the problems arising from missing values in logistic regression. Similarly, the variable "duration of marriage" was dropped partly because of its high correlation with age at first marriage. Since duration of marriage was not asked in both surveys and had to be derived from age at first marriage, it was difficult to separate the never married women (coded

¹² All variables were correlated against each other and a cut-off point of 0.8 was used to determine variables that were highly collinear. Where two variables were highly correlated, the one considered to be less meaningful to the present analysis was dropped.

0) from those with zero duration. The variable "education planned by age 25" was also dropped since it correlated highly with current educational attainment.

With these limitations, this section discusses the results of the best fitting models assessed in Appendix 7. The focus is on the overall model containing both direct and indirect determinants and models containing the significant main effects and interactions of the respective components of these determinants. Since these models fit the data reasonably well compared to others presented in Appendix 7 (i.e. Tables A7, A8, A9, A10, A11 and A12), they are more accurate in predicting the effects of covariates on the outcome variable. Thus, it is necessary to verify the results of these models with respect to existing theories of childbearing among young women. This can be achieved by examining the results of the overall model and of individual models of the respective components (or major groups of variables).

This section is therefore divided into three parts. The first part, sub-section 4.3.2.1, is devoted to measuring the effects of socioeconomic, demographic and cultural variables (referred to hereafter as component 1); sub-section 4.3.2.2 will deal with the impact of knowledge, attitude and practice (component 2), and the results from analyzing the proximate determinants (component 3) is discussed in sub-section 4.3.2.3. Since the direct and indirect determinants are grouped into these three major components, there are four empirical models to measure the effects of covariates on the fertility of young women.

The statistical package for the social sciences (SPSS) is used for analyzing the empirical models.

4.3.2.1 Socioeconomic, demographic and cultural variables

The component (Number 1) has the following variables:

(1) socioeconomic factors: educational attainment, employment status, looking for work, living arrangement and area of residence; (2) demographic factors: age, number of siblings, rank among siblings and number of children desired; and (3) cultural factors: religious affiliation and ethnic grouping. The logistic regression estimates of the best fitting model containing main effects and significant interactions are presented in Table 4.14. Out of all the 5 variables used to measure the effect of socioeconomic factors, 4 are important for the prediction of early childbearing in The Gambia. Living arrangement of respondents is the only variable that is insignificant among socioeconomic factors included in the model¹³.

¹³ It is worth noting that living arrangement of respondents is the most significant variable in the case of the bivariate analysis of Table 4.4 (i.e. correlations between nominal scale variables and childbearing status), but not when other variables are controlled. As mentioned earlier, bivariate analyses can be misleading, especially if other confounding factors are involved.

**Table 4.14: Selected Logit Parameters for The Model
Containing Main Effects and Significant Interactions
of Socioeconomic, Demographic and Cultural Factors**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Education Attainment:			
(Below post-primary)			
Post-primary	-.924*	.301	.397
2. Employment Status:			
(Not employed)			
Employed	-.356**	.162	.700
3. Looking For Work:			
(No)			
Yes	.645*	.152	1.906
4. Area of Residence:			
(Non-urban)			
Urban	.463**	.227	1.588
5. Living With:			
(Other)			
Mother Only	.317	.604	1.374
Both Parents	.452	.469	1.572
6. Age:			
	.547*	.021	1.727
7. Number of Siblings:			
(7 Plus)			
Less than 2	.539	.300	1.714
3 - 4	.253	.227	1.288
5 - 6	.239	.218	1.270
8. Number of Children Desired			
(7 Plus)			
1 - 3	1.090	.566	2.973
4 - 6	1.255	.529	3.508

Cont. Table 4.14

9. Religious group:			
(Non-muslim)			
Muslim	2.722*	.465	15.203
10. Ethnic Group:			
(Other)			
Mandinka	-.556*	.147	.574
11. Residence By Number of Siblings:			
Urban by Less Than 2	-.653	.391	.520
Urban by 3 - 4	-.528	.295	.590
Urban by 5 - 6	-.478	.278	.620
12. Residence By Education:			
Urban by <Post-primary	-.404	.334	.668
13. Children Desired by Religious Group:			
1 - 3 by Muslim	-1.488**	.584	.226
4 - 6 by Muslim	-1.471*	.545	.230
14. Living Arrangement By Religious Group:			
Mother Only by Muslim	-.978	.630	.376
Both Parents by Muslim	-1.419*	.483	.242
Constant:	-12.923*	.668	
Log Likelihood	-1172.000		
Pseudo R-square	.435		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

Of the significant factors, education appears to be the most important predictor of early childbearing at the 0.01 level. Caldwell (1982) explains the ways by which education affects the fertility of young women. In his opinion, fertility and value of children decrease because of increases in the number of years spent in school, greater

expenses and responsibilities associated with having children, and reduced importance of the contribution of children to the household economy. Other researchers like Udry, Bauman and Morris (1975) have found higher educational attainment and clear educational goals leading to lower risk of childbearing. Yet, an important question arising from the relationship between women's educational attainment and fertility is how much education is needed and under what conditions would a difference be realized. Some studies have argued that declining fertility with increasing education is only apparent in developing countries when secondary and higher education are classified separately from the primary and no education (Ware, 1981:79-89; Ware, 1974:13; Simbajwe, 1979:342; Caldwell, 1974:7). Table 4.14 shows similar results. The odds of having at least one child is higher among women with no education and those with primary education (i.e. six years of schooling) than for those at the post-primary school level (0.397).

Another important determinant of fertility behaviour is employment status. The results of this variable which is significant at the 0.05 level indicates that employed young women are less likely to have a child compared to those who are not employed. As noted earlier, Chilman (1983) has found that employed young women in the United States delay the first birth in order to maintain their jobs and this may be the situation in The Gambia as well. Since employed women earn regular wages or salaries, their income is expected to be higher on the average than of the not employed, and this difference impacts significantly on fertility. This supports the cost-utility theory discussed in Leibenstein (1957) and Becker (1960) which predicts lower fertility for people with higher income.

Childbearing is more likely among young women who are not employed and are actively searching for a job than among those who are not looking for work. The odds of having a child for job seekers (significant at 0.01 level) is 1.906 times more than that of their counterparts in the inactive population. It is unclear however whether those looking for work were doing so to support a child they already had. The job seekers were mainly the never married young women who were not employed and already had a child. Understandably, these young women would need some income to support their offspring(s).

Although the area of residence is also a significant predictor of childbearing at the 0.05 level, the estimate of this covariate requires cautious interpretation. The finding that young women are 1.588 times more likely to have a child in urban than non-urban areas is indeed surprising. Yet, this finding cannot be completely ruled out. As stated earlier in sub-section 4.3.1, it can be attributed to differences in behavioural and traditional practices of young women in the two areas. Unlike in developed countries like the United States and Canada where rural migrants quickly fit into the urban setting, the situation differs in most African countries where they tend to "ruralize" the urban areas instead. Also, the availability of better nutrition and medical and health conditions can affect the fertility of young women in urban settlements, especially since sexual activity can be expected to increase among young women as traditional norms governing sexual behaviour are weakened. It seems that sample allocation cannot be a genuine explanation

since both the GFPA and CSD surveys involved a large sample size to avoid possible problems in the area.

It is worth noting, however, that the finding of this study on differences in fertility behaviour by residential area contradicts existing theories on the subject. Most studies such as Duncan and Reiss (cited in Rindfuss and St. John, 1983: 555) found that women in rural areas became mothers much earlier than urban dwellers. The findings of these researchers which may also be valid in The Gambian context further reveals that early motherhood may

'seem more attractive than pursuing a career when educational opportunities are limited, as they are in many rural areas. Similarly, the lack of attractive, nonfarm, female career opportunities in rural areas may make early motherhood seem more appealing. Thus, the indirect effect through educational and career aspirations, should lead to a younger age at first birth. The way in which young farmers get started in farming also may be relevant. To the extent that they begin by going into business with their parents, there is less pressure on them to postpone the first birth until they are established in their career.' (p. 555)

Unlike area of residence, the coefficient for age is consistent with the theoretical expectation that childbearing increases with age. For example, the findings of Hayes (1987) who relates early childbearing as a function of age among young American women are similar to those in The Gambia (see Table A1c in Appendix 7). The odds of early childbearing in Table 4.14 seem to increase significantly at the 0.01 level by a factor of 1.727 from one age to another. Women are more exposed to the risk of having a child as they grow older, assuming other influences from other factors are held constant. There

is a possibility, however, that age can interact with another variable to affect early childbearing. Nevertheless, age is the only significant demographic variable in Table 4.14. The number of siblings and the desired number of children do not seem to be important in predicting early childbearing.

Table 4.14 also shows that the relationship between childbearing and religion is significant at the 0.05 level. The odds of having at least one child is 15 times more likely for young Muslim women than for non-Muslims. Given this relatively high risk, it is clear that religion is one of the most important differentiating factors of early childbearing in The Gambia. Caldwell (1981) has particularly stressed the importance of the influence of religion on fertility in Islamic countries like Saudi Arabia and Libya. Since the Koran teaches that all healthy Muslim women must be married to go to paradise, Muslims who constitute the majority of The Gambian population believe in this doctrine and marriages are entered into as early as age 14, that is, as soon as the bride's dowry is paid. The prevalence of polygamy also contributes to high fertility among Muslims. Similar effects of religion are also common in developing countries where Catholicism is widely practised, especially given the injunction of the Catholic church against contraceptive use (Westoff and Jones, 1977: 203-204; Westoff and Jones, 1979: 214-217).

With regard to ethnic grouping, the Mandinkas (i.e. the largest ethnic group) are more likely to delay childbearing compared to those from other groups. The odds of having at least one child are much less ($\text{Exp } \beta = 0.574$) among the Mandinkas when other

ethnic groups are the reference category. As mentioned earlier, several attributes have been used to trace possible differences in ethnic fertility, including social, economic, demographic, and cultural factors. More specifically, Long (1970) and Peterson (1969) have argued that marked differences in fertility of ethnic groups with similar socioeconomic characteristics may arise from differences in cultural practices such as the duration of post-natal sexual abstinence. These findings have not yet been confirmed in The Gambian situation because of lack of reliable data on ethnic fertility differences. But it is clear that the fertility differences revealed in the present study between ethnic groups are not peculiar to The Gambia. Other countries like Ghana also experience similar ethnic differentials (Ghana Fertility Survey, 1983:52).

What kinds of interaction effects were observed in this study? Hosmer and Lemeshow (1989: 91) state that "in any model an interaction between two variables implies that the effect of one of the variables is not constant over the other". The presence of a significant interaction term between number of children desired and religious affiliation of respondents, for example, could yield a statistically different coefficient for each of these variables. For this reason, the significant two-way interactions of theoretical relevance to the present investigation were included in the modelling process. Three-way and higher order interactions were ignored partly because of the large number of variables involved, and to avoid possible difficulties in interpreting the results. However, a few coefficients have been associated with influential interactions in the model. These significantly important interactions which are clearly observable in Table 4.14 include the

desired number of children by religious group, and living arrangement of respondents by religious group. Other interactions in the model such as residence by number of siblings, and residence by education are insignificant. It is clear from Table 4.14, however, that the number of children desired is important only when the respondents are Muslims, and this is true for those who desired 1-3 children and 4-6 children. Also, the living arrangement of respondents appears to be important only when considered for young Muslim women who were living with both parents. The coefficient for young Muslim women living with only their mothers is insignificant.

4.3.2.2 Knowledge, attitude and practice (KAP)

Apart from the effects of socioeconomic, demographic and cultural factors (component 1) discussed above, the impact of knowledge, attitude and practice variables (component 2) was also investigated. Although these factors cannot directly influence fertility, they contribute indirectly to the underlying causes of childbearing among young women. Also, the KAP variables can be influenced by a number of social, economic, demographic, psychological and cultural factors and/ or a combination of these.

Table 4.15 shows the results of the best fitting model for component 2. The Table also shows that the two variables on knowledge of reproductive health and family planning are significant (at the 0.01 level) in the model.

**Table 4.15: Selected Logit Parameters for The Model
Containing Main Effects and Significant Interactions
of Knowledge, Attitudes and Practice Factors**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Informed About Menstruation Before:			
(No)			
Yes	.251*	.089	1.285
2. Contraceptive Knowledge:	-.013*	.001	.988
3. Best Age For Girls to Have Sex:			
(Less Than 14)			
15 - 19	1.753*	.763	5.771
20 Plus	1.504*	.763	4.500
4. Best Age For Women To Wed:			
(25 Plus)			
Less Than 19	.797*	.277	2.220
20 - 24	.882*	.272	2.416
5. Best Age For Women to Have 1st Child:			
(21 Plus)			
Less Than 17	2.323*	.760	10.209
18 - 20	1.970*	.782	7.170
6. Sexual Activity of Friends:			
(Have Inactive Friends)			
Have Active Friends	.792*	.083	2.209
7. Attendance of Family Life Education:			
(Never Attend a Lecture)			
Have Attended Before	-.403*	.108	.669
8. Index of Sexual Permissiveness for Unmarried Women:			
(Conditional Approval)			
Completely Disapproved	-.577	.387	.561

Cont. Table 4.15

9. 'Best age for sex' By 'Best age for 1st child':			
15 - 19 by < 17 years	-1.411	.774	.244
15 - 19 by 18 - 20 years	-1.551	.798	.212
20 Plus by < 17 years	-1.656	.874	.191
20 Plus by 18 - 20 years	-1.426	.814	.240
10. 'Best age to wed' by 'Sexual permissiveness':			
< 19 yrs by Disapprove sex	.534	.398	1.706
20 - 24 by Disapprove sex	-.065	.423	.938
Constant:	-3.441*	.789	
Log Likelihood	-1820.000		
Pseudo R-square	.123		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

It is surprising that respondents who are informed about menstruation tend to have higher probability of bearing a child compared to those with no knowledge. The odds of having at least one child for those informed about men's are 1.285 times higher than those of other young women with no prior knowledge. Although this result is contrary to expectations that informed respondents would be more sensitized about the risks of pregnancy and motherhood, this finding is understandable in a country like The Gambia where contraceptive use is very low and little communication about sexual intercourse exists.

Lack of information about menstruation alone is not the only determinant of early childbearing. Consideration has also been given to the effect of contraceptive knowledge on the fertility of young female adults. This thesis suggests that the effect of contraceptive knowledge varies with the amount and quality of information about family planning methods and ideas. The risk of bearing a child for women with more knowledge was reduced considerably (by 0.988) compared to those with less information about contraceptives. Thompson and Spanier (1978) attribute effective and greater use of contraceptives to adequate information and knowledge of family planning (among University students in the United States) and this subsequently reduces fertility. Thus, the condition for active family planning through contraception can be successfully achieved if potential acceptors and users of contraceptives have adequate knowledge about available methods (World Fertility Survey 1985:125 - 129).

Table 4.15 also shows that of the nine variables on attitude of young women toward childbearing, only four are significantly important for inclusion in the model. And among these four factors, the only insignificant variable at the 0.01 level is the index of sexual permissiveness for unmarried women. The interaction terms in the model such as "best age for girls to have sex" by "best age for women to have 1st child" and "best age for women to wed" by "sexual permissiveness" are insignificant. It is clear from the table, however, that the variable "best age for a girl to have sexual intercourse" was one of the significant predictors of childbearing among KAP variables. Assuming that other variables in the model are held constant, the odds for a young woman with a child to prefer

delaying intercourse to ages above 15 is four times higher than are those who favour ages below 14.

It also appears that young women who have a child are more likely to support that girls should marry later in life. The odds are higher for those below age 19 and 20-24 by a factor of 2.22 and 2.42 when compared to those at ages 25 and above. Because of low contraceptive use, early marriages may increase the frequency of intercourse and exposure to the risk of being pregnant. Given that the mean age at first marriage for girls in the sample is 16 and that Gambian women on average marry in their teenage years, the results obtained here are relevant to the fertility of young women. As indicated earlier, the effect of low age at first marriage is partly attributable to differences in fertility of North African countries like Tunisia and Sudan, and this may also be the case of young Gambian women (Beaujot, 1987:1-3; Caldwell, 1981:110 - 112).

A further review of Table 4.15 shows that young women look forward to starting childbearing as teenagers and not after age 21 and above. The odds of bearing a child for young women who prefer to have their first child at ages less than 17 and 18-20 are 10.21 and 7.17 times higher than that of others aged 21 and above. The fact that these probabilities are relatively high compared to those of other variables is an indication that a majority of young Gambian girls still favour early childbearing. As mentioned earlier, Fortes (1978) found a similar enthusiasm for early motherhood among West African women in general. In her opinion, most West African (including Gambians) are more

interested in having children and not marriage per se. Benedict's observation, noted in Fortes (1978), linking adulthood and future economic security of African women to childbearing is also associated with such an attitude.

Attention is also given to behavioural practices encouraging early childbearing among young women. Of the two practices considered (i.e. sexual activity of friends and attendance of family life education), all are significantly important (at the 0.01 level) when predicting the effects of peer influence and reference groups on early childbearing. In relation to the argument of Shah and Zelnik (1981) that the sexual activity of girls in the United States is largely influenced by peers, there is some evidence that similar pressures might be at play in The Gambia. Although much information on peer influence in The Gambia is unavailable, Table 4.15 portrays some relationship between the sexual activity of peers and childbearing. Respondents with sexually active friends appear to be more likely to have a child compared to those whose friends were sexually inactive.

Respondents who had attended family life education (FLE) lectures have less chances of bearing a child. Since the odds ($\text{Exp } \beta = 0.669$) of early childbearing are more for young women who have never attended the family life education lectures taught in schools and/or organized by institutions like The Gambia Family Planning Association, the evidence here suggests that the lectures are effective. This is contrary to the finding that respondents who are informed about menstruation tend to have higher probability of bearing a child compared to those with no prior knowledge. The mere attendance of FLE

or provision of information on menstruation does not necessarily imply having much knowledge about family planning. Hanson et al. (1987) have considered sex education as a very effective means of avoiding pregnancy and early motherhood, however.

4.3.2.3 Proximate determinants

The impact of proximate determinants that affect fertility directly is presented in Table 4.16. Based on the best fitting model, 5 of the 6 independent variables used to predict childbearing are significant at 0.01 level. Age at first menstruation which serves as proxy for biological maturity of girls is the only insignificant variable (see Table A11). Although age at first marriage is generally low in developing countries like The Gambia, it is quite important in predicting early childbearing. Clearly, the chance of bearing a child decreases as the age at first marriage increases. The results of this analysis are very similar to those of Beaujot (1987) for Tunisia and of Caldwell (1981) for Tunisia and Egypt. In their studies in North African countries, they found that both Tunisia and Egypt considered the official rise in female age at marriage as an important factor for lowering fertility.

However, the analysis of the relationship of age at first intercourse and childbearing shows that fertility is lower for young women who delay their first intercourse. The odds of bearing a child tend to decrease by a factor of 0.979 as age at first intercourse increased. Hofferth (1987) also found lower pregnancy rate and

consequently a reduction in fertility as young American women delayed their first sexual encounter. Age at first intercourse is included here mainly because most young people do not often use contraception or are not fully informed about risks involved during their first sexual experience and the factors which lead to many unwanted pregnancies and childbirths (Senderowitz and Paxman, 1985:21).

Table 4.16: Selected Logit Parameters for The Model Containing Main Effects and Interactions of Proximate Determinants of Childbearing Among Young Women

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Age at First Marriage:	-.013*	.002	.987
2. Age at 1st Intercourse:	-.021*	.005	.979
3. Contraceptive Use:			
(Never Use)			
Ever Use	1.406*	.153	4.081
4. Frequency of Intercourse in Last 4 Weeks:			
(None)			
1 - 3 Times	.396*	.206	1.485
4 Plus	.670*	.187	1.953
5. Intra-uterine Mortality:			
(Never Experienced it)			
Have Experienced it	.482*	.139	1.620
6. 'Age at 1st Marriage' By 'Age at 1st Intercourse(AFI)':			
	-.0003*	.0001	.999
Constant:	.672**	.219	
Log Likelihood	-1064.000		
Pseudo R-square	.489		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

Table 4.16 also shows that young women with children use contraceptives more than those who are childless. Clearly, having a child promotes contraceptive use indicating that additional children would not be welcome. Contraceptives are therefore used mostly for prevention of subsequent births. For this reason, the odds of childbearing for ever-users are 4 times higher than those of never-users; and this makes contraceptive use the most important predictor of early childbearing of all the proximate determinants. Unlike Canada where contraceptive use is common among childless young women, their counterparts in The Gambia do not often use protection until they have at least one child. In The Gambia, young women below age 16 have access to oral or prescribed contraceptives only with parental consent which is seldom granted, given the conservative attitude of parents about sexuality of teenagers (Kane et al., 1993:58). This does not contradict the findings of Hayes (1987) that the fertility of young women in the American society largely depends on the use of contraception, but it clearly shows that timing the initial use is important since few women in The Gambia control their fertility.

It is critical as well to consider the frequency of intercourse as part of the proximate determinants of childbearing. In the absence of contraception, the odds of childbearing for young female adults seem to increase steadily with sexual activity (i.e. $\text{Exp } \beta = 1.485$ and 1.953 for those having intercourse 1-3 times and 4 plus), thus indicating a greater possibility of more sexually active girls being parents.

It is worth mentioning, however, that this measure of frequency of intercourse should not be taken at face value since it cannot be confirmed that the events during the reference period of past four weeks represents the actual pattern of intercourse for the population concerned. Efforts to compare the results of this indicator with those of neighbouring countries were unsuccessful mainly because of lack of comparable information on this particular question in the sub-region. Information on frequency of intercourse was only asked during the World Fertility Surveys (WFS) of Ghana and Ivory Coast which used the reference period of 7 days and not 4 weeks as in the case of this study. Whereas respondents of the WFS can report a minimum number of intercourse of at least once in 7 days, meaning 4 times every four weeks in order to be considered sexually active, the reference period of four weeks used in this thesis made it possible to report three or less contacts. Given this problem of incomparability and the fact that dropping the question on intercourse does not necessarily improve the fit of the model but, rather, implies loss of vital information, a decision was made to maintain the variable in the present analysis.

In addition to frequency of intercourse, Table 4.16 also shows that intrauterine mortality is significant at the 0.01 level. As in the case of Uganda reported in Muir and Beksey (1980), young women who had never had an abortion, miscarriage or still birth seemed to have a lower chance of being a mother than their counterparts who had gone through such experiences (Exp $\beta=1.620$). Nevertheless, intrauterine mortality can be

avoided if obstetric care were improved and voluntary family planning became more acceptable (Fortney et al., 1985:4).

When intrauterine mortality was ignored and consideration given to the joint effects of variables on childbearing, the age at first intercourse and age at first marriage are the only interaction terms of importance in Table 4.16. Given the effects of these proximate determinants and that of other major components, we also need to assess the relative importance of factors on the overall model consisting of all direct and indirect determinants.

4.3.2.4 The overall model

A further review of variables that are significant for predicting the reproductive behaviour of young female adults is given in Table 4.17. Only the impact of significant effects of the best fitting model for the major groups of variables (or components) are examined. Twenty-two of the thirty-one variables included in the major components of both direct and indirect determinants were used in building the overall model. The Table presents only the significant variables that are most likely to predict childbearing when all the major groups of variables are combined in one model.

Table 4.17: Parameters of The Overall Model Containing Main Effects and Significant Interactions of Direct and Indirect Determinants of Childbearing Among Young Women

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Education Attainment:			
(Below post-primary)			
Post-primary	-.652*	.196	.521
2. Employment Status:			
(Not employed)			
Employed	-.417**	.187	.659
3. Looking For Work:			
(No)			
Yes	.507**	.179	1.661
4. Area of Residence:			
(Non-urban)			
Urban	.655*	.167	1.924
5. Living With:			
(Other)			
Mother Only	.741	.658	2.098
Both Parents	1.209	.568	3.351
6. Age:	.374*	.025	1.453
7. Number of Children Desired			
(7 Plus)			
1 - 3	.503	.632	1.654
4 - 6	1.399**	.623	4.051
8. Religious group:			
(Non-muslim)			
Muslim	1.763**	.522	5.828
9. Ethnic Group:			
(Other)			
Mandinka	-.319	.171	.727
10. Best Age For Girls to Have Sex:			
(Less Than 14)			
15 - 19	.185	.165	1.203
20 Plus	.353	.279	1.424

Cont. Table 4.17:

11. Best Age For Women To Wed:			
(25 Plus)			
Less Than 19	.437	.407	1.548
20 - 24	.677	.399	1.969
12. Best Age For Women to Have 1st Child:			
(21 Plus)			
Less Than 17	1.008*	.229	2.739
18 - 20	.699*	.209	2.012
13. Sexual Activity of Friends:			
(Have inactive Friends)			
Have Active Friends	-.039	.130	.962
14. Attendance of Family Life Education:			
(Never Attend a Lecture)			
Have Attended Before	-.101	.171	.904
15. Informed About Menstruation Before:			
(No)			
Yes	.281**	.132	1.325
16. Contraceptive Knowledge:			
	-.002	.002	.998
17. Index of Sexual Permissiveness for Unmarried Women:			
(Conditional Approval)			
Completely Disapproved	.904	.663	2.470
18. Age at First Marriage:			
	-.011*	.003	.989
19. Age at 1st Intercourse:			
	-.011	.006	.989
20. Contraceptive Use:			
(Never Use)			
Ever Use	.979*	.180	2.663
21. Frequency of Intercourse in Last 4 Weeks:			
(None)			
1 - 3 Times	.781*	.238	2.184
4 Plus	1.083*	.218	2.954

Cont. Table 4.17:

22. Intra-uterine Mortality:			
(Never Experienced it)			
Have Experienced it	.106	.156	1.112
23. Children Desired By Religious Group:			
1 - 3 Children by Muslim	-.620	.654	.538
4 - 6 Children by Muslim	-1.457**	.641	.233
24. Living Arrangement by Religious Group:			
Mother Only by Muslim	-.783	.689	.457
Both Parents by Muslim	-1.484**	.585	.227
25. 'Best Age to Wed' by 'Sexual Permissiveness':			
< 19 yrs by Disapprove sex	-.784	.676	.457
20 - 24 by Disapprove sex	-.998	.712	.369
26. 'Age at 1st Marriage' by 'Age at 1st Intercourse (AFI):			
	-.0003	.0001	.999
Constant:	-10.402*	.926	
Log Likelihood	-866.000		
Pseudo R-square	.594		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

Table 4.17 shows that 9 of the 22 variables in the overall model are insignificant. Whereas some variables were significant at the level of major groups, they are insignificant when included in the overall model. Among KAP variables, for example, both contraceptive knowledge and best age for women to wed are ineffective when included in the overall model. A similar situation exists for intrauterine mortality as part of the proximate determinants.

Of all the factors used for predicting early childbearing in the overall model, the most significant effects are religion, contraceptive use, frequency of intercourse, and age at first marriage. For religious groups, Muslims are 5 times more likely to have a child than non-Muslims. It is also clear from Table 4.17 that the likelihood of childbearing is much lower among younger women as their age at first marriage increases (Exp $\beta=0.989$). Whereas ever-users of contraceptives are those who already have a child and are at a greater risks of bearing a child (Exp $\beta=2.663$), those having intercourse more frequently (4 times plus) are more likely to be pregnant (Exp $\beta=2.954$) in the absence of contraception. Other variables that are significant at the 0.01 and 0.05 levels in the overall model include educational attainment, employment status, looking for work, area of residence, age, number of children desired, best age for a girl to have first child and prior information about menstruation. All these significant variables are relevant to the models that attempt to predict early childbearing in The Gambia.

4.3.2.4 Relative importance of components

As expected, the overall model is indeed the best of all the models that predict the fertility of young women and, this is reflected in Table A3 of Appendix 7. However, it is of interest to compare the results of individual models of the major variable groups with those of the overall model. Based on the idea that the major components are subsets of the overall model, the coefficients of the overall model are comparable with those of

individual models of these major groups and can therefore be interpreted in a similar manner. Since the models of these major groups of variable are discussed in Appendix 5, attention here is devoted to existing differences.

Table A3 shows that the pseudo R-square of 59.4 percent for the overall model is higher than the estimate of other models. Apart from the overall model, the proximate determinants are more influential than the other two groups that indirectly affect fertility. The least effective predictors of childbearing are the KAP variables. Such findings are not only supported by the pseudo R-square estimates, but also by the log likelihood ratio test (G). From the difference in log likelihood of the constant and the respective models, for example, the proximate determinants are more important in predicting childbearing, followed by socioeconomic, demographic and cultural factors. Again, as shown in both Table A4 and A5, the KAP variables are least important among the three major components of direct and indirect determinants. All these respective components have contributed significantly to the overall model, however.

Nevertheless, there is need for further explanation about possible causes of such differences, especially in the case of KAP variables. Unlike knowledge and practice factors, attitudes are more difficult to measure since they deal with beliefs, opinion and values. Measurement problems therefore arise mainly because attitude is inferential and cannot be directly observed; this has affected the results of this study. However, despite

the low estimates obtained, it is necessary to include the KAP variables in this analysis since these are often neglected in most fertility studies.

4.4 Summary

This chapter has reported the results of analysis of the determinants of early childbearing and the ranking of the various components (or groups) of these determinants in their order of importance. The analysis was done using both bivariate and multivariate techniques. However, it should be noted that the bivariate analysis included here was not a mere statistical exercise but an effort to provide background information about young women in The Gambia. The bivariate analysis assisted in tracing collinearity in the final results.

The bivariate analysis revealed that 14 of the 31 variables used in the present study are important in predicting early childbearing. They include 6 variables of component 1, 4 of component 2, and 4 of component 3. The important correlates of component 1 were age of respondent, area of residence, education, employment status, living arrangement, and number of desired children; those of component 2 include contraceptive knowledge, sexual activity of friends, best age for women to wed, and best age for women to have first child. The important factors of component 3 are contraceptive use, age at first marriage, frequency of intercourse and intrauterine mortality. All these

important factors are weakly or moderately associated with the fertility of young women except for age of respondent, age at first marriage, contraceptive knowledge, and frequency of intercourse. These four variables strongly correlate with early childbearing and, given the low use of contraceptives among young women, they are undoubtedly among the most important factors. Because of the fact that these bivariate relationships can possibly involve other confounding factors resulting in a spurious condition, the outcome of the multivariate analysis is also very important.

The multivariate contingency analyses provided additional information while controlling for a third factor involving two-variable relationships. For example, the evidence obtained from the above analysis showed that age has a partial effect on early childbearing and marital status. It was also found that marital status was less effective in predicting fertility among young women than area of residence. Contraceptive use was a better explanatory variable than education. For both ever-users and never-users, a higher educational attainment tends to lower fertility. The results of the multivariate contingency table analysis also revealed some differences in age at first marriage for urban and non-urban residents. Age at first marriage appeared to be slightly higher in urban than non-urban settlements and steadily increased with education in both areas. The estimates on age at first sexual intercourse also yielded similar results for residential area and education.

These results were improved using logistic regression analysis which controls for more than one explanatory variable when predicting early childbearing. As a better predictor of fertility among young women compared to individual components of direct and indirect factors, the overall model which included all these major groups revealed the most important effects as religion, age at first marriage, contraceptive use, and frequency of intercourse - all of which are proximate determinants except religious grouping. Other variables of importance, although to a lesser extent, included educational attainment, employment status, looking for work, area of residence, living arrangement of respondents, age, number of children desired, ethnic group, best age for a girl to have first child, and prior information about menstruation. These variables which are all relevant and important for the prediction of early childbearing are part of component 1 except for the two KAP variables of component 2, namely, best age for a girl to have first child and prior information about menstruation. The analysis also shows that component 3 (the proximate determinants) are more influential in predicting fertility than components 1 and 2. The least important of the indirect effects is component 2 comprising the KAP variables. However, all three major components are important in predicting early childbearing.

Chapter 5: Summary and Conclusions

5.1 Summary and issues

This thesis has examined the determinants of childbearing, among young female adults in The Gambia. Specifically, it has investigated the differentials and patterns of fertility among young Gambian women aged 13-24 and also ranked the respective components (or groups) of these determinants in order of importance. In so doing, the thesis was guided by the premise that all of the variables included in the study were equally important in predicting childbearing among young women and that the major components impact on fertility in a similar manner. Since these questions have not been fully answered in earlier studies, it was important to empirically analyze the existing situation of young Gambian women.

High fertility among adolescents and young women has generated much concern among researchers in both developed and developing countries. The variables most often studied in this respect include: the socioeconomic background of young women and of their parents; the effects of demographic factors like age of respondent; the role of

cultural and institutional values; the psychosocial problems of young people; the physiological and behavioural issues surrounding young women; and the influence of reference groups. Among all these, the reference group theory discussed in the works of Reiss, Mirande and others was the most relevant to the present investigation. The theory holds that young women are most regularly associated with one or more groups which, as reference group(s), influence their sexual behaviour, contraceptive use and, ultimately, childbearing behaviour. Formal and informal referents like the school, religious organizations, peers, parents, social clubs and others are believed to affect the fertility behaviour of young women through social and cultural settings of their members in the form of interactions and interpersonal relationships (Williamson et al., 1984: 239). Answers to the research question of this thesis were therefore sought by combining the reference group theory with a modified Bongaarts-type framework.

In this manner, this thesis attempted to address a common theoretical weakness in most studies on determinants of fertility of young women. Aside from the reference group theory, it is evident that most studies of early childbearing are often insufficiently grounded on a unified theory before proceeding to verify their predictions (Chilman, 1978:25). The theoretical propositions of early childbearing tend to be narrow in focus compared to most conventional "grand theories" of overall fertility such as the demographic transition approach. This thesis avoided this weakness by adopting a much broader approach to dealing with problems and issues regarding the fertility of adolescents and young female adults. By combining the reference group theory and a Bongaarts-type

framework, a sufficient ground was laid for a descriptive and analytical approaches to the research questions of interest.

Two data sets were used in finding answers to the research questions of this thesis: one from the Gambia Family Planning Association (GFPA) based on their survey on "Reproductive behaviour of young adults in Greater Banjul area" and the other from the Central Statistics Department (CSD) survey on "Adolescent fertility in semi-urban and rural areas". As stated earlier, the data of these surveys are the only available and comprehensive information on fertility behaviour of adolescents and young female adults in The Gambia apart from the inadequate results of censuses, the incomplete vital registration system, and fragmented records of clinics and hospitals. The guidelines and instruments of the data collection procedures of these surveys were also designed in a comparable manner with those of the World Fertility Survey (WFS) in order to establish and maintain the high standards already set forth by this global programme. A cross-sectional or snap-shot approach was adopted to collect the required information from 3,276 respondents (i.e. 1730 from urban areas and 1546 from rural settlements). Although this method has been criticized mainly due to its inability to trace the processes of change, the relatively low cost of implementing the procedure was an overriding factor. Thus, a balance was struck between cost and slightly less coverage. Longitudinal surveys are not overly favoured in the Gambian context. In societies with relatively low literacy rates, there is always the problem of matching the data gathered at different times. It would also be very difficult to follow-up the respondents contacted at the initial interview

because of lack of reliable and proper home addressing system in semi-urban and rural areas. The process of call-backs to absentees and for verification of records of absentees is expensive and time consuming as well.

Nevertheless, the limitations of data from both the GFPA and CSD surveys deserve special attention. Like most African countries, The Gambia suffers from deficiencies in data availability. Owing to the low literacy rate, The Gambia's surveys and censuses are fraught with errors in the data (Jeng, 1983:5; Central Statistics Department, 1976:39). The estimates of these surveys (i.e. the GFPA's and CSD's) should not, therefore be accepted at face value. Failure to tape record a sample of the field interviews has made it difficult to determine the accuracy of the surveys. Hence, in the absence of such verification procedures, both the quality of work produced by the field staff and responses obtained cannot be reliably evaluated.

Apart from the fact that both coverage and content errors were minimized in the GFPA and CSD surveys through rigid data quality control measures, a cautionary note needs to be sounded about the effects age and/or event misreporting can have. Although age misstatement errors affect the observed probabilities of the dependent variable by either omitting young women age 13 to 24 or by including others outside this target group, failure to report a birth because of illegitimacy or death may also have similar effects (especially for those who gave birth only once). Apart from the possibility that some respondents with illegitimate child(ren) may falsify their childbearing status by

reporting themselves in the zero parity group, there is also a chance for others to evade recollection of a traumatic event such as a child's death by pretending that the experience has never occurred. However, responses given to follow-up questions on childbearing status of respondents did not indicate any serious problems. Yet, it is difficult to establish whether an error in the observed distribution of the survey population by single year could be a result of improper allocation of the samples by age or merely due to misreporting errors. However, there are more young people at younger ages and this is consistent with the distributions of the 1973 and 1983 censuses. The reported information on socioeconomic, cultural and demographic variables also appear to be consistent with estimates based on previous censuses (Jeng, 1989:19; Gambia Family Planning Association, 1988:14).

It is noteworthy as well that the present analysis does not necessarily include all the important determinants of early childbearing. Given the limitation of the data, this study was confined only to the information collected during the recent surveys on adolescents and young female adults. Also, given the conditions underlying the statistical techniques applied, this analysis did not include all the variables which were initially considered relevant to the proposed model. It excluded variables such as marital status and education planned by age 25 since these were highly correlated with age at first marriage and educational attainment; they were therefore considered less important to the investigation. Although it would have been useful from an analytical point of view to consider differences in parity distribution and timing of respective births, we caution that

this study was not concerned with these issues. The main focus here was on childbearing status of young female adults (i.e whether they have a child or not).

Statistically, this objective has been realized using bivariate and multivariate analysis. The techniques used involved cross-tabulations, estimation of correlations, multivariate contingency table analysis, and logistic regression modelling. Since bivariate relationships are inadequate when other confounding factors are involved, two different approaches of multivariate analysis were adopted to counter such deficiency. The multivariate contingency table analysis was essentially used in this thesis for measuring the relationships between three variables while logistic regression models dealt with the situation when more than three factors were involved. Although Pedhazur (1982) recommends a maximum of 14 variables for most regression models, the objectives of the present study justified a comprehensive approach involving 31 variables. In fact, Wai (1987) has reported as many as 30-40 intervening factors being used in similar fertility research. With this in mind, it is also worth mentioning that all of the variables included here were pertinent to theories of early childbearing.

The bivariate analysis of the data showed a weak correlation between early childbearing and the respective variables of interest except for age of respondent, age at first marriage, contraceptive knowledge, and frequency of intercourse. These four variables strongly correlate with fertility and, given the low use of contraceptives among young women, they are, without doubt, among the most important factors. In view of the

fact that bivariate relationships may involve other confounding factors resulting in a spurious condition, the need for multivariate analysis became necessary.

The results of the multivariate analysis show that age has a partial effect on early childbearing and marital status, and that marital status seems to be a better predictor of fertility than area of residence. At the same time, it has been found that contraceptive use explains fertility differences more than education. The multivariate contingency table analysis has also revealed significant differences in age at first marriage and age at first sexual intercourse for both urban and non-urban areas, especially as people become more educated in these settlements. These results were further analyzed using logistic regression. It was found, however, that the variables included in the empirical models do not affect early childbearing equally. In the case of the overall and best fitting model constituting the major groups of variables examined, the most important of the socioeconomic, demographic and cultural (SEDC) variables are educational attainment, employment status, looking for work, area of residence, age, number of siblings, rank of siblings, number of desired children, and religion. Living arrangement and ethnic group of respondents were the only insignificant factors among the SEDC variables.

However, it is an important finding of this thesis that fertility is higher among young women in urban than non-urban areas in The Gambia. This is in contrast with earlier findings that fertility level tends to be higher in rural than urban areas. Although this finding is unexpected, it is not implausible. It can be attributed to changes in the

behavioural and sociocultural profile of young African women, as well as improvements in nutritional levels, better medical and health conditions, and developments in reproductive technology--all of which are expectedly more evident in urban than rural areas.

Although this thesis did not analyze the paths through which fertility is affected, it is clear in the literature that SEDC variables can be controlled through interactions and interpersonal relationships among members and reference groups (Williamson et al., 1984: 354-356). Given this condition, fertility will therefore depend indirectly on the socioeconomic background of young women, existing demographic situations, and the underlying cultural settings. All of these factors have had significant impacts on early childbearing in The Gambia as well. Because of the fact that SEDC variables do not impact directly on fertility, the role of knowledge, attitude and practice (KAP) as intervening factors is also important.

Explanations of early childbearing have often referred to problems of young women and these include: 1) insufficient information and knowledge about contraceptives and the human reproductive system; 2) the attitude of peers, parents, partners and other referents toward sex, marriage and early motherhood; and 3) the influence of peer pressure, behaviour and practices. Although some of these effects are evident in the results of the present study, it is also notable that they do not impact on fertility in a similar way. As in the case of SEDC variables, the KAP indicators did not affect early

childbearing equally. This thesis did not however establish the degree of influence of reference groups on knowledge and attitudinal variables. But it is believed that both knowledge of contraception and reproductive health as well as opinions and beliefs about relationships, sex, marriage, and childbearing are all influenced by referents. At the same time, it is clear that the fertility behaviour of young women largely depends on practices such as the sexual activity of friends and attendance of educational programmes aimed at reducing childbearing. Yet, these variables can affect fertility only through the proximate determinants which have direct effects.

All of the proximate determinants have been found to be important in predicting early childbearing except for age at first menstruation which serves as proxy for biological maturity of girls. Three of these significant determinants are among the four factors that appeared most effective out of the total number of 31 variables included in the present study. With the exception of age at first intercourse and intrauterine mortality which affects early childbearing to a lesser degree, the most important factors are: (1) age at first marriage, (2) contraceptive use and (3) frequency of intercourse. Unlike those proposed by Bongaarts (1978a), the proximate determinants included here are more precise in measuring the fertility of young women compared to those of overall fertility. Although some aspects of the Bongaarts framework such as lactational infecundity and duration of the infertile period may apply to young women, these are irrelevant to this thesis mainly because they aim at capturing the infertile period between birth intervals and not childbearing status. Since attempts to include both proportion married and age at

first marriage indicated some degree of collinearity, the former was dropped on the grounds that it provided less information. Sterility was also ignored because of difficulties in establishing its prevalence at very young ages when a significant proportion of women are still unmarried. On this basis, the proximate determinants of the Bongaarts framework could not strictly be applied here since this thesis is confined to the fertility of young women age 13 to 24 and not women age 15 to 49.

As for the outcome of ranking the proximate determinants together with other major components like SEDC and KAP variables in their order of importance according to the second objective of this thesis, the logistic regressions have revealed important results. Apart from the overall model which is the best of all the models that predict the fertility of young women, the proximate determinants are more influential than the other two components that indirectly affect early childbearing. In turn, the SEDC factors were found to be more important than KAP variables. The pseudo R-square estimates indicate that 49 percent of variation in the outcome variable can be explained by the proximate determinants compared to 44 percent for SEDC and 12 percent for KAP variables. Such findings are not only supported by the pseudo R-square estimates, but also by the log likelihood ratio test (G). From the difference in log likelihood of the constant and the respective models of each component shown in Table A5, for example, the proximate determinants are more important in predicting early childbearing ($G=2029.0$) compared to the SEDC variables ($G=1808.0$). Again, the KAP variables are least important among the three components of both direct and indirect determinants ($G=512.6$).

With these results, there is need for further explanation about possible causes of such differences, especially in the case of KAP variables. Unlike knowledge and practice factors which are often precisely measured, attitudes are more difficult to measure since they deal with beliefs, opinions and values of young women on a range of issues indirectly affecting fertility. Measurement problems therefore arise mainly because attitude is inferential and cannot be directly observed; and this may have affected the results of this study to some extent. However, despite the low estimates obtained, inclusion of KAP variables in the present analysis is necessary since these factors are often neglected in most fertility studies. The importance of KAP variables has become apparent only with realization that family planning programmes have failed to reach the majority of their target groups in African and Asian countries after many years of operation. With recent efforts of family planning organizations in developing countries to establish proper communication links with potential acceptors, there is bound to be improved knowledge, attitude and practice of contraceptives which ultimately will reduce fertility.

5.2 Suggestions for future research

Although this thesis has produced some important results concerning fertility of adolescents and young female adults in The Gambia, it also revealed problems in the sample design and methodology as well as other issues which must be adequately addressed in future investigations. Among these is failure to set in place a proper means of evaluating the survey data in order to boost confidence in the final results. The quality

of work produced by interviewers and responses given ought to be verified in future surveys by sub-sampling segments of the study population and tape recording some interviews as was done during the country's Population and Housing Census in 1973 (Gibril, 1979: 1-5). It should be remembered that despite efforts to translate questions in English to local languages during the training sessions and relentless attempts to sensitize interviewers to common problems in the field, errors would still occur especially if interviewers fail to observe the necessary interviewing and control procedures. Both the translation and misreporting errors can be traced by analyzing the magnitude and direction of errors in tape recorded interviews and sub-samples of the study populations.

Another concern focuses on the need for conducting similar studies simultaneously throughout the country instead of separating them a year apart by geographic area as was done in the case of the GFPA and CSD surveys. Although it is realized that these surveys have similar design and methodology, questions may still arise about the comparability of results because of inconsistencies in timing of the data collection. Such concerns are noticeable particularly when there are significant differences in coverage and content errors of the two surveys. Despite lack of evidence that such errors occurred in the case of the GFPA and CSD studies, it is necessary to look out for the possibility of such discrepancies in future investigations.

Given that the majority of the rural population in developing countries like the Gambia are illiterate and have been predominantly engaged in agriculture, it is a waste

of resources and time to include questions on parent's education, occupation and economic activity in fertility studies. Responses to these background information of respondents in such situation are often similar because of existing common characteristics of persons concerned and should therefore be ignored.

The significant differences in fertility of urban and non-urban areas deserves special attention. The surprising finding of this thesis that fertility is higher among young women in urban than non-urban areas requires further investigation. It is therefore strongly recommended that further research be done in this area to verify the validity of such a result. Although this finding may contradict existing fertility theories, it cannot be completely ruled out. The result may be indicative of recent changes in sociocultural profiles of the young African woman. Unlike in developed countries like the United States and Canada where rural migrants blend quickly into the urban ambience, the opposite holds in most African countries. As mentioned earlier by Egunjobi (1988), many rural migrants in African countries maintain strong cultural ties with their villages for long periods after migrating into urban settlements. They therefore tend to "ruralize" the urban centres instead of being assimilated into the existing lifestyle. Since urban dwellers have relatively better nutrition and medical and health conditions, increased sexual activity among young urban women as traditional norms about sexual behaviour weaken is likely to translate in increased live births given restrictions against abortion. At the same time, medical treatment for infertile women is better in urban centres, hence fertility will tend to increase in these areas as well.

Consideration should also be given to other ways of improving the focus of this thesis. Though the emphasis here is on measurement of relationships between early childbearing and specific variables and components using multivariate contingency table analysis and logistic regressions, future studies may try path analysis to decompose the proposed framework. Figure 4 illustrates the possible relationships that could be analyzed in future investigations. Despite awareness of the importance of analyzing these paths, it is better to consider such attempts for future studies.

5.3 Policy and program effects

As already stated, high fertility among adolescents and young female adults in The Gambia has been a matter of great concern to planners, policy makers, interested non-government organizations and foreign agencies. This is because these groups constitute that segment of the female population which is most likely to affect future fertility trends in the country. Factors associated with such high fertility are mainly low contraceptive use and knowledge, low age at first marriage, low education of women, less effective family life education programmes, low status of women and peer influence perpetuating the practice of early childbearing. All of these can be controlled or influenced through policies and programs aimed at reducing fertility and early childbearing.

Some instances of age misreporting have been detected in the two surveys, particularly for ages ending in 0, 5, and in even numbers. At the same time it has been difficult to establish whether the observed distribution of the survey population by single year was a result of improper allocation of the samples by age or merely due to misreporting errors. Nevertheless, there are more young people at younger ages and this is consistent with the distribution of 1983 census (see Table A1b in Appendix 7). The reported information on socioeconomic, cultural and demographic variables also appear to be consistent with estimates based on previous censuses (The Gambia Family Planning Association, 1988:14; Jeng, 1991:19).

Due to rigorous field organization procedures adopted during the GFPA and CSD surveys, some strict data quality control measures were applied. Because interviewers and their supervisors were obliged to update their enumeration area (EA) maps while listing all eligible respondents in each household, omission errors were less likely. Content errors were also minimized through active on-the-spot verification. Interviewers were able to call back on respondents to correct any error detected as soon as a sample of their completed questionnaires was checked. Each supervisor was assigned to cover only five interviewers in order to ensure the required quality of field editing procedures.

3.3 Data collection procedures

3.3.1 Survey design

The GFPA and CSD studies are similar both in terms of survey design and methodology. In fact, the CSD adopted GFPA'S survey instruments and procedures used in urban centres for use in semi-urban and rural areas. Most of the methods and materials used were similar to those of the World Fertility Survey (WFS) in order to allay doubts about the final results. It was also evident that the expediency of having representative and reliable information from these surveys would largely depend on identification and application of appropriate survey methodology and instruments. As such, the survey design not only concentrated on suitable theoretical approaches but also emphasized practical application of the adopted sampling method. It was necessary to device appropriate strategies to overcome difficulties which lay in the way of successfully reaching the target population.

A cross-sectional or snap-shot approach was adopted to collect the required information on adolescents and young adults. Although this method has been criticized for its inability to trace the processes of change, the cost of implementing the procedure far outweighed this shortcoming. A balance was therefore struck between cost factors and a slightly limited coverage. Longitudinal surveys are not suitable in the Gambian context. In societies with relatively low literacy rate, there is always a problem of matching the

information collected at different points. It also becomes very difficult to follow the respondents contacted at the initial interview. The process of calling back on absentees can be expensive and time consuming.

Nevertheless, the sampling design was drawn in such a manner that adolescents and young adults in all sample areas were well represented. In the first place, the overall sample was stratified into two groups in each of the surveys. Whereas the GFPA sample clearly separated Banjul (the capital city) from its suburbs of Kombo St. Mary area, the CSD chose to establish a similar distinction between semi-urban and rural areas. A two-stage probability sample was adopted in all areas. The first-stage involved a selection of Census Enumeration Areas as the Primary Sampling Unit (PSU). Such selection was done by means of systematic sampling with the probability of choosing an enumeration area (EA) being proportional to the population size of the area. EAs were arranged according to geographic order before applying the probability proportional to size (PPS) selection procedure. The list of EAs compiled during the 1983 Population and Housing census was used as a sampling frame (Gambia Family Planning Association, 1988:6; Jeng, 1989:13).

Since all adolescents in a selected EA would not be surveyed, a system of streamlining the required number of eligible respondents was devised. This was achieved through a procedure of dividing the selected EA into segments. The random selection of one segment among those within a particular EA was referred to as the second stage sampling procedure. Segmenting was done by making a quick "cruise count" of all

households in each EA and then plotting these households or clusters of households in their appropriate location on sketched maps. The EA was divided into segments of nearly equal number of households. But, it should be noted that the estimated number of households in a selected EA was the sole determinant of the number of segments involved. The approximate segment size was calculated by dividing the total number of households recorded in the "cruise count" by the estimated number of segments. Where an EA was equivalent to only one segment, then the entire EA was chosen as the segment. The idea behind segmenting was to spread the sample more widely (Gambia Family Planning report of 1988: 8; Jeng, 1989: 11).

Once a particular segment was selected within an EA, the next step was to choose every other household in this area. Such a skip pattern of selecting households was necessary to obtain the required sample size. All eligible female adolescents and young adults in a selected household were automatically qualified to be included in the sample.

A sample size of 1730 females was covered in 50 EAs chosen by the GFPA out of a total of nearly 500 EAs found in urban areas. The CSD sample was equally large with 1546 married and unmarried females selected from 65 EAs out of 1,375 EAs delineated in both semi-urban and rural areas. More than one percent of the target population was included in both the GFPA and CSD surveys.

Although it was originally intended to restrict the sample population of the CSD to those aged 13-20, it was eventually extended to those 13-24 years of age. This was done to achieve comparability with the GFPA survey. According to the GFPA (1988),

'Although 20-24 year-olds are not considered adolescents, many young men and women in this age group (both married and unmarried) have recently experienced the consequences of adolescent or premarital pregnancy. Furthermore, a large proportion of both males and females aged 20-24 are still not married and may also face the problems of premarital pregnancy.' (p. 5)

For these reasons, this thesis will focus on young women age 13-24 years and not on adolescents alone.

3.3.2 Survey instruments

The required information about the sample population was obtained by administering a questionnaire to each eligible respondent. The GFPA questionnaires used for the "Reproductive Health Survey of Young Adults in Greater Banjul Areas" were partially adopted by the CSD study on "Adolescent Fertility in Semi-urban and Rural Areas". Both questionnaires⁴ of the two surveys were similar, even though some parts of the GFPA forms were excluded from the questionnaires of the CSD. The length of interviewing time per respondent was considerably curtailed because of the skip pattern built into the questionnaire (see Appendix 8).

⁴ The questionnaires used for the GFPA and CSD surveys were similar to that of WFS. Because of my position as Head of the Demographic section of the CSD and a consultant to the GFPA, I participated in developing and testing both questionnaires.

The field staff was classified into four categories, namely the interviewers, supervisors, senior field supervisors and project coordinator. Apart from the project coordinator who was based at the CSD and GFPA, the remaining staff were all answerable to the senior field supervisors (SEP). Every SEP was responsible for implementing directives from headquarters. They were also required to monitor the work of both the supervisors and interviewers. Responsibility for implementing and organizing the surveys lay with the project coordinator.

A pilot study was conducted in both surveys to evaluate the survey instruments and methodology. In each survey, three enumeration areas were randomly selected from different parts of the country. The need to reformulate and restructure the order of some questions and survey plans was easily identifiable from the pretest results. All aspects of the survey instruments and methodology were finalized based on the pretest.

The pilot surveys also indicated the need to sensitize both interviewers and supervisors about errors from translating the questionnaire from English to local languages. Thus, an intensive training programme was organized separately for interviewers and supervisors. Because of the need for supervisors to acquaint themselves with the various field problems, it was compulsory for both teams to attend the training sessions. The interviewers were given both in-class training and field practice. A special course was held a week later to consolidate the focal role of supervisors as well. It should be indicated that a training manual was compiled especially for interviewers and

supervisors. The manual was drawn up to address certain parts of the questionnaire which required more careful completion. It also covered the obstacles which were likely to arise during the field work.

3.4 Analytical methods

3.4.1 Framework of analysis

A graphic presentation of the relationships between the respective components of the direct and indirect determinants affecting early childbearing is presented in Figure 3 of Chapter 2. This model, as a modification of the Bongaarts framework for analyzing overall fertility has been designed for adolescents and young women. Apart from the comprehensive coverage of variables that affects early childbearing, the model shows the relationships between the major components of fertility and how they influence each other. In this regard, the socioeconomic, demographic, and cultural (SEDC) characteristics of women do not impact directly on the proximate determinants, but do so through the knowledge, attitudes, and practice (KAP) variables.

Since this thesis focuses on the determinants of fertility among adolescents and young female adults in The Gambia, the main interest here is on the impact of individual variables and components (or group of variables) and not the paths through which fertility is affected. Because of this, the subsequent analysis is confined only to multivariate contingency and logistic regression and excludes path analysis. The emphasis in this study

is on the measurement of relationships between early childbearing and specific variables and components; issues regarding causality are not entered into. As mentioned in Appendix 6, the present analysis does not include any missing value.

Also, the proposed framework of analysis does not include all the important determinants of early childbearing, given the limitations of the available data. Consequently, this study is confined only to the information collected during the recent surveys on adolescents and young female adults. Also, given the assumptions underlying the logistic regression method, this analysis does not include all the variables which were initially considered relevant to the proposed model. It excludes variables such as marital status and education planned by age 25 since these are highly correlated with age at first marriage and educational attainment and are also considered less important to the investigation. Although it is useful from an analytical point of view to consider differences in parity distributions and timing of respective births, this study is not concerned with these issues. The main focus here is narrowed down to factors that differentiate the fertility of young female adults.

3.4.2 Model building

Several methods have been proposed recently that assist in the selection of variables for logit models. Kay and Little (1986) have suggested an approach which begins with a logistic regression of the outcome variable on a single independent variable.

All the covariates of interest are screened in this manner until the influential ones are selected. As a criterion for selecting the variables, a specific level of acceptance of 0.25 or less is often used to identify the important variables to be included in the multivariate analysis.

Another method of variable selection is based entirely on statistical techniques like stepwise regression which specifies procedures for including or excluding variables from the model. According to the two methods of stepwise regression, variables are omitted from the analysis through a process of forward or backward elimination (Pedhazur, 1982:154-158; Norusis, 1983: 163). There is also a procedure commonly known as the "best subset selection method". It identifies the "best subsets" of variables to be included in the model based on a specific selection criteria. But this procedure has not been extensively used as yet (Lawless and Singhal, 1987:117 - 122).

The method used in this thesis simultaneously includes all variables of interest into the multivariate analysis regardless of the results of the bivariate relationships between the outcome variable and covariates concerned. This approach is adopted on considerations of not only sample size, but also the number of respondents in each category of dependent and independent variables. This method can produce unstable estimates and overfitted models if the sample size is small or there are few respondents in categories of selected variables. Overfitting yields unreliable and large estimates of the logit coefficients and standard errors (Hosmer and Lemeshow, 1989:83). None of these

problems were encountered in this analysis, since the sample sizes of both the surveys and the number of cases in categories of dependent and independent variables were relatively large.

The rationale for simultaneously entering all the variables of interest is that individual variables may show confounding effects in a bivariate relationship but confounding problems may not be encountered when entered as a group (Hosmer and Lemeshow, 1989:106). Also, the procedure was found to be flexible in accommodating theoretical concerns during the process of variable selection. It is not as deterministic as stepwise regression which fulfils mainly specific statistical requirements with little or no theoretical considerations.

Apart from these concerns, efforts have been made to verify that variables were properly categorized. For both discrete variables, the number of cases in their respective categories were non-zero and reasonably distributed. Comparing the results of respective models of the major components of direct and indirect determinants, the coefficients and

standard errors of these variables were stable and appeared reliable based on existing theoretical information⁵.

An important consideration in modelling was to verify whether the primary independent variables of interest interact with other covariates in affecting the outcome variable. Hosmer and Lemeshow (1989), among others, have found that:

'when interaction is present, the association between the risk factor and outcome variable differs, or depends in some way on the level of the covariate. That is, the covariate modifies the effect of the factor.' (p.64)

For this reason, the significant two-way interactions of theoretical relevance to the present investigation were included in the modelling process. Three-way and higher order interactions were ignored partly because of the large number of variables involved and to avoid possible difficulties in interpreting the results.

⁵ It is also necessary not to ignore differences in the composition of models. The respective models in this analysis were tested both at .01 and .05 level of significance. But each model differs in terms of number of variables; therefore, it is statistically inaccurate to adopt a uniform approach for all models. According to Miller (1966), the Bonferroni t-statistic is the most suitable correction technique to be applied. Basically, it is expressed as $C=A/N$; where C is the correction factor, A is the t-statistic (either .01 or .05) and N is the number of variables involved. For example, in modelling all eleven socioeconomic, demographic and cultural (SEDC) variables, the correction factor of 0.0045 (i.e. $A/11=0.05/11$) was used instead of 0.0083 (i.e. $A/6=0.05/6$) as in the case of the proximate determinants. A similar adjustment has also been made for other models.

3.4.3 Statistical applications

The statistical procedures of the present study involve two approaches, namely, bivariate and multivariate analyses. Bivariate analysis is used to estimate the associations between early childbearing and some selected variables of interest. The bivariate relationships not only help in understanding the fertility of young women, but also assist in interpreting the results of the multivariate analysis. However, since bivariate relationships are inadequate when other confounding factors are involved, two different approaches of multivariate analysis have been adopted to counter such deficiencies. Whereas the multivariate contingency table analysis is essentially restricted in this thesis to measure the relationship between three variables, the logistic regression models deal with the situation when more than three factors are involved. Details of these applications are further discussed in Chapter 4.

3.5 Operational definitions and measurements

As demographers are yet to be consistent about the exact determinants of fertility among adolescents and young female adults, this section defines the variables of particular interest in the empirical presentation. It is assumed that the variables included here are relevant and may reasonably explain the fertility of young women. Since this study is not only concerned with the variables affecting early childbearing but also with the impact

of individual components of direct and indirect determinants, it is necessary to classify each one along with others of similar category as discussed in Section 3.4.2.

3.5.1 The dependent variable

The childbearing status of young female adults, including adolescents, is treated as the dependent variable. This variable is categorical and takes value 1 for women with at least one child (i.e. parity 1+) and 0 for childless women (parity 0). The probability of having at least one child is based on this information.

3.5.2 Independent variables

Based on our earlier theoretical discussion and review of the literature on determinants of fertility, it is clear that many factors are involved in predicting the fertility of young women. Of these, only the variables that are pertinent to the present study are selected. These variables will be used in both the bivariate and multivariate analysis in chapter 4.

3.5.2.1 Socioeconomic factors

The socioeconomic factors consist of five variables of importance in determining early childbearing, namely, level of education, employment status, looking for work, living arrangement and area of residence. Although these variables do not affect fertility directly, their indirect effects are likely.

Young women with higher education often experience low fertility compared to those with no education at all. Not only are the educated aware of contraceptives and their effectiveness, but they are also more likely to use them for avoiding unwanted pregnancy and childbirth (Oni and McCarthy, 1990: 106). Educational attainment is divided into two categories, that is, below post-primary school level (including no education and primary education) and post-primary level.

Employment status has two categories: employed and unemployed. Employed women usually have lower fertility compared to those who are unemployed. Among the unemployed, some are looking for work and others who are not. Those who are searching for work are part of the labour force and may be more careful to avoid unwanted births in order not to jeopardize their chances of employment. Those who are not in the job market can be expected to behave differently.

The variable "living arrangement" is classified into three categories: young women living with their mothers only, those living with both parents, and others (including partners, husbands and relatives). DeLameter and MacCorqudale (1979) have associated greater independence of young women living away from parents with greater involvement in premarital sex and consequently, to early motherhood. Also, Hogan and Kitagawa (1985) found that adolescents in single parent families in the United States are more likely to have a child early compared to those living with both parents.

Demographers have devoted much attention on the differential in characteristics of the urban and rural population, especially in fertility studies. Many demographic investigations such as the World fertility surveys and decennial censuses have regularly collected information on residential area. The present study has also included this variable which is classified into urban and non-urban (i.e. semi-urban and rural) areas.

3.5.2.2 Demographic variables

Like the socioeconomic factors, demographic variables are also important in determining fertility behaviour. Age, for instance, can be used as a control variable for examining differences in fertility behaviour of young women. Theoretically, age is known to have a positive relationship with early childbearing. That is, as age increases, the

number of young women with children would also rise steadily. In order to examine this phenomenon, the age of respondent is maintained as an interval/ratio variable⁶.

The number of siblings which varies considerably for respondents in developing countries has been grouped into four categories: less than 2, 3-4, 5-6 and 7 plus. Robbins et al.(1985) found the number of siblings to be positively associated with pregnancy of young women and subsequently to early motherhood. Rindfuss and St. John (1983) argued in their study of "social determinants of age at first birth in the United States that

'The larger the family...the greater the economic and psychological push to leave and to assume adult roles, including that of motherhood, at an earlier age.... Furthermore, the larger the family of orientation, the greater the likelihood that the girl's mother started having children at a very young age. Early childbearing norms may be transmitted inter-generationally. Finally, if the family is large, direct parental guidance may be limited, and this might increase the probability of accidental motherhood at an early age.' (p. 555)

It is also probable that girls who see their older sisters become parents at very young ages are more likely to accept the practice as a way to reach adulthood. At the same time, it may be less distressful for parents whose older daughter(s) have had a child

⁶ Five interval/ratio variables are used in the logistic regression models of this study: age of respondent, age at first marriage, age at first intercourse, age at maturation, and contraceptive knowledge. As the best method for assessing and transforming the scale of continuous variables, the Kay and Little approach is used to determine whether variables should be grouped or not. The procedure "illustrates how examination of marginal distribution of covariates within outcome groups may help suggest the appropriate scale" (Hosmer and Lemeshow, 1989: 90-91). Based on the results of this method, the above five variables are maintained as interval/ratio variables. Others such as "best age for girls to have sex", "best age for women to wed", and "best age for women to have 1st child" which were originally interval/ratio and did not meet the assumptions of linearity of the logits are grouped instead.

if the experience is repeated by younger siblings. These parents have already gone through the trauma and may be more capable of handling it because of their earlier experience. The "rank among siblings" is thus a useful variable that relates to early childbearing. For the purpose of this exercise, the variable is divided into two categories: whether the respondent is the eldest child of her mother or not.

Apart from "rank among siblings", the "number of children desired" is also included. In pronatalists societies like The Gambia where children are regarded as a blessing and a gift from god, young women are likely to "state a number of their desired children reflecting what they foresee as their future expectations" (Ghana Fertility Survey, 1983:60). Childlessness is undesirable and totally incomprehensible to Gambian women. Because of these reasons, the number of children desired may be somewhat related to early childbearing. The variable is partitioned into three respective groups who desired to have 1-3 children, 4-6 children, and 7 children or more.

3.5.2.3 Cultural variables

Two significant cultural factors are expected to influence early childbearing among young female adults in The Gambia, i.e. religion and ethnicity. Since Muslims are known to have relatively high fertility levels, religion is classified into two groups, Muslims and non-Muslims.

Ethnicity may have an indirect influence on fertility. Long (1970) found that marked demographic differences between ethnic groups of apparently similar socioeconomic characteristics often arose from contrasts in cultural practices such as the duration of postnatal sexual abstinence. He further argues that most fertility differentials attributed to socioeconomic or cultural background are in some cases chiefly the result of ethnic differences. Goldscheider and Uhlenberg, cited in Gurak (1978), offer a different conceptual framework which they call the minority status hypothesis. According to this, the fertility of minority groups may be affected because the members belonging to such groups are more sensitive to social constraints on behaviour than those in majority groups. In order to study ethnic difference, this variable is classified into two categories: the Mandinkas versus all other groups. This classification is based on the 1983 census information that Mandinka is the largest group constituting 36.6 percent of the population and others are small ethnic groups.

3.5.2.4 Knowledge

Testing young women's knowledge on reproductive health involves two variables: contraceptive knowledge and "information about menstruation before having the experience for the first time". There is increasing evidence in the literature that the knowledge of both sexes on reproductive physiology is much lower compared to knowledge of contraceptive methods. Maynard-Tucker (1989) argued strongly that "the use of contraceptives is hindered by folk concepts of human anatomy and physiology, as

well as fears about the function of contraception in the body" (p. 221). It is expected, therefore, that being informed about menstruation before having an intercourse experience would at least sensitize young women to important reproductive health issues. In order to find differences in awareness on this critical subject, the variable is partitioned into two categories: those who knew about menstruation before and those who didn't.

It is important to recognize the fact that young people in both developed and developing countries are not completely ignorant about contraception and this somewhat brightens the prospects for subsequent changes in attitudes toward effective contraceptive use (Oni and McCarthy, 1990: 106; Frank, 1987: 187; Monteith et al., 1988: 287; Mbizvo and Adamchak, 1991: 37; Ajayi et al., 1991: 207). Some scholars like Ntozi and Kebera (1991) have reported that in Ankole district of Uganda, the majority of young people report knowing at least one modern method of contraception, traditional ones included. The modern methods commonly known are the pill, condom, IUD and spermicide, while the popular traditional aids are withdrawal, rhythm and sexual abstinence. The purveyors of this type of information are the mass media, school, friends, peers, relatives and sexual partners (Thompson and Spanier, 1978:482-484); Ajayi et al., 1991: 213; Oronsaye et al, 1982: 411). Older teenagers are more knowledgeable about contraception than the younger ones. Knowledge of contraception also appears to increase with higher education and among urban dwellers. Since men in most developing countries are more literate, they also tend to be more acquainted with the subject of contraception (Maynard-Tucker, 1989: 221; Boohene et al., 1991: 267; Ntozi and Kabera, 1991: 119; Khalifa, 1988: 237-242).

With this in mind, unlike most studies which attempt to measure the level of contraceptive knowledge through the average number of methods known, a special scale has been constructed in this study to shed light on a respondent's overall knowledge of available family planning methods. Thus, contraceptive knowledge is not only measured in terms of knowing about all the available methods, but also in terms of knowledge about effectiveness of the methods concerned. Knowledge would therefore differ if respondents were prompted by describing the contraceptive methods or not prompted at all. In this instance, contraceptive knowledge is measured along a continuous scale which ranges from 0 to 41. Details of the index of contraceptive knowledge finally obtained are discussed in Appendix 1. Cronbach's reliability test is used for verifying whether the scale adequately measures contraceptive knowledge and whether the items are additive. The alpha estimate of 0.88 indicates that the scale has measured the concept of interest.

3.5.2.5 Attitude

Attitudes, an important construct in social psychology, are often associated with the inclination to behave in a specific way toward persons and situations. According to Williamson et al. (1982),

'Attitudes are one of the most important factors in the dynamics of social behaviour by virtue of their links with the key processes of motivation, learning, and perception. Together with values and norms, attitudes structure our orientation to the social world, and their dynamic nature is expressed in a tendency to cross over into behaviour.' (p.226)

In this study attitude is defined as a cognitive construct representing the beliefs, opinions, and values of young women toward a range of issues indirectly affecting fertility. Because a person's attitudes largely depend on the sociocultural and institutional settings, knowledge about the influence of these settings on attitudes is necessary for better understanding of the fertility of young women. Ben and Newcomb et al. (cited in Williamson et al. 1982) attribute the major impact on attitudes to reference groups, particularly peers. The individual's attitudes are formed and strengthened mostly through such groups.

Since an attitude is inferential and cannot be directly observed, the questions used in this thesis to represent attitude include: (1) best age for girls to have sex; (2) best age for women to marry; (3) opinion about virginity before marriage; (4) best age for women to have a first child; (5) opinion about polygamy; (6) opinion about women working outside the home; (7) opinion about unmarried pregnant girls; (8) index of sexual permissiveness for unmarried women (discussed in Appendix 2); (9) index of sexual permissiveness for unmarried men (discussed in Appendix 3); and, (10) Index of opinion on abortion (discussed in Appendix 4). All of these are 2-category variables except for: "best age for a girl to have sex", "best age for women to marry", "best age for women to have first child", and "opinion about unmarried pregnant girls". These four indicators have 3 categories.

3.5.2.6 Practice

In the context of this investigation, the practices that seem to be indirectly influential in determining the fertility of young women are: the sexual activity of friends and attendance of family life education lectures. Both of these are hypothetically affected by reference groups of respondents. Whereas the sexual behaviour of a person may be influenced by peers, attendance of family life education lectures mainly depends on both formal and informal groups such as the school, church, peers, family, and other institutions. Responses for each of these variables are classified into two categories, that is, "attend at least once" or "did not attend".

3.5.2.7 Proximate determinants

Given the sociocultural setting of The Gambia, the proximate determinants of overall fertility discussed in chapter 2 and often associated with Bongaarts (1978a) are not well suited to analyzing the fertility of young women. Only six factors were considered relevant: (1) age at first marriage; (2) age at maturation; (3) age at first intercourse; (4) frequency of intercourse; (5) intrauterine mortality; and (6) contraceptive use. Inter-pregnancy practices and experiences such as abstinence and post-partum amenorrhea were left out mainly because their intervals are short for most Gambian women. Bongaarts (1983) has also considered these factors less significant for predicting

fertility. Greater attention will be devoted to both contraceptive and non-contraceptive effects.

Age at first marriage reflects the age at which a legal union of persons is recognized by civil, religious or customary law. Although childbearing is confined within marriage in most countries, some societies have "allowed" the practice as appropriate within stable sexual unions. A low age at first marriage may therefore result in early childbearing, especially in the absence of effective and widespread use of contraceptives. Age at first marriage is divided into three categories: less than 14, 15-19, and 20-24.

Age at maturation indicates the onset of fecundity, and relates to the appearance of menses. It is the lower level of the two points marking a woman's reproductive life span⁷. The age at maturation is mostly associated with the nutritional status of young women. As indicated earlier, age at maturation is an interval/ratio variable.

Age at first intercourse is important in the present study not only because it marks the beginning of sexual relationships of young women but it is also expected to correlate highly with early pregnancy and, consequently, with childbirth. In societies such as those of developing countries, a young age at first intercourse may correspond with a youthful first birth since contraceptive use is almost negligible. This is particularly true for mature

⁷ Since the upper level of the fecund period is the age at menopause, attention is only devoted to the lower bound.

young women who did not use any contraceptive or may have used an ineffective type at the time of first intercourse. Age at first intercourse is classified as an interval/ratio variable.

The next indicator of the proximate determinants is frequency of intercourse during the past four weeks which can affect fertility through an increased risk of becoming pregnant and even having a child. In the absence of contraception, this is possible for young women who are sexually active. Intercourse is more frequent among married couples, especially newly weds. Three categories, namely none, 1-3 times and 4 plus constitute the respective categories of this variable.

With regard to intra-uterine mortality only two categories are included: those who ever had an induced abortion, miscarriage or stillbirth and those who never had these experiences. This variable is important because not all pregnancies necessarily reach full gestation period and may not result in a live birth. Another concern is the definitive evidence that intrauterine mortality will be experienced repeatedly after the first incident. Leridon (cited in Chandrasekaran and Hermalin 1975) contends that intrauterine mortality may be repetitive, and that young women who have had an induced abortion or stillbirth are also likely to encounter repeated experiences. Yet, it is still important to know the cause of short lived pregnancies. Apart from the effects of disease as a genuine explanation, unsanitary and poor medical conditions in which illegal abortions are

performed in developing countries can be a contributing factor (Chandrsekaran and Hermalin 1975:99-118).

Intrauterine mortality which is often associated with temporary or permanent infertility and known for directly affecting the fertility of young women, can be avoided if obstetric care is improved and voluntary family planning becomes more acceptable (Fortney et al., 1985:4; Rajulton et al., 1990:2-4). An effective family planning programme not only provides treatment for sub-fertile women, but also makes information and contraceptive methods more readily available.

The use of contraceptives among young adults requires certain conditions. Studer and Thornton (1987) have highlighted variations in contraceptive use among adolescents. In their opinion,

'the use of contraception is deeply embedded in the social and psychological context of the adolescent's expression of sexuality. Just as socio-cultural factors have been found to play a significant role in governing the manner in which sexuality is expressed, they appear likely to have an impact on the process by which an adolescent decides which contraceptive to use.' (p.117)

Contraceptive practice is remarkably low and erratic among young people in developing countries (Oronsaye and Odiase, 1983: 426; Ezimokhai et al., 1981:483; Ajayi et al., 1991:205). This pattern deviates from the norm in developed countries such as Belgium, Denmark and United Kingdom, where more than 70 percent of married women are active contraceptive users. Beneficiaries of modern contraceptives in teenage marriages are about

53 percent in Hungary and the United States. Overall, the users are fewer in Africa where family planning practice is relatively new and the traditional desire for large families is still strong. Among the few people who benefit from contraception in African countries, many prefer to use the pill, condoms, spermicide and traditional methods. Adolescents are deliberate avoiders of methods which might require professional advice and/or approval in order to maintain the secrecy of their sexuality (Senderowitz and Paxman, 1985: 15-17; Kisher, 1985: 89). In the light of this, contraceptive use is divided into two categories in the present analysis, that is, ever and never users.

3.6 Summary

This chapter has outlined the research instruments and methodology for the present study. Data collection procedures, analytical methods, and operational definitions have been reviewed and measurement procedure for the variables specified. The GFPA and CSD studies are very similar both in terms of survey design and instruments used. Also, the methods and materials, in terms of sampling procedures, administrative aspects, questionnaire design, and other field operation documents are compatible with those of the World Fertility Survey (WFS). The sampling design, in particular, was drawn in a manner that adequately covered adolescents and young adults in all sample areas.

A combined approach of reference group theory and modified Bongaarts framework has been adopted in this thesis for analyzing the fertility of young women. Except for the comprehensive coverage of variables affecting fertility, the suggested framework also shows the relationships between the major components of early childbearing and their interrelationships. A flexible modelling procedure is adopted when analyzing the relationships of interest within the selected framework. The model building is done in such a way that it accommodates theoretical concerns during the process of variable selection. This procedure, which simultaneously includes all covariates of interest into the model regardless of the state of bivariate relationships between the dependent and independent variables, is not as deterministic as stepwise regression which depends largely on statistical conditions.

In view of the objectives of the present analysis, the proposed model will be analyzed using bivariate and multivariate analysis. Both analytical procedures are included to measure associations between variables of interest but no causality will be inferred. The statistical techniques used therefore involve crosstabulations, correlation, multivariate contingency table analysis, and logistic regression. Details on the definitions and measurements of variables in the statistical analysis have also been outlined in this chapter. Based on the overview of variables included in the major components of direct and indirect determinants, the relevant covariates identified for this study will hopefully explain the fertility behaviour of adolescents and young female adults in The Gambia.

Chapter 4: Results and Discussion

4.1 Introduction

This Chapter presents the findings on determinants of early childbearing in The Gambia. The study involves two approaches to data analysis: one deals with bivariate relationships between some key variables of interest and the other focuses on a multivariate analysis. The bivariate analysis is covered in section 4.2 and the multivariate analyses follow in section 4.3. The summary of findings is discussed in section 4.4.

4.2 Bivariate analysis

An attempt is made here to analyze the relationship between early childbearing among young women aged 13-24 years and covariates of interest; but this is preceded by the analysis of relationships between independent variables to provide some background information about young Gambian women. This is done in three ways: 1) through cross-classifying some independent variables against the dependent variable, i.e. early childbearing status; 2) through cross-tabulating selected independent variables against each

other; and 3) through analyzing the measures of association based on the scale of variables concerned. Different measures of association are examined in order to reveal the likely relationship between the dependent and independent variables. For example, contingency coefficients and Phi statistics are used as measures for correlating early childbearing with nominal scale variables, while Kendall's Tau-b and Gamma statistics are applied to the ordinal scale variables. The zero order correlations are used for measuring association between interval scale variables and the fertility of young female adults (Leonard II, 1976: 267-337). Thus, we begin with a two-way cross-tabulation of variables in sub-section 4.2.1, and the correlation of dependent and independent variables by level of measurement follows in sub-section 4.2.2.

4.2.1 Cross-tabulations

As observed earlier in section 3.2, the target population was well represented in both GFPA and CSD surveys. The sample population not only covered young women of all the ages and in different locations, but also of various education backgrounds. At the level of residential area, for example, 1730 young women (53 percent) were interviewed in urban areas and 1546 (47 percent) in non-urban settlements (i.e. semi-urban and rural areas) out of a total number of 3276 respondents⁸. The level of education of these young women, however, varies between residential places. Among the urban residents,

⁸ The distribution of the sample population for variables included in this study is presented in Table A1a in Appendix 7.

according to Table 4.1, 34 percent had no education compared to 72 percent in non-urban areas. As the table shows, 28 and 21 percent of respondents have attained primary education in urban and non-urban areas respectively. This narrow difference can be attributed partly to the effects of The Gambia's universal primary education programme which was introduced in September, 1976. Up to 1983, only 13 percent of the total population had some education (CSD, 1976:47). But, there are significant differences at the post-primary school level. Compared to 7 percent for non-urban settlements, 38 percent of young women in urban areas had attained some education beyond the primary level including those from vocational training centres, secondary technical schools, high schools, colleges and universities.

Table 4.1: Distribution of Young Female Adults by Highest Level of Educational Attainment and Area of Residence

Level of Education	Area of Residence					
	Urban		Non-urban		Total	
	Number	%	Number	%	Number	%
None	592	34.2	1106	71.5	1698	51.8
Primary	487	28.2	327	21.2	814	24.8
Post-primary	651	37.6	113	7.3	764	23.3
Total	1730	100.0	1546	100.0	3276	100.0

A total of 42 percent of the sample population were ever married and 58 percent were unmarried. As Table 4.2 suggests, among those in the sample 38 percent of young women in wedlock were teenagers and 62 percent were in their twenties. Some teenage marriages were contracted as early as age 13. Whereas the likelihood of being married

is higher during the late teenage years and early twenties, it is clear that celibacy steadily decreases with age. Brass et al. (1968) have reported the existence of early marriages and universality of marriage not only in The Gambia, but throughout the West African sub-region.

**Table 4.2: Distribution of Young Female Adults
by Single Year of Age and Marital Status**
Marital Status

Age	Never Married		Ever Married		Total	
	Number	Percent	Number	Percent	Number	Percent
13	309	95.4	15	4.6	324	100.0
14	404	94.4	24	5.6	428	100.0
15	336	80.4	82	19.6	418	100.0
16	184	66.9	91	33.1	275	100.0
17	149	66.8	74	33.2	223	100.0
18	158	54.3	133	45.7	291	100.0
19	106	52.0	98	48.0	204	100.0
20	100	29.5	239	70.5	339	100.0
21	45	30.8	101	69.2	146	100.0
22	43	23.8	138	76.2	181	100.0
23	47	22.9	158	77.1	205	100.0
24	32	13.2	210	86.8	242	100.0
Total	1913	58.4	1363	41.6	3276	100.0

Table 4.3 shows that 33 percent of the sample reported have parity 1+ compared to 67 percent for parity 0. Both parity groups are also well represented in urban and non-urban areas. Whereas young women with parity 1+ constitute 35 and 31 percent for urban and non-urban areas respectively, 65 and 69 percent of those with parity 0 were in these areas.

Other notable differences are also apparent in Table 4.3. It is clear that education influences the fertility of young women in The Gambia. A selection bias is suspected among illiterates and those having post-primary education, and this may be true for all parity groups. Unlike respondents with parity 1+ constituting 18 percent of those at the primary level, 43 percent of young women with parity 1+ were illiterates and 26 percent had post-primary education. It is therefore reasonable to suspect that there is still some linearity between education and early childbearing. Owing to the finding that only 12 percent of Gambian women age 15 plus were literate in 1983 (CSD, 1986: 192-194), it is not surprising that illiterates were more represented in the parity 1+ group.

Table 4.3 also shows that 68 percent of ever married young women are in the parity 1+ group compared to 8 percent who are never married. This is consistent with the findings of Jeng (1983) that it is common among Gambian women to have a child within wedlock but that childbearing outside marriage is still important, particularly in urban and semi-urban areas.

Table 4.3: Selected Characteristics of Young Female Adults in The Gambia by Parity

Variable	Parity 1+	Parity 0	Total	Number
Overall sample:	32.9	67.1	100.0	3276
Residence:				
Urban	34.7	65.3	100.0	1730
Non-urban	30.9	69.1	100.0	1546
Education:				
None	43.2	56.8	100.0	1698
Primary	18.3	81.7	100.0	814
Post-primary	25.7	74.3	100.0	764
Marital Status:				
Never Married	7.7	92.3	100.0	1913
Ever Married	68.4	31.6	100.0	1363
Employment Status:				
Employed	47.1	52.9	100.0	760
Not employed	28.7	71.3	100.0	2516
Age at First Marriage:				
Less than 14	65.9	34.1	100.0	340
15 - 19	67.1	32.9	100.0	820
20 - 24	71.2	28.8	100.0	163
Use of Contraception:				
Ever Used	77.7	22.3	100.0	372
Never Used	27.2	72.8	100.0	2904
Knowledge of Contraception:				
No Knowledge	17.7	82.3	100.0	1294
Some Knowledge	31.9	68.1	100.0	935
Much Knowledge	52.7	47.3	100.0	1047
Frequency of Intercourse:				
None	5.5	94.5	100.0	1702
1 - 3 Times	59.2	40.8	100.0	402
4 Plus	36.2	63.8	100.0	1172

Note: Contraceptive Knowledge and age at first marriage are measured here as an ordinal scale, but it is an interval scale elsewhere.

It is also evident that employment status differentiates the fertility of young women. Among those employed, 47 percent have parity 1+ and 53 percent are childless. Out of those not employed, 29 percent are in the parity 1+ group and 71 percent have zero parity. Employment is low for women in both urban and non-urban areas. Until recently, women in The Gambia were predominantly homemakers with very little activity outside the home apart from subsistence farming. Childbearing and domestic duties ranked high in their priorities. Like most African countries, the majority of women in The Gambia are still inactive in non-agricultural and non-domestic sectors (The World Bank, 1992:27 - 32).

Apart from low participation of women in non-agricultural sector, a great deal also depends on their age at first marriage. According to Table 4.3, the majority of young ever married women have at least one child regardless of their age at first marriage. The proportion of young women with parity 1+ marrying for the first time at the age of 14 or less (66 Percent) is similar to those who marry at ages 15-19 and 20-24 respectively (67 and 71 percent). Based on the evidence in Table 4.2 that 5 percent of young women age 13 were ever married, it is clear that the traditional practice of early marriages is still observed.

Contraceptive use also showed some interesting variations among the respondents. A greater use of contraceptives is observable among women with at least one child. The ever users of contraceptives were 78 percent for parity 1+ and 22 percent for the zero

parity group. Never-users comprised 27 percent for parity 1+ compared to 73 for parity 0. Table 4.3 also shows that contraceptive knowledge is greater among young women with parity 1+. Unlike 53 percent for parity 1+, 47 percent of women in the zero parity have had "much knowledge" about contraception. Those with "no knowledge" of contraception comprise 18 percent of the parity 1+ group and 82 percent have zero parity. The estimates for young women with at least "some knowledge" of contraception are 32 and 68 percent respectively for the parity groups. However, it is not surprising that both contraceptive knowledge and use are more among young women with parity 1+ and not those in the 0 parity group. GFPA (1981) underscored the fundamental role of family planning in The Gambia for proper child spacing as well as for birth prevention. This family planning effort however ignores childless women as part of the potential acceptors of contraceptives.

Table 4.3 further indicates that young childless women are more sexually active than those having at least one child. Of the young female adults interviewed, 36 percent with parity 1+ had more than 4 sexual contacts within the four weeks prior to the survey compared to 64 percent for those in the 0 parity group. Those who had sexual intercourse 1-3 times were 59 percent for parity 1+ and 41 percent for parity 0. Young women who did not have any sexual contact during the reference period for parity 0 and 1+ were 94 and 6 percent, respectively. One would expect, however, an increase in the level of fertility among young women in a condition of high frequency of intercourse and little

use of contraceptives. Woods et al. (1985) have emphasized the relevance of such relationship in the Liberian context.

4.2.2 Measures of associations

Although the cross-tabulations of the preceding section have provided some basic information on the relationships between variables, these percentages have not been verified by means of statistical tests. It is necessary to use appropriate indices to measure the degree of association and also to test the hypothesis that no relationship exists between variables. Since the independent variables in this analysis vary in scales of measurement, appropriate statistics were selected for measuring the relationship between early childbearing and the covariates concerned. Three chi-square based measures were used for examining the associations between nominal variables and early childbearing and these include the contingency coefficient (C), phi coefficient and Cramer's (V). These measures are similar in that they have a common numerator and a slightly different denominator. But, as Table 4.4 shows, the estimates of Cramer's (V) can be obtained only for some variables and not for others. Leonard II (1976) indicates that the phi coefficient can accurately be estimated for 2 X 2 tables, but beyond that dimension, it becomes more appropriate statistically to derive Cramer's (V).

**Table 4.4: Correlations Between Nominal scale Variables
and Childbearing Status of Young Female**

Variable	(C)	Phi	Cramer's (V)
Employment Status	.04	.04	
Looking for work	.16*	.17*	
Area of Residence	.20*	.20*	
Living arrangement	.35*		.37*
Rank among siblings	.03	.03	
Religious group	.05	.05	
Ethnic group	.09		.09
Informed about menses before	.09	.09	
Opinion about polygamy	.03	.03	
Opinion about virginity	.01	.01	
Opinion about women working	.001	.001	
Opinion about pregnant girls	.02		.02
Opinion on abortion	.05	.05	
Sexual activity of friends	.20*	.20*	
Attendance of family life education	.04	.04	
Sexual permissiveness for girls	.07	.07	
Sexual permissiveness for boys	.08	.08	
Contraceptive use	.32*	.34*	
Intra-uterine mortality	.29*	.29*	

Note: 1. (C) is the contingency coefficient.

2. * indicates significant associations.

Table 4.4 also shows that of the 19 variables with nominal scale, only 7 seem to be associated with early childbearing. These include: area of residence, contraceptive use,

looking for work, living arrangement, sexual activity of friends and intra-uterine mortality. But contraceptive use and the living arrangement of respondents are more important than all the other variables. The contingency coefficient (C) and phi estimates for contraceptive use are 0.32 and 0.34 respectively, compared to an estimated contingency coefficient of 0.35 and a Cramer's (V) of 0.37 for respondents' living arrangement. Intrauterine mortality appears to have some relationship with childbearing and this is evident in both estimates of the contingency and phi coefficients (0.29). The fertility of young women is also associated with not employed persons who were looking for work.

For variables with ordinal scales, the Tau-b and Gamma estimates show a strong relationship between early childbearing and age at first marriage and also with frequency of intercourse, according to Table 4.5. Whereas the Tau-b and Gamma coefficients for age at first marriage are 0.79 and 0.55, the estimates for frequency of intercourse were 0.58 and 0.32 respectively. The best ages for a woman to wed and have a first child are somewhat related to the fertility behaviour of young women (i.e. an estimate of 0.15 for Tau-b and 0.28 for Gamma). Education is associated with childbearing as well (Tau-b = -0.19 and Gamma = -0.36).

**Table 4.5: Correlations Between Ordinal Scale Variables
and Childbearing Status of Young female Adults**

Variable	Tau-b	Gamma
Education attainment	-.19	-.36
Number of siblings	-.02	-.03
Number of children desired	.11	.21
Best age for a girl to have sex	.19	.09
Best age for a girl to wed	.14	.28*
Best age for a woman to have 1st child	.15	.28*
Age at first marriage	.79*	.55*
Frequency of intercourse	.58*	.32*

Note: 1. * indicates significant associations.

2. When age at first marriage is used in an analysis, the sample is restricted to the ever married population.

With regard to interval scale variables, the Pearson's correlation coefficient in Table 4.6 indicates a weak correlation for age at maturation and age at first sexual activity, but not for age of respondent and contraceptive knowledge. A moderately strong correlation of 0.64 was estimated for the relationship between early childbearing and age of respondent while an estimate of -0.59 was observed for contraceptive knowledge. There is the possibility, however, that these bivariate relationships may involve other factors which could affect the predicted results.

**Table 4.6: Zero Order Correlations Between Interval Scale
Variables and Childbearing Status of Young Women**

Variables	Pearson's (r)
Age	0.64*
Age at maturation	-0.02
Age at first sexual activity	0.04
Contraceptive knowledge	-0.59*

Note: * indicates significant associations.

4.3 Multivariate analysis

This analysis investigates the most important determinants of early childbearing among young female adults aged 13-24 years. Unlike the bivariate analyses of section 4.2 involving only two variables, the concern here is to use a multivariate analysis to measure the relationship between three or more variables. Multivariate techniques have a number of distinct advantages over bivariate methods. In particular, bivariate relationships can be spurious, especially if other confounding factors are involved. Multivariate contingency table analysis and logistic regression are better techniques to eliminate or, at least, reduce such confounding effects.

The results of the multivariate contingency table analysis are reported in sub-section 4.3.1, followed by logistic regression analysis in sub-section 4.3.2. Since this analysis involved 31 independent variables, it is more realistic and convenient to use

logistic regression where multiple factors are to be controlled. Also, the possibility of variables interacting with each other can further complicate the use of multiple contingency table analysis.

4.3.1 Multivariate contingency table analysis

The bivariate analyses in section 4.2 revealed two-variable relationships between early childbearing and some selected variables. Here too, a similar approach was pursued including the introduction of a statistical control to remove the impact of any factor that might affect the bivariate relationships⁹. Attention was focused therefore on the effect of controlling for a third variable which was theoretically known to affect the fertility of young women in developing countries such as The Gambia. In this particular case, the controlled variables are age, marital status, area of residence and contraceptive use.

According to Table 4.7, there is evidence that age had a partial effect on the associations between early childbearing and marital status. This is based on the phi

⁹ Since it is impractical to apply each of the 31 variables as a control factor for the bivariate relationships of interest, an exploratory attempt is made to select a few. Thus, it is unnecessary to use 31 variables in the contingency table analysis, given the cumbersome computations involved and irrelevance of presenting such results in this thesis. The selection of process adopted here is based on the findings of Gyepi-Garbrah (1985a, 1985b and 1985c) that the selected variables (like age, marital status, area of residence and contraceptive use) are known to affect early childbearing in African countries like The Gambia.

coefficients of 0.55 and 0.42, respectively, for age groups less than 19 and 20 plus. These estimates describing the "conditional" association under different conditions when marital status is controlled are less than 0.64 (the situation shown in Table 4.6 for age).

**Table 4.7: Percentage Distribution of Respondents
Classified by Parity and Marital Status
and Controlled by Age**

Age Group	Marital Status		Total
	Parity	Never Married Ever Married	
Less than 19:			
	Parity 1+	2.9 46.2	13.2
	Parity 0	97.1 53.8	86.8
	Total	100.0 100.0	100.0
	Number	1646 517	2163
		Phi = 0.55	
20 Plus:			
	Parity 1+	27.5 81.9	71.2
	Parity 0	62.5 18.1	28.8
	Total	100.0 100.0	100.0
	Number	267 846	1113
		Phi = 0.42	

The partial effect of age on the bivariate relationship of early childbearing and marital status can also be observed from the percentages of each age group in Table 4.7. For respondents who were never married, those age 20 plus were twelve times as likely to have at least one child compared to those age less than 19 (i.e. the ratio of 27.5 to 2.9

percent). Among ever married young women, the 20 plus age group are almost twice as likely to have at least one child compared those age less than 19 (i.e. the ratio of 81.9 to 46.2 percent). Age does not seem to explain all the differences between "never married" and "ever married" respondents, however. Young women who were ever married were still more likely to have a child regardless of age. The difference in percentages of parity 1+ for less than 19 and 20 year olds were reduced in the case of both never married and ever married respondents compared to the situation where age was uncontrolled. One can therefore conclude that age partially explains the bivariate relationship between early childbearing and marital status. Pedhazur (1982) has strongly emphasized the need for controlling age in behavioural research since it can cause spurious correlations. In his opinion, "there is bound to be a high correlation between any two variables that are affected by age, when the latter is uncontrolled" (p.100).

The fact that 54 and 18 percent, respectively, of ever married young women aged less than 19 and 20 plus were still childless deserves some attention. Infecundity may not be the only explanation for such unusual rate of childlessness among ever married women. Cultural factors also contribute to the observed outcome. Some marriages are not consummated in rural areas of The Gambia until the bride's dowry is fully paid. As strange as it seems, this condition may remain until such obligation is met. Such practice is not common in urban areas where such traditional values are less popular.

As one of the most theoretically relevant proximate determinants, it is also important to control for contraceptive use when dealing with a relationship such as early childbearing and education. Based on the estimates of Tau-b in Tables 4.5 and 4.8, there is no doubt that the bivariate relationship between early childbearing and education is better understood if contraceptive use is controlled. Contraceptive use is indeed a more effective explanatory factor of fertility among young women than educational attainment.

Table 4.8: Distribution of Young Female Adults by Parity and Education, Controlled for Use of Contraception

Contraceptive Use	Parity	Educational Attainment			Total
		None	Primary	Post-Primary	
Ever use:					
	Parity 1+	89.0	77.5	66.0	77.7
	Parity 0	11.0	22.5	34.0	22.3
	Total	100.0	100.0	100.0	100.0
	Number	154	71	147	372
Tau-b = 0.24					
Never use:					
	Parity 1+	38.7	12.7	16.0	27.2
	Parity 0	61.3	87.3	84.0	72.8
	Total	100.0	100.0	100.0	100.0
	Number	1544	743	617	2904
Tau-b = 0.24					

This is evident only if we consider the estimates of Tau-b for both controlled and uncontrolled bivariate relationships. The Tau-b estimate of 0.19 obtained from an

uncontrolled condition which considered only fertility and education is lower than the estimate of 0.24 when contraceptive use is controlled. It is not clear however whether the equality in Tau-b estimates for ever users and never users is due to other intervening factors outside the three-way relationship between early childbearing status, education and contraceptive use. This issue may be resolved through use of logistic regression models involving more than one control variable at a time.

It is worth reiterating, however, that contraceptive use is more popular among young women with at least one child compared to those who are childless. For both ever users and never users of contraceptives, it appears that fertility decreases with more education. For example, Table 4.8 shows that in the case of ever users of contraceptives, the proportion of young women with parity 1+ decreases from 89 percent for respondents with no education to 66 percent for those who attained post-primary school education. The proportions for similar groups of women who are never users of contraceptives decrease from 39 percent for those with no education to 16 percent for those with post-primary education. Analysis of data from WFS surveys for eight countries also show a strong negative relationship between education and fertility - a higher level of education attained by women tends to lower fertility (United Nations, 1980:4).

However, it is also important to control for the effects of age and marital status. Table 4.9 presents the situation when contraceptive use is related to early childbearing while marital status is held constant.

Table 4.9: Distribution of Young Female Adults and Use of Contraception, Controlled for Marital Status

Marital Status	Parity	Use of Contraception		Total
		Ever Used	Never Used	
Never Married:				
	Parity 1+	45.0	5.4	7.7
	Parity 0	55.0	94.6	92.3
	Total	100.0	100.0	100.0
	Number	111	1802	1913
		Phi = 0.34		
Ever Married:				
	Parity 1+	91.6	62.9	68.4
	Parity 0	8.4	37.1	31.1
	Total	100.0	100.0	100.0
	Number	261	1102	1363
		Phi = 0.24		

It is apparent here that contraceptive use was more common among ever married young women with at least one child. For those who have ever used contraceptives and were married before, 92 percent are classified as parity 1+ compared to 8 percent for parity 0¹⁰. A difference of 10 percent is observed for never married respondents with parity 0 and 1+ who had used contraceptives at least once. This is not surprising since only 6 percent of the unmarried young women have ever used contraceptives. Because of few ever users among this group, the phi coefficient for unmarried respondents shown in

¹⁰ This result does not imply that contraceptives are ineffective for pregnancy avoidance or birth spacing. The majority of young women only use contraceptives after having their first child.

Table 4.9 does not differ from the case when the relationship between early childbearing and contraception was uncontrolled (Table 4.5). An estimate of 0.34 was obtained in both cases, meaning that contraceptive use is not common among unmarried young women. There appears to be some effect on ever married young women, however.

Marital Status is also important when used as control factor for correlations between early childbearing and area of residence. Based on the phi-coefficients of Table 4.10 and Table 4.4 for controlled and uncontrolled condition, it seems marital status is less important than area of residence. The phi-coefficient of 0.14 and 0.17 for unmarried and ever married young women is much lower than the estimate of 0.20 for the uncontrolled condition when only childbearing status and area of residence are considered. The percentages of Table 4.10 also reveal the effect of marital status on the relationship between early childbearing and area of residence. Childbearing is more frequent among ever married young women in both urban and non-urban areas. Unlike the findings of Jeng (1983) that fertility is higher in rural than urban areas, the results obtained here are just the opposite.

Although this result requires a cautious interpretation, it is not impossible for fertility to be higher among young women in urban than non-urban areas. When such a situation exists, fertility can be attributed to four possible explanations. First, it may be due to differences in age structure; secondly, it may be related to behavioural differences in fertility of young women in urban and non-urban areas; thirdly, it may be due to

differences in cultural practices between the two areas; fourthly, the difference may be the effect of sampling problems.

Table 4.10: Distribution of Young Female Adults by Parity and Area of Residence, Controlled for Marital Status

Marital Status	Parity	Area of Residence		Total
		Urban	Non-urban	
Never Married:				
	Parity 1+	10.9	3.2	7.7
	Parity 0	89.1	96.8	92.3
	Total	100.0	100.0	100.0
	Number	1106	807	1913
		Phi = 0.14		
Ever Married:				
	Parity 1+	76.9	61.2	68.4
	Parity 0	23.1	38.8	31.6
	Total	100.0	100.0	100.0
	Number	624	739	1363
		Phi = 0.17		

In a country like The Gambia where the use of contraceptives is very low in both urban and rural areas, such results are probable if there are noticeable differences in childbearing practices. Childbearing in non-urban areas is low partly because it is mostly confined within wedlock while a significant proportion of young women in urban settlements have children outside marriage. This is clearly noticeable in Table 4.10 where never-married young women with parity 1+ constitute 11 percent of respondents in urban

areas compared to 3 percent in non-urban settlements. Marriages involving young women in rural areas of The Gambia are often not consummated until dowry is fully paid, and this also tends to have a non-deliberate effect of reducing early childbearing. Such traditions are less common in urban areas.

Sample allocation may also be partly responsible for differences in urban and non-urban fertility. Since table 4.10 indicates that both never-married (58.4 percent) and ever-married young women (41.6 percent) are well represented, a sampling problem can possibly be ruled out. The observed distribution by marital status somewhat coincides with expectations that never-married young women constitute the majority of the target population. Also, given the large sample size of the GFPA and CSD surveys, it is probable that the results of any analysis based on such allocation may not drastically affect the present results.

In addition to these concerns about area of residence and marital status, it is also important to study the relationship between age at first marriage¹¹ and early childbearing. According to Central Bureau of Statistics (1983), age at first marriage is among the most important variables that affect fertility in developing countries like Ghana where contraceptive use is low. Young women who marry early are exposed to a longer period

¹¹ Table A2a shows the number of cases, mean and standard deviation of interval/ratio variables like age at first marriage, age of respondents, age at first intercourse and age at maturation.

of childbearing, assuming that other factors are held constant. Age at first marriage was used therefore to study differences in residential area and level of education. According to Table 4.11, the average age at first marriage is 1.5 years higher among young women in urban (17.1 years) than non-urban areas (15.6 years). It is evident, however, that the average age at first marriage increases with education in both urban and non-urban areas.

Table 4.11: Number and Average Age at First Marriage of Young Female Adults by Parity, Area of Residence and Level of Education

Area of Residence/ Level of Education	Parity 1+ Number	Parity 1+ Average Age	Parity 0 Number	Parity 0 Average Age	Total Number	Total Average Age
Urban:						
None	266	16.4	83	16.6	349	16.5
Primary	73	16.6	16	16.6	89	16.6
Post-primary	88	19.3	33	17.3	121	19.3
Total	427	17.0	132	17.3	559	17.1
Non-urban:						
None	404	15.3	248	15.5	652	15.4
Primary	37	16.0	37	15.8	74	15.9
Post-primary	22	18.1	16	17.1	38	17.7
Total	463	15.5	301	15.6	764	15.6

There is virtually no difference in average age at first marriage comparing the estimates of parity 1+ and 0. Although there is very little variation by parity, it is clear that age at first marriage differed considerably by area of residence and level of education. A similar

relationship has been established by Central Bureau of Statistics (1983) in their study of Ghanaian fertility behaviour.

Attempts to measure the average age at first intercourse also showed interesting results in Table 4.12. On average, it is found that sexual relationships start in The Gambia around age 16. This is very similar to the situation of Nigeria where a "substantial number of adolescents have had sexual relationships, with many starting as early as age 15 or even younger" (Ladipo et al., 1983:26). Young women in non-urban settlements experience earlier sexual relationship around age 15 compared to age 16 for urban residents. In general, intercourse begins around the same time among young women regardless of their childbearing status.

Table 4.12: Number and Average Age at First Sexual Activity of Young Female Adults by Parity and Area of Residence

Area of Residence	Parity 1+		Parity 0		Total	
	Number	Average Age	Number	Average Age	Number	Average Age
Urban	591	16.3	312	16.6	903	16.4
Non-urban	468	15.4	308	15.5	776	15.5
Total	1059	15.9	620	16.1	1679	16.0

Education appears to be a significant determinant of age at first intercourse not only for childless young women and those with at least one child, but also between urban and non-urban areas. Table A2b in Appendix 7 shows a higher age at first intercourse of about 18

years for those with post-primary education compared to 16 for illiterates and others at the primary level. Late sexual exposure is therefore associated with increasing education regardless of parity and residence. Young women at the post-primary level appear to have a much higher age at first intercourse which shows that education tends to delay intercourse in The Gambian context. It is clear also that age at first intercourse is among the most important variables not involving contraception and still affects the fertility of young women apart from age at first marriage. Kahn et al. (1988) found that young women who initiated intercourse earlier in life have a child early as well.

Similarly, it is age at maturation which determines the starting point when a girl is biologically capable of becoming a mother. Results of the analysis of age at maturation by area of residence and parity is reported in Table 4.13.

Table 4.13: Number and Average Age at Maturation of Young Female Adults by Parity and Area of Residence

Area of Residence	Parity 1+		Parity 0		Total	
	Number	Average Age	Number	Average Age	Number	Average Age
Urban	572	13.9	307	13.9	879	13.9
Non-urban	462	13.4	307	13.3	769	13.3
Total	1034	13.7	614	13.6	1648	13.7

The results show that the average age at maturation in The Gambia ranges between ages 13-14 (i.e. 13 for non-urban and 14 for urban respondents). Although these estimates approximate those of Ghana (Central Bureau of Statistics, 1983: 86), there is no

explanation for the similarities between urban and non-urban estimates. Moreover, similarities in age at maturation may not be fully explained only by area of residence. Other factors can also be involved, and such concerns are discussed in the following section on logistic regression.

4.3.2 Analysis of logistic regression

In the preceding sections we reported the results of analysis of bivariate relationships between the fertility of young female adults and another variable of interest while controlling for the effects of a third factor which could possibly affect such prediction. Theoretically, the fertility of young women, among other things, involves more than three factors. The covariation of the dependent and independent variables can therefore be established only if all the other factors likely to affect such bivariate relationships are controlled. A logistic regression procedure was applied to deal with such theoretical concerns.

Logistic regression models are able to predict the relationship between the outcome (or dependent) variable and a set of covariates (independent variables) especially when the dependent variable is dichotomous as is the case with the outcome variable in this analysis. The outcome variable being the status of childbearing among young female adults, including adolescents, is coded 1 for those with at least one child (i.e. parity 1+)

and 0 otherwise. The covariates are mostly categorical variables that are socioeconomic, demographic, cultural, psychological, behavioural, and biological in nature. Only age-related variables and knowledge of contraceptive methods are continuous. The model considered here is:

$$\ln [p_1 / (1-p_1)] = \sum_1^n B_1 X_1$$

where $\ln [p_1 / (1-p_1)]$ denotes the odds that a young female adult has at least one child, B_1 is a vector of the regression coefficients, and X_1 is a vector of the covariates.

The odds of occurrence "is the ratio of the number of events to that of nonevents", whereas the odds ratio, as a measure of association, is the ratio of the event occurring to its not occurring. The odds ratio is therefore the ratio of the two odds. For example, the odds of getting a one on a single throw of an unloaded die is $1/6=0.17$ and that of not getting it is $5/6=0.83$. The odds ratio is $0.17/0.85=0.2$. Nurosis (1983:B43) refers to the odds ratio as "the factor by which the odds change when the i th independent variable increases by one unit. If B is positive this factor will be greater than 1, which means that the odds are increased; if B is negative the factor will be less than 1, which means that the odds are decreased. When B is 0 the factor equals 1, which leaves the odds unchanged". For instance, as shown in Table 4.14, when we consider the difference between those living in urban and non-urban areas, the odds of childbearing increase by

a factor of 1.59. This means that urban residents have a higher chance (1.59 times) of bearing a child than non-urban residents.

The variables included in this analysis are not the only ones that can possibly affect fertility in The Gambia. Other variables have been excluded mainly because they were unavailable or inadequate for measurement purposes as a result of unreliable responses given. For example, it would have been interesting to include information on a woman's knowledge and use of contraception at the time of first sexual encounter.

Moreover, the logistic regression does not include all the variables which were initially identified for use in the modelling process. Some variables were dropped because they were highly correlated with others in the models concerned. For example, marital status was excluded mainly because of its collinearity with age at first marriage¹². These two variables have a "never married" category which causes collinearity. The never married category cannot however be excluded from the variables concerned because of the problems arising from missing values in logistic regression. Similarly, the variable "duration of marriage" was dropped partly because of its high correlation with age at first marriage. Since duration of marriage was not asked in both surveys and had to be derived from age at first marriage, it was difficult to separate the never married women (coded

¹² All variables were correlated against each other and a cut-off point of 0.8 was used to determine variables that were highly collinear. Where two variables were highly correlated, the one considered to be less meaningful to the present analysis was dropped.

0) from those with zero duration. The variable "education planned by age 25" was also dropped since it correlated highly with current educational attainment.

With these limitations, this section discusses the results of the best fitting models assessed in Appendix 7. The focus is on the overall model containing both direct and indirect determinants and models containing the significant main effects and interactions of the respective components of these determinants. Since these models fit the data reasonably well compared to others presented in Appendix 7 (i.e. Tables A7, A8, A9, A10, A11 and A12), they are more accurate in predicting the effects of covariates on the outcome variable. Thus, it is necessary to verify the results of these models with respect to existing theories of childbearing among young women. This can be achieved by examining the results of the overall model and of individual models of the respective components (or major groups of variables).

This section is therefore divided into three parts. The first part, sub-section 4.3.2.1, is devoted to measuring the effects of socioeconomic, demographic and cultural variables (referred to hereafter as component 1); sub-section 4.3.2.2 will deal with the impact of knowledge, attitude and practice (component 2), and the results from analyzing the proximate determinants (component 3) is discussed in sub-section 4.3.2.3. Since the direct and indirect determinants are grouped into these three major components, there are four empirical models to measure the effects of covariates on the fertility of young women.

The statistical package for the social sciences (SPSS) is used for analyzing the empirical models.

4.3.2.1 Socioeconomic, demographic and cultural variables

The component (Number 1) has the following variables:

(1) socioeconomic factors: educational attainment, employment status, looking for work, living arrangement and area of residence; (2) demographic factors: age, number of siblings, rank among siblings and number of children desired; and (3) cultural factors: religious affiliation and ethnic grouping. The logistic regression estimates of the best fitting model containing main effects and significant interactions are presented in Table 4.14. Out of all the 5 variables used to measure the effect of socioeconomic factors, 4 are important for the prediction of early childbearing in The Gambia. Living arrangement of respondents is the only variable that is insignificant among socioeconomic factors included in the model¹³.

¹³ It is worth noting that living arrangement of respondents is the most significant variable in the case of the bivariate analysis of Table 4.4 (i.e. correlations between nominal scale variables and childbearing status), but not when other variables are controlled. As mentioned earlier, bivariate analyses can be misleading, especially if other confounding factors are involved.

**Table 4.14: Selected Logit Parameters for The Model
Containing Main Effects and Significant Interactions
of Socioeconomic, Demographic and Cultural Factors**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Education Attainment:			
(Below post-primary)			
Post-primary	-.924*	.301	.397
2. Employment Status:			
(Not employed)			
Employed	-.356**	.162	.700
3. Looking For Work:			
(No)			
Yes	.645*	.152	1.906
4. Area of Residence:			
(Non-urban)			
Urban	.463**	.227	1.588
5. Living With:			
(Other)			
Mother Only	.317	.604	1.374
Both Parents	.452	.469	1.572
6. Age:	.547*	.021	1.727
7. Number of Siblings:			
(7 Plus)			
Less than 2	.539	.300	1.714
3 - 4	.253	.227	1.288
5 - 6	.239	.218	1.270
8. Number of Children Desired			
(7 Plus)			
1 - 3	1.090	.566	2.973
4 - 6	1.255	.529	3.508

Cont. Table 4.14

9. Religious group:			
(Non-muslim)			
Muslim	2.722*	.465	15.203
10. Ethnic Group:			
(Other)			
Mandinka	-.556*	.147	.574
11. Residence By Number of Siblings:			
Urban by Less Than 2	-.653	.391	.520
Urban by 3 - 4	-.528	.295	.590
Urban by 5 - 6	-.478	.278	.620
12. Residence By Education:			
Urban by <Post-primary	-.404	.334	.668
13. Children Desired by Religious Group:			
1 - 3 by Muslim	-1.488**	.584	.226
4 - 6 by Muslim	-1.471*	.545	.230
14. Living Arrangement By Religious Group:			
Mother Only by Muslim	-.978	.630	.376
Both Parents by Muslim	-1.419*	.483	.242
Constant:	-12.923*	.668	
Log Likelihood	-1172.000		
Pseudo R-square	.435		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

Of the significant factors, education appears to be the most important predictor of early childbearing at the 0.01 level. Caldwell (1982) explains the ways by which education affects the fertility of young women. In his opinion, fertility and value of children decrease because of increases in the number of years spent in school, greater

expenses and responsibilities associated with having children, and reduced importance of the contribution of children to the household economy. Other researchers like Udry, Bauman and Morris (1975) have found higher educational attainment and clear educational goals leading to lower risk of childbearing. Yet, an important question arising from the relationship between women's educational attainment and fertility is how much education is needed and under what conditions would a difference be realized. Some studies have argued that declining fertility with increasing education is only apparent in developing countries when secondary and higher education are classified separately from the primary and no education (Ware, 1981:79-89; Ware, 1974:13; Simbajwe, 1979:342; Caldwell, 1974:7). Table 4.14 shows similar results. The odds of having at least one child is higher among women with no education and those with primary education (i.e. six years of schooling) than for those at the post-primary school level (0.397).

Another important determinant of fertility behaviour is employment status. The results of this variable which is significant at the 0.05 level indicates that employed young women are less likely to have a child compared to those who are not employed. As noted earlier, Chilman (1983) has found that employed young women in the United States delay the first birth in order to maintain their jobs and this may be the situation in The Gambia as well. Since employed women earn regular wages or salaries, their income is expected to be higher on the average than of the not employed, and this difference impacts significantly on fertility. This supports the cost-utility theory discussed in Leibenstein (1957) and Becker (1960) which predicts lower fertility for people with higher income.

Childbearing is more likely among young women who are not employed and are actively searching for a job than among those who are not looking for work. The odds of having a child for job seekers (significant at 0.01 level) is 1.906 times more than that of their counterparts in the inactive population. It is unclear however whether those looking for work were doing so to support a child they already had. The job seekers were mainly the never married young women who were not employed and already had a child. Understandably, these young women would need some income to support their offspring(s).

Although the area of residence is also a significant predictor of childbearing at the 0.05 level, the estimate of this covariate requires cautious interpretation. The finding that young women are 1.588 times more likely to have a child in urban than non-urban areas is indeed surprising. Yet, this finding cannot be completely ruled out. As stated earlier in sub-section 4.3.1, it can be attributed to differences in behavioural and traditional practices of young women in the two areas. Unlike in developed countries like the United States and Canada where rural migrants quickly fit into the urban setting, the situation differs in most African countries where they tend to "ruralize" the urban areas instead. Also, the availability of better nutrition and medical and health conditions can affect the fertility of young women in urban settlements, especially since sexual activity can be expected to increase among young women as traditional norms governing sexual behaviour are weakened. It seems that sample allocation cannot be a genuine explanation

since both the GFPA and CSD surveys involved a large sample size to avoid possible problems in the area.

It is worth noting, however, that the finding of this study on differences in fertility behaviour by residential area contradicts existing theories on the subject. Most studies such as Duncan and Reiss (cited in Rindfuss and St. John, 1983: 555) found that women in rural areas became mothers much earlier than urban dwellers. The findings of these researchers which may also be valid in The Gambian context further reveals that early motherhood may

'seem more attractive than pursuing a career when educational opportunities are limited, as they are in many rural areas. Similarly, the lack of attractive, nonfarm, female career opportunities in rural areas may make early motherhood seem more appealing. Thus, the indirect effect through educational and career aspirations, should lead to a younger age at first birth. The way in which young farmers get started in farming also may be relevant. To the extent that they begin by going into business with their parents, there is less pressure on them to postpone the first birth until they are established in their career.' (p. 555)

Unlike area of residence, the coefficient for age is consistent with the theoretical expectation that childbearing increases with age. For example, the findings of Hayes (1987) who relates early childbearing as a function of age among young American women are similar to those in The Gambia (see Table A1c in Appendix 7). The odds of early childbearing in Table 4.14 seem to increase significantly at the 0.01 level by a factor of 1.727 from one age to another. Women are more exposed to the risk of having a child as they grow older, assuming other influences from other factors are held constant. There

is a possibility, however, that age can interact with another variable to affect early childbearing. Nevertheless, age is the only significant demographic variable in Table 4.14. The number of siblings and the desired number of children do not seem to be important in predicting early childbearing.

Table 4.14 also shows that the relationship between childbearing and religion is significant at the 0.05 level. The odds of having at least one child is 15 times more likely for young Muslim women than for non-Muslims. Given this relatively high risk, it is clear that religion is one of the most important differentiating factors of early childbearing in The Gambia. Caldwell (1981) has particularly stressed the importance of the influence of religion on fertility in Islamic countries like Saudi Arabia and Libya. Since the Koran teaches that all healthy Muslim women must be married to go to paradise, Muslims who constitute the majority of The Gambian population believe in this doctrine and marriages are entered into as early as age 14, that is, as soon as the bride's dowry is paid. The prevalence of polygamy also contributes to high fertility among Muslims. Similar effects of religion are also common in developing countries where Catholicism is widely practised, especially given the injunction of the Catholic church against contraceptive use (Westoff and Jones, 1977: 203-204; Westoff and Jones, 1979: 214-217).

With regard to ethnic grouping, the Mandinkas (i.e. the largest ethnic group) are more likely to delay childbearing compared to those from other groups. The odds of having at least one child are much less ($\text{Exp } \beta = 0.574$) among the Mandinkas when other

ethnic groups are the reference category. As mentioned earlier, several attributes have been used to trace possible differences in ethnic fertility, including social, economic, demographic, and cultural factors. More specifically, Long (1970) and Peterson (1969) have argued that marked differences in fertility of ethnic groups with similar socioeconomic characteristics may arise from differences in cultural practices such as the duration of post-natal sexual abstinence. These findings have not yet been confirmed in The Gambian situation because of lack of reliable data on ethnic fertility differences. But it is clear that the fertility differences revealed in the present study between ethnic groups are not peculiar to The Gambia. Other countries like Ghana also experience similar ethnic differentials (Ghana Fertility Survey, 1983:52).

What kinds of interaction effects were observed in this study? Hosmer and Lemeshow (1989: 91) state that "in any model an interaction between two variables implies that the effect of one of the variables is not constant over the other". The presence of a significant interaction term between number of children desired and religious affiliation of respondents, for example, could yield a statistically different coefficient for each of these variables. For this reason, the significant two-way interactions of theoretical relevance to the present investigation were included in the modelling process. Three-way and higher order interactions were ignored partly because of the large number of variables involved, and to avoid possible difficulties in interpreting the results. However, a few coefficients have been associated with influential interactions in the model. These significantly important interactions which are clearly observable in Table 4.14 include the

desired number of children by religious group, and living arrangement of respondents by religious group. Other interactions in the model such as residence by number of siblings, and residence by education are insignificant. It is clear from Table 4.14, however, that the number of children desired is important only when the respondents are Muslims, and this is true for those who desired 1-3 children and 4-6 children. Also, the living arrangement of respondents appears to be important only when considered for young Muslim women who were living with both parents. The coefficient for young Muslim women living with only their mothers is insignificant.

4.3.2.2 Knowledge, attitude and practice (KAP)

Apart from the effects of socioeconomic, demographic and cultural factors (component 1) discussed above, the impact of knowledge, attitude and practice variables (component 2) was also investigated. Although these factors cannot directly influence fertility, they contribute indirectly to the underlying causes of childbearing among young women. Also, the KAP variables can be influenced by a number of social, economic, demographic, psychological and cultural factors and/ or a combination of these.

Table 4.15 shows the results of the best fitting model for component 2. The Table also shows that the two variables on knowledge of reproductive health and family planning are significant (at the 0.01 level) in the model.

**Table 4.15: Selected Logit Parameters for The Model
Containing Main Effects and Significant Interactions
of Knowledge, Attitudes and Practice Factors**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Informed About Menstruation Before:			
(No)			
Yes	.251*	.089	1.285
2. Contraceptive Knowledge:			
	-.013*	.001	.988
3. Best Age For Girls to Have Sex:			
(Less Than 14)			
15 - 19	1.753*	.763	5.771
20 Plus	1.504*	.763	4.500
4. Best Age For Women To Wed:			
(25 Plus)			
Less Than 19	.797*	.277	2.220
20 - 24	.882*	.272	2.416
5. Best Age For Women to Have 1st Child:			
(21 Plus)			
Less Than 17	2.323*	.760	10.209
18 - 20	1.970*	.782	7.170
6. Sexual Activity of Friends:			
(Have Inactive Friends)			
Have Active Friends	.792*	.083	2.209
7. Attendance of Family Life Education:			
(Never Attend a Lecture)			
Have Attended Before	-.403*	.108	.669
8. Index of Sexual Permissiveness for Unmarried Women:			
(Conditional Approval)			
Completely Disapproved	-.577	.387	.561

Cont. Table 4.15

9. 'Best age for sex' By 'Best age for 1st child':			
15 - 19 by < 17 years	-1.411	.774	.244
15 - 19 by 18 - 20 years	-1.551	.798	.212
20 Plus by < 17 years	-1.656	.874	.191
20 Plus by 18 - 20 years	-1.426	.814	.240
10. 'Best age to wed' by 'Sexual permissiveness':			
< 19 yrs by Disapprove sex	.534	.398	1.706
20 - 24 by Disapprove sex	-.065	.423	.938
Constant:	-3.441*	.789	
Log Likelihood	-1820.000		
Pseudo R-square	.123		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

It is surprising that respondents who are informed about menstruation tend to have higher probability of bearing a child compared to those with no knowledge. The odds of having at least one child for those informed about menses are 1.285 times higher than those of other young women with no prior knowledge. Although this result is contrary to expectations that informed respondents would be more sensitized about the risks of pregnancy and motherhood, this finding is understandable in a country like The Gambia where contraceptive use is very low and little communication about sexual intercourse exists.

Lack of information about menstruation alone is not the only determinant of early childbearing. Consideration has also been given to the effect of contraceptive knowledge on the fertility of young female adults. This thesis suggests that the effect of contraceptive knowledge varies with the amount and quality of information about family planning methods and ideas. The risk of bearing a child for women with more knowledge was reduced considerably (by 0.988) compared to those with less information about contraceptives. Thompson and Spanier (1978) attribute effective and greater use of contraceptives to adequate information and knowledge of family planning (among University students in the United States) and this subsequently reduces fertility. Thus, the condition for active family planning through contraception can be successfully achieved if potential acceptors and users of contraceptives have adequate knowledge about available methods (World Fertility Survey 1985:125 - 129).

Table 4.15 also shows that of the nine variables on attitude of young women toward childbearing, only four are significantly important for inclusion in the model. And among these four factors, the only insignificant variable at the 0.01 level is the index of sexual permissiveness for unmarried women. The interaction terms in the model such as "best age for girls to have sex" by "best age for women to have 1st child" and "best age for women to wed" by "sexual permissiveness" are insignificant. It is clear from the table, however, that the variable "best age for a girl to have sexual intercourse" was one of the significant predictors of childbearing among KAP variables. Assuming that other variables in the model are held constant, the odds for a young woman with a child to prefer

delaying intercourse to ages above 15 is four times higher than are those who favour ages below 14.

It also appears that young women who have a child are more likely to support that girls should marry later in life. The odds are higher for those below age 19 and 20-24 by a factor of 2.22 and 2.42 when compared to those at ages 25 and above. Because of low contraceptive use, early marriages may increase the frequency of intercourse and exposure to the risk of being pregnant. Given that the mean age at first marriage for girls in the sample is 16 and that Gambian women on average marry in their teenage years, the results obtained here are relevant to the fertility of young women. As indicated earlier, the effect of low age at first marriage is partly attributable to differences in fertility of North African countries like Tunisia and Sudan, and this may also be the case of young Gambian women (Beaujot, 1987:1-3; Caldwell, 1981:110 - 112).

A further review of Table 4.15 shows that young women look forward to starting childbearing as teenagers and not after age 21 and above. The odds of bearing a child for young women who prefer to have their first child at ages less than 17 and 18-20 are 10.21 and 7.17 times higher than that of others aged 21 and above. The fact that these probabilities are relatively high compared to those of other variables is an indication that a majority of young Gambian girls still favour early childbearing. As mentioned earlier, Fortes (1978) found a similar enthusiasm for early motherhood among West African women in general. In her opinion, most West African (including Gambians) are more

interested in having children and not marriage per se. Benedict's observation, noted in Fortes (1978), linking adulthood and future economic security of African women to childbearing is also associated with such an attitude.

Attention is also given to behavioural practices encouraging early childbearing among young women. Of the two practices considered (i.e. sexual activity of friends and attendance of family life education), all are significantly important (at the 0.01 level) when predicting the effects of peer influence and reference groups on early childbearing. In relation to the argument of Shah and Zelnik (1981) that the sexual activity of girls in the United States is largely influenced by peers, there is some evidence that similar pressures might be at play in The Gambia. Although much information on peer influence in The Gambia is unavailable, Table 4.15 portrays some relationship between the sexual activity of peers and childbearing. Respondents with sexually active friends appear to be more likely to have a child compared to those whose friends were sexually inactive.

Respondents who had attended family life education (FLE) lectures have less chances of bearing a child. Since the odds (Exp B=0.669) of early childbearing are more for young women who have never attended the family life education lectures taught in schools and/or organized by institutions like The Gambia Family Planning Association, the evidence here suggests that the lectures are effective. This is contrary to the finding that respondents who are informed about menstruation tend to have higher probability of bearing a child compared to those with no prior knowledge. The mere attendance of FLE

or provision of information on menstruation does not necessarily imply having much knowledge about family planning. Hanson et al. (1987) have considered sex education as a very effective means of avoiding pregnancy and early motherhood, however.

4.3.2.3 Proximate determinants

The impact of proximate determinants that affect fertility directly is presented in Table 4.16. Based on the best fitting model, 5 of the 6 independent variables used to predict childbearing are significant at 0.01 level. Age at first menstruation which serves as proxy for biological maturity of girls is the only insignificant variable (see Table A11). Although age at first marriage is generally low in developing countries like The Gambia, it is quite important in predicting early childbearing. Clearly, the chance of bearing a child decreases as the age at first marriage increases. The results of this analysis are very similar to those of Beaujot (1987) for Tunisia and of Caldwell (1981) for Tunisia and Egypt. In their studies in North African countries, they found that both Tunisia and Egypt considered the official rise in female age at marriage as an important factor for lowering fertility.

However, the analysis of the relationship of age at first intercourse and childbearing shows that fertility is lower for young women who delay their first intercourse. The odds of bearing a child tend to decrease by a factor of 0.979 as age at first intercourse increased. Hofferth (1987) also found lower pregnancy rate and

consequently a reduction in fertility as young American women delayed their first sexual encounter. Age at first intercourse is included here mainly because most young people do not often use contraception or are not fully informed about risks involved during their first sexual experience and the factors which lead to many unwanted pregnancies and childbirths (Senderowitz and Paxman, 1985:21).

**Table 4.16: Selected Logit Parameters for The Model
Containing Main Effects and Interactions of Proximate
Determinants of Childbearing Among Young Women**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Age at First Marriage:	-.013*	.002	.987
2. Age at 1st Intercourse:	-.021*	.005	.979
3. Contraceptive Use:			
(Never Use)			
Ever Use	1.406*	.153	4.081
4. Frequency of Intercourse in Last 4 Weeks:			
(None)			
1 - 3 Times	.396*	.206	1.485
4 Plus	.670*	.187	1.953
5. Intra-uterine Mortality:			
(Never Experienced it)			
Have Experienced it	.482*	.139	1.620
6. 'Age at 1st Marriage' By 'Age at 1st Intercourse(AFI)':			
	-.0003*	.0001	.999
Constant:	.672**	.219	
Log Likelihood	-1064.000		
Pseudo R-square	.489		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

Table 4.16 also shows that young women with children use contraceptives more than those who are childless. Clearly, having a child promotes contraceptive use indicating that additional children would not be welcome. Contraceptives are therefore used mostly for prevention of subsequent births. For this reason, the odds of childbearing for ever-users are 4 times higher than those of never-users; and this makes contraceptive use the most important predictor of early childbearing of all the proximate determinants. Unlike Canada where contraceptive use is common among childless young women, their counterparts in The Gambia do not often use protection until they have at least one child. In The Gambia, young women below age 16 have access to oral or prescribed contraceptives only with parental consent which is seldom granted, given the conservative attitude of parents about sexuality of teenagers (Kane et al., 1993:58). This does not contradict the findings of Hayes (1987) that the fertility of young women in the American society largely depends on the use of contraception, but it clearly shows that timing the initial use is important since few women in The Gambia control their fertility.

It is critical as well to consider the frequency of intercourse as part of the proximate determinants of childbearing. In the absence of contraception, the odds of childbearing for young female adults seem to increase steadily with sexual activity (i.e. $\text{Exp } \beta = 1.485$ and 1.953 for those having intercourse 1-3 times and 4 plus), thus indicating a greater possibility of more sexually active girls being parents.

It is worth mentioning, however, that this measure of frequency of intercourse should not be taken at face value since it cannot be confirmed that the events during the reference period of past four weeks represents the actual pattern of intercourse for the population concerned. Efforts to compare the results of this indicator with those of neighbouring countries were unsuccessful mainly because of lack of comparable information on this particular question in the sub-region. Information on frequency of intercourse was only asked during the World Fertility Surveys (WFS) of Ghana and Ivory Coast which used the reference period of 7 days and not 4 weeks as in the case of this study. Whereas respondents of the WFS can report a minimum number of intercourse of at least once in 7 days, meaning 4 times every four weeks in order to be considered sexually active, the reference period of four weeks used in this thesis made it possible to report three or less contacts. Given this problem of incomparability and the fact that dropping the question on intercourse does not necessarily improve the fit of the model but, rather, implies loss of vital information, a decision was made to maintain the variable in the present analysis.

In addition to frequency of intercourse, Table 4.16 also shows that intrauterine mortality is significant at the 0.01 level. As in the case of Uganda reported in Muir and Beksey (1980), young women who had never had an abortion, miscarriage or still birth seemed to have a lower chance of being a mother than their counterparts who had gone through such experiences (Exp B=1.620). Nevertheless, intrauterine mortality can be

avoided if obstetric care were improved and voluntary family planning became more acceptable (Fortney et al., 1985:4).

When intrauterine mortality was ignored and consideration given to the joint effects of variables on childbearing, the age at first intercourse and age at first marriage are the only interaction terms of importance in Table 4.16. Given the effects of these proximate determinants and that of other major components, we also need to assess the relative importance of factors on the overall model consisting of all direct and indirect determinants.

4.3.2.4 The overall model

A further review of variables that are significant for predicting the reproductive behaviour of young female adults is given in Table 4.17. Only the impact of significant effects of the best fitting model for the major groups of variables (or components) are examined. Twenty-two of the thirty-one variables included in the major components of both direct and indirect determinants were used in building the overall model. The Table presents only the significant variables that are most likely to predict childbearing when all the major groups of variables are combined in one model.

Table 4.17: Parameters of The Overall Model Containing Main Effects and Significant Interactions of Direct and Indirect Determinants of Childbearing Among Young Women

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Education Attainment:			
(Below post-primary)			
Post-primary	-.652*	.196	.521
2. Employment Status:			
(Not employed)			
Employed	-.417**	.187	.659
3. Looking For Work:			
(No)			
Yes	.507**	.179	1.661
4. Area of Residence:			
(Non-urban)			
Urban	.655*	.167	1.924
5. Living With:			
(Other)			
Mother Only	.741	.658	2.098
Both Parents	1.209	.568	3.351
6. Age:	.374*	.025	1.453
7. Number of Children Desired			
(7 Plus)			
1 - 3	.503	.632	1.654
4 - 6	1.399**	.623	4.051
8. Religious group:			
(Non-muslim)			
Muslim	1.763**	.522	5.828
9. Ethnic Group:			
(Other)			
Mandinka	-.319	.171	.727
10. Best Age For Girls to Have Sex:			
(Less Than 14)			
15 - 19	.185	.165	1.203
20 Plus	.353	.279	1.424

Cont. Table 4.17:

11. Best Age For Women To Wed:			
(25 Plus)			
Less Than 19	.437	.407	1.548
20 - 24	.677	.399	1.969
12. Best Age For Women to Have 1st Child:			
(21 Plus)			
Less Than 17	1.008*	.229	2.739
18 - 20	.699*	.209	2.012
13. Sexual Activity of Friends:			
(Have inactive Friends)			
Have Active Friends	-.039	.130	.962
14. Attendance of Family Life Education:			
(Never Attend a Lecture)			
Have Attended Before	-.101	.171	.904
15. Informed About Menstruation Before:			
(No)			
Yes	.281**	.132	1.325
16. Contraceptive Knowledge:			
	-.002	.002	.998
17. Index of Sexual Permissiveness for Unmarried Women:			
(Conditional Approval)			
Completely Disapproved	.904	.663	2.470
18. Age at First Marriage:			
	-.011*	.003	.989
19. Age at 1st Intercourse:			
	-.011	.006	.989
20. Contraceptive Use:			
(Never Use)			
Ever Use	.979*	.180	2.663
21. Frequency of Intercourse in Last 4 Weeks:			
(None)			
1 - 3 Times	.781*	.238	2.184
4 Plus	1.083*	.218	2.954

Cont. Table 4.17:

22. Intra-uterine Mortality:			
(Never Experienced it)			
Have Experienced it	.106	.156	1.112
23. Children Desired By Religious Group:			
1 - 3 Children by Muslim	-.620	.654	.538
4 - 6 Children by Muslim	-1.457**	.641	.233
24. Living Arrangement by Religious Group:			
Mother Only by Muslim	-.783	.689	.457
Both Parents by Muslim	-1.484**	.585	.227
25. 'Best Age to Wed' by 'Sexual Permissiveness':			
< 19 yrs by Disapprove sex	-.784	.676	.457
20 - 24 by Disapprove sex	-.998	.712	.369
26. 'Age at 1st Marriage' by 'Age at 1st Intercourse (AFI):			
	-.0003	.0001	.999
Constant:	-10.402*	.926	
Log Likelihood	-866.000		
Pseudo R-square	.594		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

Table 4.17 shows that 9 of the 22 variables in the overall model are insignificant. Whereas some variables were significant at the level of major groups, they are insignificant when included in the overall model. Among KAP variables, for example, both contraceptive knowledge and best age for women to wed are ineffective when included in the overall model. A similar situation exists for intrauterine mortality as part of the proximate determinants.

Of all the factors used for predicting early childbearing in the overall model, the most significant effects are religion, contraceptive use, frequency of intercourse, and age at first marriage. For religious groups, Muslims are 5 times more likely to have a child than non-Muslims. It is also clear from Table 4.17 that the likelihood of childbearing is much lower among younger women as their age at first marriage increases (Exp $\beta=0.989$). Whereas ever-users of contraceptives are those who already have a child and are at a greater risks of bearing a child (Exp $\beta=2.663$), those having intercourse more frequently (4 times plus) are more likely to be pregnant (Exp $\beta=2.954$) in the absence of contraception. Other variables that are significant at the 0.01 and 0.05 levels in the overall model include educational attainment, employment status, looking for work, area of residence, age, number of children desired, best age for a girl to have first child and prior information about menstruation. All these significant variables are relevant to the models that attempt to predict early childbearing in The Gambia.

4.3.2.4 Relative importance of components

As expected, the overall model is indeed the best of all the models that predict the fertility of young women and, this is reflected in Table A3 of Appendix 7. However, it is of interest to compare the results of individual models of the major variable groups with those of the overall model. Based on the idea that the major components are subsets of the overall model, the coefficients of the overall model are comparable with those of

individual models of these major groups and can therefore be interpreted in a similar manner. Since the models of these major groups of variable are discussed in Appendix 5, attention here is devoted to existing differences.

Table A3 shows that the pseudo R-square of 59.4 percent for the overall model is higher than the estimate of other models. Apart from the overall model, the proximate determinants are more influential than the other two groups that indirectly affect fertility. The least effective predictors of childbearing are the KAP variables. Such findings are not only supported by the pseudo R-square estimates, but also by the log likelihood ratio test (G). From the difference in log likelihood of the constant and the respective models, for example, the proximate determinants are more important in predicting childbearing, followed by socioeconomic, demographic and cultural factors. Again, as shown in both Table A4 and A5, the KAP variables are least important among the three major components of direct and indirect determinants. All these respective components have contributed significantly to the overall model, however.

Nevertheless, there is need for further explanation about possible causes of such differences, especially in the case of KAP variables. Unlike knowledge and practice factors, attitudes are more difficult to measure since they deal with beliefs, opinion and values. Measurement problems therefore arise mainly because attitude is inferential and cannot be directly observed; this has affected the results of this study. However, despite

the low estimates obtained, it is necessary to include the KAP variables in this analysis since these are often neglected in most fertility studies.

4.4 Summary

This chapter has reported the results of analysis of the determinants of early childbearing and the ranking of the various components (or groups) of these determinants in their order of importance. The analysis was done using both bivariate and multivariate techniques. However, it should be noted that the bivariate analysis included here was not a mere statistical exercise but an effort to provide background information about young women in The Gambia. The bivariate analysis assisted in tracing collinearity in the final results.

The bivariate analysis revealed that 14 of the 31 variables used in the present study are important in predicting early childbearing. They include 6 variables of component 1, 4 of component 2, and 4 of component 3. The important correlates of component 1 were age of respondent, area of residence, education, employment status, living arrangement, and number of desired children; those of component 2 include contraceptive knowledge, sexual activity of friends, best age for women to wed, and best age for women to have first child. The important factors of component 3 are contraceptive use, age at first marriage, frequency of intercourse and intrauterine mortality. All these

important factors are weakly or moderately associated with the fertility of young women except for age of respondent, age at first marriage, contraceptive knowledge, and frequency of intercourse. These four variables strongly correlate with early childbearing and, given the low use of contraceptives among young women, they are undoubtedly among the most important factors. Because of the fact that these bivariate relationships can possibly involve other confounding factors resulting in a spurious condition, the outcome of the multivariate analysis is also very important.

The multivariate contingency analyses provided additional information while controlling for a third factor involving two-variable relationships. For example, the evidence obtained from the above analysis showed that age has a partial effect on early childbearing and marital status. It was also found that marital status was less effective in predicting fertility among young women than area of residence. Contraceptive use was a better explanatory variable than education. For both ever-users and never-users, a higher educational attainment tends to lower fertility. The results of the multivariate contingency table analysis also revealed some differences in age at first marriage for urban and non-urban residents. Age at first marriage appeared to be slightly higher in urban than non-urban settlements and steadily increased with education in both areas. The estimates on age at first sexual intercourse also yielded similar results for residential area and education.

These results were improved using logistic regression analysis which controls for more than one explanatory variable when predicting early childbearing. As a better predictor of fertility among young women compared to individual components of direct and indirect factors, the overall model which included all these major groups revealed the most important effects as religion, age at first marriage, contraceptive use, and frequency of intercourse - all of which are proximate determinants except religious grouping. Other variables of importance, although to a lesser extent, included educational attainment, employment status, looking for work, area of residence, living arrangement of respondents, age, number of children desired, ethnic group, best age for a girl to have first child, and prior information about menstruation. These variables which are all relevant and important for the prediction of early childbearing are part of component 1 except for the two KAP variables of component 2, namely, best age for a girl to have first child and prior information about menstruation. The analysis also shows that component 3 (the proximate determinants) are more influential in predicting fertility than components 1 and 2. The least important of the indirect effects is component 2 comprising the KAP variables. However, all three major components are important in predicting early childbearing.

Chapter 5: Summary and Conclusion

5.1 Summary and issues

This thesis has examined the determinants of childbearing among young female adults in The Gambia. Specifically, it has investigated the differentials and patterns of fertility among young Gambian women aged 13-24 and also ranked the respective components (or groups) of these determinants in order of importance. In so doing, the thesis was guided by the premise that all of the variables included in the study were equally important in predicting childbearing among young women and that the major components impact on fertility in a similar manner. Since these questions have not been fully answered in earlier studies, it was important to empirically analyze the existing situation of young Gambian women.

High fertility among adolescents and young women has generated much concern among researchers in both developed and developing countries. The variables most often studied in this respect include: the socioeconomic background of young women and of their parents; the effects of demographic factors like age of respondent; the role of

cultural and institutional values; the psychosocial problems of young people; the physiological and behavioural issues surrounding young women; and the influence of reference groups. Among all these, the reference group theory discussed in the works of Reiss, Mirande and others was the most relevant to the present investigation. The theory holds that young women are most regularly associated with one or more groups which, as reference group(s), influence their sexual behaviour, contraceptive use and, ultimately, childbearing behaviour. Formal and informal referents like the school, religious organizations, peers, parents, social clubs and others are believed to affect the fertility behaviour of young women through social and cultural settings of their members in the form of interactions and interpersonal relationships (Williamson et al., 1984: 239). Answers to the research question of this thesis were therefore sought by combining the reference group theory with a modified Bongaarts-type framework.

In this manner, this thesis attempted to address a common theoretical weakness in most studies on determinants of fertility of young women. Aside from the reference group theory, it is evident that most studies of early childbearing are often insufficiently grounded on a unified theory before proceeding to verify their predictions (Chilman, 1978:25). The theoretical propositions of early childbearing tend to be narrow in focus compared to most conventional "grand theories" of overall fertility such as the demographic transition approach. This thesis avoided this weakness by adopting a much broader approach to dealing with problems and issues regarding the fertility of adolescents and young female adults. By combining the reference group theory and a Bongaarts-type

framework, a sufficient ground was laid for a descriptive and analytical approaches to the research questions of interest.

Two data sets were used in finding answers to the research questions of this thesis: one from the Gambia Family Planning Association (GFPA) based on their survey on "Reproductive behaviour of young adults in Greater Banjul area" and the other from the Central Statistics Department (CSD) survey on "Adolescent fertility in semi-urban and rural areas". As stated earlier, the data of these surveys are the only available and comprehensive information on fertility behaviour of adolescents and young female adults in The Gambia apart from the inadequate results of censuses, the incomplete vital registration system, and fragmented records of clinics and hospitals. The guidelines and instruments of the data collection procedures of these surveys were also designed in a comparable manner with those of the World Fertility Survey (WFS) in order to establish and maintain the high standards already set forth by this global programme. A cross-sectional or snap-shot approach was adopted to collect the required information from 3,276 respondents (i.e. 1730 from urban areas and 1546 from rural settlements). Although this method has been criticized mainly due to its inability to trace the processes of change, the relatively low cost of implementing the procedure was an overriding factor. Thus, a balance was struck between cost and slightly less coverage. Longitudinal surveys are not overly favoured in the Gambian context. In societies with relatively low literacy rates, there is always the problem of matching the data gathered at different times. It would also be very difficult to follow-up the respondents contacted at the initial interview

because of lack of reliable and proper home addressing system in semi-urban and rural areas. The process of call-backs to absentees and for verification of records of absentees is expensive and time consuming as well.

Nevertheless, the limitations of data from both the GFPA and CSD surveys deserve special attention. Like most African countries, The Gambia suffers from deficiencies in data availability. Owing to the low literacy rate, The Gambia's surveys and censuses are fraught with errors in the data (Jeng, 1983:5; Central Statistics Department, 1976:39). The estimates of these surveys (i.e. the GFPA's and CSD's) should not, therefore be accepted at face value. Failure to tape record a sample of the field interviews has made it difficult to determine the accuracy of the surveys. Hence, in the absence of such verification procedures, both the quality of work produced by the field staff and responses obtained cannot be reliably evaluated.

Apart from the fact that both coverage and content errors were minimized in the GFPA and CSD surveys through rigid data quality control measures, a cautionary note needs to be sounded about the effects age and/or event misreporting can have. Although age misstatement errors affect the observed probabilities of the dependent variable by either omitting young women age 13 to 24 or by including others outside this target group, failure to report a birth because of illegitimacy or death may also have similar effects (especially for those who gave birth only once). Apart from the possibility that some respondents with illegitimate child(ren) may falsify their childbearing status by

reporting themselves in the zero parity group, there is also a chance for others to evade recollection of a traumatic event such as a child's death by pretending that the experience has never occurred. However, responses given to follow-up questions on childbearing status of respondents did not indicate any serious problems. Yet, it is difficult to establish whether an error in the observed distribution of the survey population by single year could be a result of improper allocation of the samples by age or merely due to misreporting errors. However, there are more young people at younger ages and this is consistent with the distributions of the 1973 and 1983 censuses. The reported information on socioeconomic, cultural and demographic variables also appear to be consistent with estimates based on previous censuses (Jeng, 1989:19; Gambia Family Planning Association, 1988:14).

It is noteworthy as well that the present analysis does not necessarily include all the important determinants of early childbearing. Given the limitation of the data, this study was confined only to the information collected during the recent surveys on adolescents and young female adults. Also, given the conditions underlying the statistical techniques applied, this analysis did not include all the variables which were initially considered relevant to the proposed model. It excluded variables such as marital status and education planned by age 25 since these were highly correlated with age at first marriage and educational attainment; they were therefore considered less important to the investigation. Although it would have been useful from an analytical point of view to consider differences in parity distribution and timing of respective births, we caution that

this study was not concerned with these issues. The main focus here was on childbearing status of young female adults (i.e whether they have a child or not).

Statistically, this objective has been realized using bivariate and multivariate analysis. The techniques used involved cross-tabulations, estimation of correlations, multivariate contingency table analysis, and logistic regression modelling. Since bivariate relationships are inadequate when other confounding factors are involved, two different approaches of multivariate analysis were adopted to counter such deficiency. The multivariate contingency table analysis was essentially used in this thesis for measuring the relationships between three variables while logistic regression models dealt with the situation when more than three factors were involved. Although Pedhazur (1982) recommends a maximum of 14 variables for most regression models, the objectives of the present study justified a comprehensive approach involving 31 variables. In fact, Wai (1987) has reported as many as 30-40 intervening factors being used in similar fertility research. With this in mind, it is also worth mentioning that all of the variables included here were pertinent to theories of early childbearing.

The bivariate analysis of the data showed a weak correlation between early childbearing and the respective variables of interest except for age of respondent, age at first marriage, contraceptive knowledge, and frequency of intercourse. These four variables strongly correlate with fertility and, given the low use of contraceptives among young women, they are, without doubt, among the most important factors. In view of the

fact that bivariate relationships may involve other confounding factors resulting in a spurious condition, the need for multivariate analysis became necessary.

The results of the multivariate analysis show that age has a partial effect on early childbearing and marital status, and that marital status seems to be a better predictor of fertility than area of residence. At the same time, it has been found that contraceptive use explains fertility differences more than education. The multivariate contingency table analysis has also revealed significant differences in age at first marriage and age at first sexual intercourse for both urban and non-urban areas, especially as people become more educated in these settlements. These results were further analyzed using logistic regression. It was found, however, that the variables included in the empirical models do not affect early childbearing equally. In the case of the overall and best fitting model constituting the major groups of variables examined, the most important of the socioeconomic, demographic and cultural (SEDC) variables are educational attainment, employment status, looking for work, area of residence, age, number of siblings, rank of siblings, number of desired children, and religion. Living arrangement and ethnic group of respondents were the only insignificant factors among the SEDC variables.

However, it is an important finding of this thesis that fertility is higher among young women in urban than non-urban areas in The Gambia. This is in contrast with earlier findings that fertility level tends to be higher in rural than urban areas. Although this finding is unexpected, it is not implausible. It can be attributed to changes in the

behavioural and sociocultural profile of young African women, as well as improvements in nutritional levels, better medical and health conditions, and developments in reproductive technology--all of which are expectedly more evident in urban than rural areas.

Although this thesis did not analyze the paths through which fertility is affected, it is clear in the literature that SEDC variables can be controlled through interactions and interpersonal relationships among members and reference groups (Williamson et al., 1984: 354-356). Given this condition, fertility will therefore depend indirectly on the socioeconomic background of young women, existing demographic situations, and the underlying cultural settings. All of these factors have had significant impacts on early childbearing in The Gambia as well. Because of the fact that SEDC variables do not impact directly on fertility, the role of knowledge, attitude and practice (KAP) as intervening factors is also important.

Explanations of early childbearing have often referred to problems of young women and these include: 1) insufficient information and knowledge about contraceptives and the human reproductive system; 2) the attitude of peers, parents, partners and other referents toward sex, marriage and early motherhood; and 3) the influence of peer pressure, behaviour and practices. Although some of these effects are evident in the results of the present study, it is also notable that they do not impact on fertility in a similar way. As in the case of SEDC variables, the KAP indicators did not affect early

childbearing equally. This thesis did not however establish the degree of influence of reference groups on knowledge and attitudinal variables. But it is believed that both knowledge of contraception and reproductive health as well as opinions and beliefs about relationships, sex, marriage, and childbearing are all influenced by referents. At the same time, it is clear that the fertility behaviour of young women largely depends on practices such as the sexual activity of friends and attendance of educational programmes aimed at reducing childbearing. Yet, these variables can affect fertility only through the proximate determinants which have direct effects.

All of the proximate determinants have been found to be important in predicting early childbearing except for age at first menstruation which serves as proxy for biological maturity of girls. Three of these significant determinants are among the four factors that appeared most effective out of the total number of 31 variables included in the present study. With the exception of age at first intercourse and intrauterine mortality which affects early childbearing to a lesser degree, the most important factors are: (1) age at first marriage, (2) contraceptive use and (3) frequency of intercourse. Unlike those proposed by Bongaarts (1978a), the proximate determinants included here are more precise in measuring the fertility of young women compared to those of overall fertility. Although some aspects of the Bongaarts framework such as lactational infecundity and duration of the infertile period may apply to young women, these are irrelevant to this thesis mainly because they aim at capturing the infertile period between birth intervals and not childbearing status. Since attempts to include both proportion married and age at

first marriage indicated some degree of collinearity, the former was dropped on the grounds that it provided less information. Sterility was also ignored because of difficulties in establishing its prevalence at very young ages when a significant proportion of women are still unmarried. On this basis, the proximate determinants of the Bongaarts framework could not strictly be applied here since this thesis is confined to the fertility of young women age 13 to 24 and not women age 15 to 49.

As for the outcome of ranking the proximate determinants together with other major components like SEDC and KAP variables in their order of importance according to the second objective of this thesis, the logistic regressions have revealed important results. Apart from the overall model which is the best of all the models that predict the fertility of young women, the proximate determinants are more influential than the other two components that indirectly affect early childbearing. In turn, the SEDC factors were found to be more important than KAP variables. The pseudo R-square estimates indicate that 49 percent of variation in the outcome variable can be explained by the proximate determinants compared to 44 percent for SEDC and 12 percent for KAP variables. Such findings are not only supported by the pseudo R-square estimates, but also by the log likelihood ratio test (G). From the difference in log likelihood of the constant and the respective models of each component shown in Table A5, for example, the proximate determinants are more important in predicting early childbearing ($G=2029.0$) compared to the SEDC variables ($G=1808.0$). Again, the KAP variables are least important among the three components of both direct and indirect determinants ($G=512.6$).

With these results, there is need for further explanation about possible causes of such differences, especially in the case of KAP variables. Unlike knowledge and practice factors which are often precisely measured, attitudes are more difficult to measure since they deal with beliefs, opinions and values of young women on a range of issues indirectly affecting fertility. Measurement problems therefore arise mainly because attitude is inferential and cannot be directly observed; and this may have affected the results of this study to some extent. However, despite the low estimates obtained, inclusion of KAP variables in the present analysis is necessary since these factors are often neglected in most fertility studies. The importance of KAP variables has become apparent only with realization that family planning programmes have failed to reach the majority of their target groups in African and Asian countries after many years of operation. With recent efforts of family planning organizations in developing countries to establish proper communication links with potential acceptors, there is bound to be improved knowledge, attitude and practice of contraceptives which ultimately will reduce fertility.

5.2 Suggestions for future research

Although this thesis has produced some important results concerning fertility of adolescents and young female adults in The Gambia, it also revealed problems in the sample design and methodology as well as other issues which must be adequately addressed in future investigations. Among these is failure to set in place a proper means of evaluating the survey data in order to boost confidence in the final results. The quality

of work produced by interviewers and responses given ought to be verified in future surveys by sub-sampling segments of the study population and tape recording some interviews as was done during the country's Population and Housing Census in 1973 (Gibril, 1979: 1-5). It should be remembered that despite efforts to translate questions in English to local languages during the training sessions and relentless attempts to sensitize interviewers to common problems in the field, errors would still occur especially if interviewers fail to observe the necessary interviewing and control procedures. Both the translation and misreporting errors can be traced by analyzing the magnitude and direction of errors in tape recorded interviews and sub-samples of the study populations.

Another concern focuses on the need for conducting similar studies simultaneously throughout the country instead of separating them a year apart by geographic area as was done in the case of the GFPA and CSD surveys. Although it is realized that these surveys have similar design and methodology, questions may still arise about the comparability of results because of inconsistencies in timing of the data collection. Such concerns are noticeable particularly when there are significant differences in coverage and content errors of the two surveys. Despite lack of evidence that such errors occurred in the case of the GFPA and CSD studies, it is necessary to look out for the possibility of such discrepancies in future investigations.

Given that the majority of the rural population in developing countries like the Gambia are illiterate and have been predominantly engaged in agriculture, it is a waste

of resources and time to include questions on parent's education, occupation and economic activity in fertility studies. Responses to these background information of respondents in such situation are often similar because of existing common characteristics of persons concerned and should therefore be ignored.

The significant differences in fertility of urban and non-urban areas deserves special attention. The surprising finding of this thesis that fertility is higher among young women in urban than non-urban areas requires further investigation. It is therefore strongly recommended that further research be done in this area to verify the validity of such a result. Although this finding may contradict existing fertility theories, it cannot be completely ruled out. The result may be indicative of recent changes in sociocultural profiles of the young African woman. Unlike in developed countries like the United States and Canada where rural migrants blend quickly into the urban ambience, the opposite holds in most African countries. As mentioned earlier by Egunjobi (1988), many rural migrants in African countries maintain strong cultural ties with their villages for long periods after migrating into urban settlements. They therefore tend to "ruralize" the urban centres instead of being assimilated into the existing lifestyle. Since urban dwellers have relatively better nutrition and medical and health conditions, increased sexual activity among young urban women as traditional norms about sexual behaviour weaken is likely to translate in increased live births given restrictions against abortion. At the same time, medical treatment for infertile women is better in urban centres, hence fertility will tend to increase in these areas as well.

Consideration should also be given to other ways of improving the focus of this thesis. Though the emphasis here is on measurement of relationships between early childbearing and specific variables and components using multivariate contingency table analysis and logistic regressions, future studies may try path analysis to decompose the proposed framework. Figure 4 illustrates the possible relationships that could be analyzed in future investigations. Despite awareness of the importance of analyzing these paths, it is better to consider such attempts for future studies.

5.3 Policy and program effects

As already stated, high fertility among adolescents and young female adults in The Gambia has been a matter of great concern to planners, policy makers, interested non-government organizations and foreign agencies. This is because these groups constitute that segment of the female population which is most likely to affect future fertility trends in the country. Factors associated with such high fertility are mainly low contraceptive use and knowledge, low age at first marriage, low education of women, less effective family life education programmes, low status of women and peer influence perpetuating the practice of early childbearing. All of these can be controlled or influenced through policies and programs aimed at reducing fertility and early childbearing.

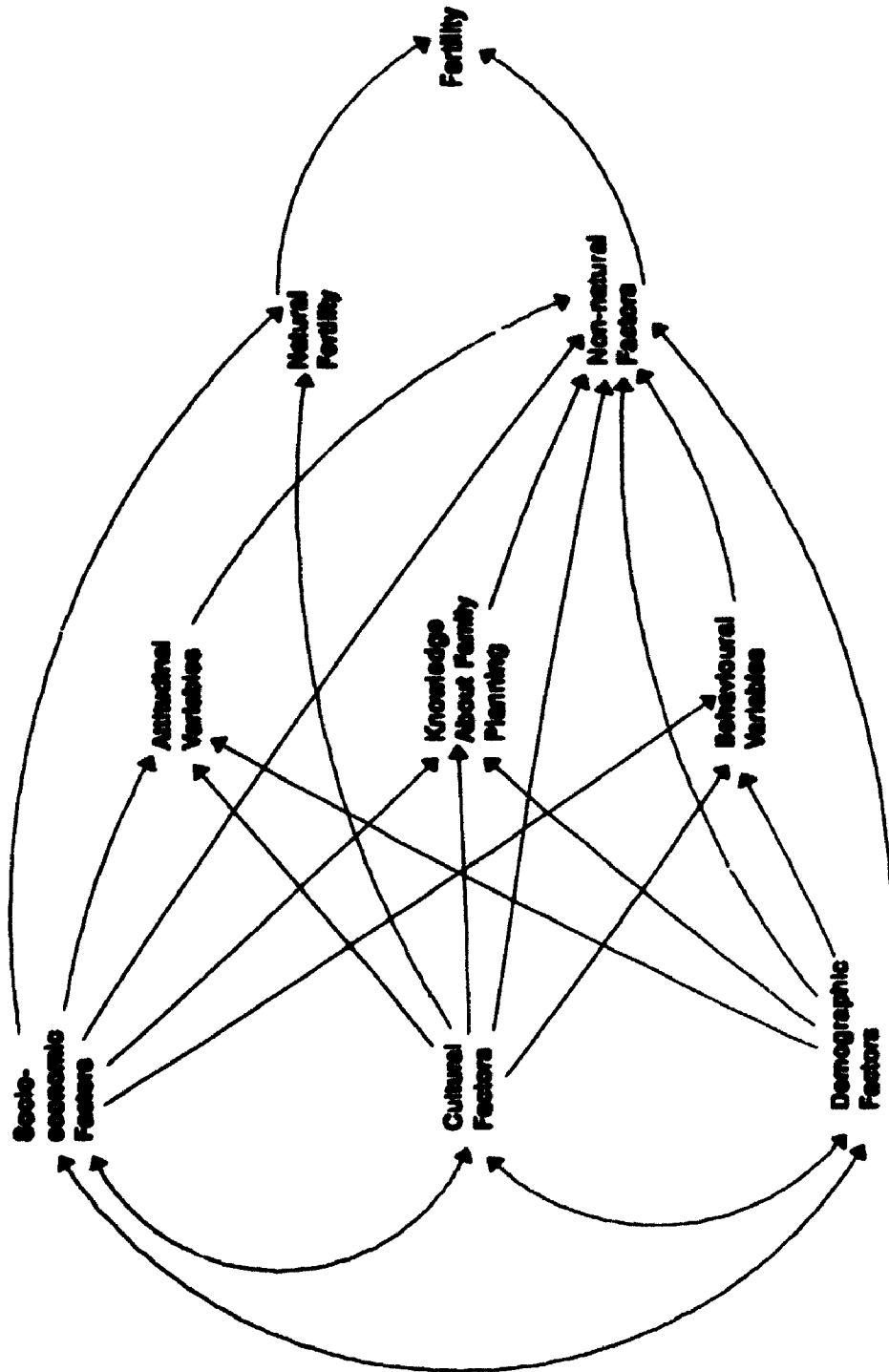


Figure 4: Paths of Early Childbearing and Related Characteristics

Although the government of The Gambia has never adopted a direct interventionist approach to reducing high fertility and early childbearing, many policies have been drawn and implemented indirectly with such an end in view. Among such indirect policies are those on primary health care, universal primary education, family life education (FLE) introduced in schools, and promotion of emancipation of women. In particular, among the many objectives of the primary health care (PHC) policy is the improvement of maternal and child health through the provision of medical facilities, family planning needs, and other health benefits. For the first time, the government of The Gambia has expressed concern about family welfare as well as child and maternal health through birth control and spacing, and it also recognized the positive role of The Gambia Family Planning Association (GFPA) in implementing such programmes. Up to the adoption of the country's Second Five Year Development Plan for 1981 to 1986, the government had maintained a "chilly" relationship with the GFPA, particularly in terms of providing support in the early 1970s when religious leaders maintained a strong opposition for family planning. The non-intervention of government on family planning matters then was part of its "wait, look and see" policy towards population growth. Today, despite low use of contraceptives, the Ministry of Health and Social Welfare has managed to integrate family planning as part of maternal and child health. Post-natal clinics in hospitals and health centres are now used as contact points to reach potential acceptors. Apart from providing counselling services on family planning, these clinics also give prescriptions for and supplies of contraceptives. However, contraceptive use in The Gambia is still

restricted only to young women aged 16 and above or to those with at least one child. Though some women in the target population age 13-24 are potential beneficiaries, many sexually-active ones are ineligible for contraceptive supplies. Because of this reason and the fact that abortion is legal only on medical grounds, government programmes directed at birth control and spacing are ineffective and barely address the reproductive health needs of all young women.

With respect to the effect of education on fertility, the government's universal primary education has been found to have had a negligible impact. As stated in Chapter 4, despite the findings of researchers like Udry, Rindfuss and others that education generally reduces the level of childbearing, Ware (1981, 1974) and Caldwell (1974) found that declining fertility is often associated with education in developing countries only when secondary and higher levels are attained. This is fully supported by the findings of this thesis. Since it is clear that education impacts on early childbearing only at the post-primary level, the universal primary education policy cannot accomplish a reduction in childbearing without follow-up programmes to enhance higher female education. Given the few post-primary schools and institutions in The Gambia, the high drop-out rate among school girls, the low enrolment levels of girls in post-primary schools and, above all, the fact that the country is already over-burdened by the cost of free primary education given its current economic constraints, the possibility for an immediate significant improvement of higher education for females is slim indeed. And this is

exacerbated by the existing dilemma in rural areas of The Gambia about whether girls should stay at home and marry after puberty or be sent to school.

The government's recent policy to introduce FLE in primary schools also reinforces the "post-primary effect syndrome". According to the science syllabus of the curriculum development centre of The Gambia, FLE which replaces the traditional ethos of preparing young people for adult life by preaching strict observation of societal values and norms is now constructively taught in primary 6 under the main topic of "Animals, Man and Health" (Curriculum Development Centre, 1984:34 - 35). This program on basic reproductive issues, problems of the young, human relationships and responsible behaviour has been developed after many years of negotiations with parents, educators, religious and political groups without involving the legislature (Gambia Family Planning Association, 1983: 1-3). The official policy of The Gambia is to encourage FLE as part of the school curriculum, but the implementation rests exclusively with educators. However, FLE by itself is inadequate without effective reproductive health services that can directly impact on early childbearing.

In the family planning system of The Gambia, access to services provided depends largely on marital status, age and consent. Young people are required by law to seek the consent of their parents or guardians before they are given reproductive health care. This regulation has often discouraged young people from seeking reproductive health information and services and, at the same time, made medical and health care providers

extremely cautious towards rendering services to youngsters. Although The Gambia is not like some Muslim countries where contraceptives are illegal, reproductive health information and services are available only to young people age 16 and above or to married people. The Gambia also seems to follow the practice of other African countries like Sierra Leone, Kenya and Tanzania where contraceptives are distributed freely to mature people or married couples (Senderowitz and Paxman, 1985: 31). However, abortion is restricted for all Gambians, married or unmarried alike. Therapeutic abortion does not depend on parental or spousal consent, but only on ethical decisions of medical practitioners at the time of emergency when a woman's life is endangered. Given this situation and ineffectiveness of the reproductive health services of The Gambia and other government policies discussed above, it is important to focus on programs which could possibly become a future means of controlling early childbearing.

Among these programs are those discussed in Senderowitz and Paxman (1985) based on the diverse experiences of projects implemented throughout the world with special emphasis on their merits and demerits. Most of these programs which are designed to disseminate family planning information and promote use of services might be appropriate for reaching adolescents and young people in The Gambia. Whereas the GFPA's information and education department should rapidly incorporate the needs and concerns of young people, the government must also devise a comprehensive programme at the national level to deal with ways and means of reducing early childbearing. Although such ambitious efforts could be strongly resisted by religious and political

leaders, programmes can be indirectly implemented by the Ministry of Education, Youth, Sports and Culture through youth groups, women's organizations, schools, social clubs, and the mass media. Family planning information and services being provided to only married women with children and young persons age 16 and above should be legally extended to every sexually active person regardless of age and marital status. Young people should be well informed about contraceptives and also encouraged to use information properly. So far, contraception among ineligible users is mostly the prerogative of young men who may not always use them. With the spread of deadly diseases like AIDS, both men and women should be encouraged to use protection rather than being left exposed to life threatening risks.

Programs to remedy the risky situation of adolescents and young people because of low use of contraceptives and lack of reproductive health information are aimed at: 1) offering counselling services on reproductive health care; 2) educating husbands of young women about contraceptives; 3) publicizing available family planning information and services through the media; and 4) intensifying the flow of information within and outside the school system. Whereas the importance of counselling basically stems from the need to teach the young about responsible sexuality and use of contraceptives, educating the husbands of young Gambian women is also necessary since they dominate the decision making of the household as primary bread winners, and because of their perception of contraceptives as accessories to mask the infidelity of married women. Concerning the role of the media on family matters, Senderowitz and Paxman (1985:38)

have portrayed the task as consisting of "facts and advice, motivation, referral services, and special multi-media campaigns, and appears in such vehicles as newspapers, magazines, billboards, radio and television". The flow of family planning information both within and outside the school system is an effective remedial measure as well.

In developing countries like The Gambia where many youngsters are out of school at the post-primary level, it is important to devise ways of reaching dropouts and illiterates before they become sexually active. One way of doing this is to design programmes for reaching them through their peers. Senderowitz and Paxman have cited the effective role of young people in contacting their peers as counsellors and providers of sexuality and family life information. Accordingly, the U.S. "Project Teenage Health Consultants" and other programs in Thailand and Latin American countries have successfully delivered reproductive health information to youngsters through peers in and out of school. If this can be done in these countries, it may also be feasible in The Gambia where the FLE programme is not aggressive enough to bring about immediate change of attitude on early childbearing practices, and where there is very little communication between the young and their parents on sexuality and fertility regulation information and services. However, in addition to "peer intervention strategy", consideration should also be given to the effects of other indirect determinants of early childbearing like age at first marriage and status of women.

An official age at first marriage should be legislated in The Gambia despite the fact that such decision may be subject to a great deal of controversy and attacks in a system where it has almost become a tradition for elders to fulfil their sexual gratifications by marrying very young girls. As in the case of Tunisia and Egypt, raising the age at first marriage could contribute greatly to delaying their first sexual encounter and possibly the first pregnancy and childbirth given the low use of contraceptives and rigid controls on abortion. Even if the law regulating the age at marriage is not strictly enforced as in many African and Asian countries, people will at least be aware of its existence and of the fact that child marriages are not encouraged by society.

The commitment of The Gambia government to emancipate women from a totally domestic and maternal role must be reinforced. As women are provided with ample access to services and opportunities in terms of higher education, better employment, higher income, improved standards of living and equal rights, their desire for fewer children will increase and the high fertility regime will gradually break down. The women's Bureau under the patronage of the country's president could be used for identifying issues of concern to women and as a strategic institution for resolving such problems. In this way, programs that are specifically drawn for women can be channelled through social clubs, youth organizations, political platforms and religious groups. Without such organization, commitment and dedication of government and non-governmental agencies, the fertility of both young and older women will not be influenced in a significant manner.

Appendix 1: Index of Contraceptive Knowledge

The index of contraceptive knowledge based on question 66 of the female questionnaire consists of 12 items. Respondents were asked to specify family planning methods that they are acquainted with and their knowledge was assessed based on whether any form of description of the available methods was given. A score of 4 indicates that the respondent is familiar with an effective method of contraception and has not been prompted in any descriptive way; and a score of 3 means that the respondent was prompted about an effective method. When a respondent knew of an ineffective contraceptive unprompted, a score of 3 is assigned and a score of 2 if prompted. Those without any knowledge of a particular method receive a score of 0. Thus, a total score of 41 points is assessed for those acquainted with all of the twelve family planning methods without being prompted and include knowledge of both effective and ineffective ones.

The methods covered included:

- 1) pill / oral contraceptives*
- 2) condom
- 3) IUD*

- 4) spermicides
- 5) Diaphragm
- 6) Injectables / Depo provera*
- 7) Rhythm / safe period
- 8) Withdrawal
- 9) Female sterilization*
- 10) Male sterilization*
- 11) Traditional methods
- 12) Abstinence

Cronbach's reliability test was used for assessing the adequacy of the scale and whether the items are additive. An estimate of 0.88 was obtained for alpha indicating that the scale measured the level of contraceptive knowledge effectively.

Note: * These are the effective methods of contraception.

Appendix 2: Index of Sexual Permissiveness for Unmarried Women

This index deals primarily with the question about when it is permissible for unmarried young women to have first sexual encounter. Subsidiary follow-ups to this main question focused on issues such as:

- 1) Is it OK if the dowry has been paid?
- 2) Is it OK if the two people have discussed marriage?
- 3) Is it OK if the man has been formally introduced to the girl's parents?
- 4) Is it OK if both people love each other?

Since each respondent answered these questions separately, a four-item index was compiled consisting of a total score of 4 points. A "yes" answer for any of the five questions above was allocated a point and 0 for a "no". Respondents who disapproved all of the preconditions for initiating intercourse were therefore given an overall score of zero. The estimate of Cronbach's alpha (0.75) shows that the index adequately measured sexual permissiveness for unmarried young women.

Appendix 3: Index of Sexual Permissiveness for Unmarried Men

The index of sexual permissiveness of unmarried young men is based on the question "when is it OK for young men to have sexual relations before marriage?" and the follow-ups are specific on issues such as:

- 1) Is it OK if the dowry has been paid?
- 2) Is it Ok if the two people have discussed marriage?
- 3) Is it OK if the man has been formally introduced to the girl's parents?
- 4) Is it OK if both people love each other?
- 5) Is it OK if the woman is a prostitute?

Because of the fact that respondents answered each of the above questions separately, a five-item index was constructed with an overall score of 5 points. A score of 1 represents a "yes" answer and 0 for "no". Respondents who approved all of the preconditions for boys to have sex were given a perfect score of 5 points and others totally disapproving intercourse prior to marriage had zero. However, the estimate of Cronbach's alpha of 0.73 supports the point that the index adequately measured the responses on sexual permissiveness for unmarried young men.

Appendix 4: Index of Opinion on Abortion

Seven items on the opinion of young women about abortion for unmarried girls are considered in this case based on question 45 of the female questionnaire. The items consisting of a total score of 7 points were given a score of 1 if the answer to a particular question is "yes" and 0 for those who opted for "no" or "does not know". Since it was important to evaluate the reliability of the index, Cronbach's alpha was estimated for the index. An estimate of 0.81 shows that the index is precise enough to measure opinions on abortion. The issues being assessed include opinion on whether an unmarried girl should have an abortion if:

- 1) She was raped?
- 2) The partner refuses responsibility?
- 3) The pregnancy threatens her life?
- 4) She cannot afford to take care of the child?
- 5) The only alternative is to abandon the baby?
- 6) She is age 20 or younger?
- 7) She is still in school?

Appendix 5: Assessment of Overall Fit and Adequacy of Models

Attempts to assess the goodness of fit and adequacy of logit models were based on: 1) the pseudo R-square as a rough indicator of the proportion of variation explained by the models; 2) the log likelihood ratio test; and 3) comparing the predicted outcomes of models to the actual values observed. The pseudo R-square for logistic regression is denoted as:

$$R^2_L = 100(L_0 - L_p)/(L_0 - L_s)$$

where L_0 and L_p are the log likelihoods for the model with the constant only and that containing both the constant and other covariates; L_s is the log likelihood of the saturated model (Hosmer and Lemeshow, 1989:148). The log likelihood ratio test is simply -2 times the difference between the log likelihood of the model without the variable(s) minus the model with the variable(s). Assuming that A_L and B_L are the log likelihoods of the models without and with the variable(s), and G is the likelihood ratio statistic, their relationship can be denoted as:

$$G = -2(A_L - B_L).$$

Unlike the pseudo R-square, the log likelihood statistic is only meaningful if tested for significance at a given probability value. The third measure of good fitting compares the observed and predicted probabilities of the outcome variable. This procedure estimates the number of cases in the sample that are correctly or wrongly predicted by fitting different models on the data.

Table A3 reveals the respective models of the three major components of determinants of childbearing based on both direct and indirect factors. Each of these major groups of variables has also been associated with three models in order to identify the best fitting model for each group. In the case of socioeconomic, demographic and cultural factors (component 1), for example, the first model contains all eleven variables that belong to the group. Whereas the second model contains the significant main effects only, the third model includes both the significant main effects and interactions. A similar procedure was adopted for assessing the goodness of fit for the proximate determinants (component 3) and component 2 which deals with knowledge, attitude and practice of young women.

Table A3 about Here

A further examination of Table A3 shows that the pseudo R-square estimates of all three models of component 1 are very similar. There is virtually no difference in the estimate of 44 percent for model 3 (containing the significant main effects and interactions) compared to 43 percent for model 1 (consisting of all the eleven variables of component 1) and 43 percent for model 2 which includes only the significant main effects. Given this situation, a decision to choose one of the three models is completely based on subjective judgement rather than facts based on the pseudo R-square estimates. Since it is known theoretically that the model with main effects and interactions is always the best, model 3 is therefore chosen as the best fitting one in this analysis.

Model 6 containing the significant main effects and interactions has been chosen on the same grounds as well. The pseudo R-square estimates of the three models of component 2 are: 12 percent for model 6 (constituting the significant main effects and interactions), 12 percent for model 4 (containing all 14 variables of component 2), and 12 percent for model 5 (with only the significant main effects). A similar pattern of fitting has been observed for the models of component 3. The pseudo R-square of model 9 (including only the main effects and interactions) suggests that 49 percent of the variation in the outcome variable could be explained by this model. The other models have a very similar estimate of 48 percent respectively.

The log likelihood ratio statistic (G) has also revealed some interesting results about the adequacy of models used in predicting childbearing among young female adults. This test can be useful for assessing the effect of adding or eliminating variables from a particular model. In the case of component 1, for example, table A4 shows little difference in the log likelihood ratios of model 2 (containing only the significant main effects) and model 1 (containing all eleven variables).

Table A4 about here

By comparing the log likelihood ratio statistic (G) of 6.01 to a chi-square distribution with 7 degree of freedom and a p-value of 0.54, based on the difference between model 1 and model 2, we conclude that it is not important to include variables such as "number of siblings" and "rank among siblings" when predicting childbearing among young Gambian women. Unlike the pseudo R-square estimates, it makes much difference to include the relevant interactions, however. Adding those significant interactions to the main effects of model 2 will produce model 3 which is considered the best fitting for component 1. For a chi-square distribution with 14 degrees of freedom and a p-value of 0.004 compared to a G-value of 34.12, it is clear that including the interactions have considerably improved the fit of the model with only main effects. Model 3 includes the interactions between: residence and number of siblings, residence and education, desired number of children and religion, and living arrangement and religion.

Similar results are reported in Table A4 for models on components 2 and 3 respectively. Considering the G-value of the three models of component 3, the age at maturation appeared ineffective when predicting the outcome variable. However, it is important to add the interaction terms of "age at first marriage" and "age at first sexual activity" into the model containing the relevant main effects. Model 9, therefore, appears to have the best fit since it includes both significant main effects and interactions. For

component 2, model 6 is perhaps the most adequate. With 7 degrees of freedom and p-value of 0.007 compared to a likelihood ratio statistic of 20.72, there is reason to believe that both significant main effects and interactions are important to be included in model 6.

A further assessment of the fitting and adequacy of models can be made by comparing the predicted outcomes with those observed (Norusis, 1983 :B-44). Table A6 depicts that 778 out of 1079 young women with at least one child were correctly predicted by model 1 containing all 11 variables of component 1. Likewise, 1946 out of 2197 young childless women were correctly predicted not to have had a child. The off-diagonals show the incidence of incorrect classification of respondents studied. About 552 young women were wrongly classified in this instance: 301 in the case of those with parity 1+ and 251 for parity 0. There were 72.1 percent of young mothers who were correctly predicted compared to 88.6 percent for childless respondents. On the whole, 83.2 percent of the 3276 respondents were correctly predicted; and, this shows that the distribution of the outcome variable is highly reliable for the type of analysis done in this study.

Table A6 about here

As observed from the pseudo R-square estimates discussed earlier, it is also noticeable in Table A6 that the estimates of models 1 to 3 of component 1 are very

similar. Whereas 73 percent of young women with parity 1+ were correctly predicted by model 3, proportions of 72 and 71 were estimated for models 1 and 2, respectively. Also, 89 percent of young female adults with parity 0 were correctly predicted by model 3 compared to a similar estimate for models 1 and 2. The overall accuracy of predictions for all 3276 respondents is estimated at 84 percent for model 3, 83 percent for model 1 and 83 percent for model 2. The observed and predicted outcomes of models 4 to 6 of component 2 are also very similar; and so are models 7 to 9 of component 3. As indicated earlier, the respective models of each component are equally reliable for predicting the fertility of young women. For theoretical and practical reasons, the models containing the significant main effects and interactions are chosen in the present analysis.

Appendix 6: Treatment of Missing Values

In view of the fact that missing data create problems of misrepresentation of results of logistic regression models, efforts were made to deal with the problem by applying one of the recommended correction methods. Based on the fact that missing values generally occur because of refusals by respondents, or error in the data collection or management, corrections were made very carefully in order not to introduce other errors which could possibly threaten the representativeness of the results obtained. A procedure for replacing the missing values on the basis of good knowledge of the study population, common sense and consistency of responses given was adopted. This procedure, however, required studying the data closely and examining the frequencies of all selected variables. Categories which did not make sense based on responses given or available options were re-coded.

Despite the possibility of doubt in this procedure, it has been found to be adequate for categorical data. For example, in the case of employment status of young women, only two options were possible (that is, either one was employed or not employed). Respondents being classified in the "not stated" group were therefore re-coded into one of these two categories. It follows logically that respondents in the "not stated" category were likely to be not employed unless a recording error was made by interviewers or data entry staff. Since employment is a symbol of economic independence and better social standing, employed young Gambian women were likely to report it. Given this condition,

an error cannot be attributed to misreporting, but to recording or data entry. This argument is supported by observations that all of the "not stated" cases in the GFPA data set resulted from blank columns. SPSS transforms these blanks automatically into missing values. Instead, a code of 9 was assigned to "not stated" cases in the CSD data and this makes it different from GFPA's. Based on such experience and reasoning, the variables concerned were scrutinized and corrected.

APPENDIX 7: Additional Tables**Table A1a: Distribution of Young Female Adults
by Individual Variables**

Variable	Number	Percent
1. Overall sample:	3276	100.0
2. Education:		
Below post-primary	2512	76.7
Post-primary	764	23.3
3. Employment status:		
Employed	760	23.2
Not employed	2516	76.8
4. Looking for work:		
Yes	1193	36.4
No	2083	63.6
5. Residence:		
Urban	1730	52.8
Non-urban	1546	47.2
6. Living with:		
Mother only	382	11.7
Both parents	1319	40.3
Other	1575	48.0
7. Number of siblings:		
Less than 2	356	10.9
3 - 4	1319	27.2
5 - 6	1162	35.5
7 plus	866	26.4
8. Number of desired children:		
1 - 3	1045	31.9
4 - 6	1524	46.5
7 plus	707	21.6
9. Religious group:		
Muslim	3017	92.1
Non-muslim	259	7.9
10. Rank among siblings:		
Eldest child	920	28.1
Not eldest child	2356	71.9

Cont. Table A1a:

11. Ethnic Group:		
Mandinka	620	18.9
Other	2656	81.1
12. Informed About Menstruation Before:		
Yes	1065	32.5
No	2211	67.5
13. Contraceptive Knowledge:		
No knowledge	1294	39.5
Some knowledge	935	28.5
Much knowledge	1047	32.0
14. Best age for girls to have sex:		
Less than 14	578	17.6
15 - 19	2014	61.5
20 plus	684	20.9
15. Best age for women to wed:		
Less than 19	2172	66.3
20 - 24	803	24.5
25 plus	301	9.2
16. Best age for women to have 1st child:		
Less than 17	1414	43.2
18 - 20	1103	33.7
21 plus	759	23.1
17. Sexual activity of friends:		
Have active friends	1476	45.1
Have inactive friends	1800	54.9
18. Attendance of family life education:		
Have attended before	646	19.7
Never attend a lecture	2630	80.3
19. Opinion about virginity before marriage:		
Support it	2316	70.7
Did not support it	960	29.3
20. Opinion about polygamy:		
Support it	2070	63.2
Did not support it	1206	36.8

Cont. Table A1a:

21. Index of sexual permissiveness for unmarried women:		
Completely disapproved	1569	47.9
Conditional approval	1707	52.1
22. Index of sexual permissiveness for unmarried men:		
Completely disapproved	1057	32.3
Conditional approval	2219	67.7
23. Opinion about women working outside the home:		
Support it	2742	83.7
Did not support it	534	16.3
24. Index of opinion on abortion:		
Completely disapproved	1268	38.7
Conditional approval	2008	61.3
25. Use of contraception:		
Ever used	372	11.4
Never used	2904	88.6
26. Frequency of Intercourse:		
None	1702	52.0
1 - 3 Times	402	12.3
4 plus	1172	35.7
27. Age at first marriage:		
Less than 15	340	10.4
15 - 19	820	25.0
20 - 24	163	5.0
28. Intra-uterine mortality:		
Experience it	368	11.2
Never experience it	2908	88.8

Note: Interval/ratio variables such as age, age at first sexual intercourse, and age at maturation are not included here.

**Table A1b: Distribution of Young Female Adults
by Single Year Age and Source of Data**

Age	1986/87 Surveys		1983 Population Census	
	Number	Percent	Number	Percent
13	324	9.9	6309	8.2
14	428	13.1	6101	7.9
15	418	12.8	9107	11.8
16	275	8.4	6419	8.3
17	223	6.8	5530	7.1
18	291	8.9	7927	10.2
19	204	6.2	4689	6.1
20	339	10.3	12573	16.2
21	146	4.4	4507	5.8
22	181	5.5	5435	7.0
23	205	6.3	4549	5.9
24	242	7.4	4288	5.5
Total	3276	100.0	77434	100.0

**Table A1c: Distribution of Young Female Adults by Single
Year Age and Childbearing Status**

Age	Childbearing Status				Total	
	Yes		No		Number	%
	Number	%	Number	%		
13	2	0.6	322	99.4	324	100.0
14	3	0.7	425	99.3	428	100.0
15	22	5.3	396	94.7	418	100.0
16	36	13.1	239	86.9	275	100.0
17	41	18.4	182	81.6	223	100.0
18	100	34.4	191	65.6	291	100.0
19	82	40.2	122	59.8	204	100.0
20	197	58.1	142	41.9	339	100.0
21	99	67.8	47	32.2	146	100.0
22	129	71.3	52	28.7	181	100.0
23	165	80.5	40	19.5	205	100.0
24	203	83.9	39	16.1	242	100.0
Total	1079	32.9	2197	67.1	3276	100.0

**Table A2a: Mean and Standard Deviation
of Interval/ratio Variables**

Variable	Number of Cases	Mean age	Standard Deviation
Age	3276	17.7	3.470
Age at first marriage	1363	16.2	2.519
Age at first sexual intercourse	1679	16.0	2.362
Age at maturation	1648	13.7	1.557

Note: The number of cases for age at first sexual intercourse and age at maturation differ because of variation in number of respondents to these questions.

Table A3: Log Likelihood Ratio Statistic of Respective Models and Corresponding Degree of Freedom

Description	Degree of Freedom	Log Likelihood Ratio	Pseudo R ²
Model 1: All eleven variables of socioeconomic, demographic and cultural (SEDC) factors	3260	-1186.0	.429
Model 2: Contains significant main effects of SEDC factors	3267	-1189.0	.427
Model 3: Contains significant main effects and interactions of SEDC factors	3253	-1172.0	.435
Model 4: All fourteen variables of knowledge, attitudes, and practice (KAP)	3257	-1825.0	.121
Model 5: Contains significant main effects of KAP factors	3265	-1830.0	.118
Model 6: Contains significant main effects and interactions of KAP factors	3258	-1820.0	.123
Model 7: All six variables of proximate determinants	3266	-1071.0	.484
Model 8: Contains significant main effects of proximate determinants	3267	-1071.0	.484
Model 9: Contains significant main effects and interactions of proximate determinants	3264	-1064.0	.489
Model 10: Overall model containing all direct and indirect determinants	3236	- 866.0	.594
Model 11: Constant only model	3275	-2076.0	-

Note: Details provided in Tables 4.14, 4.15, 4.16, 4.17, and A7 to A12.

**Table A4: Differences Between Models Based
on The Likelihood ratio Statistic (G)**

Description	Differences Between Models			
	Degree of Freedom	Log Likeli- hood	G	p-value
Model 2 minus Model 1	7	- 3.0025	6.005	.540
Model 3 minus Model 2	14	-17.0600	34.120	.004
Model 5 minus Model 4	8	- 5.2640	10.528	.230
Model 6 minus Model 5	7	-10.3595	20.719	.007
Model 8 minus Model 7	1	- 0.1040	0.208	.660
Model 9 minus Model 8	3	- 8.7680	17.536	.001

Note:

1. Model 1 consists of all eleven variables of socio-economic, demographic and cultural (SEDC) factors
2. Model 2 covers the significant main effects of SEDC factors
3. Model 3 contains significant main effects and interactions of SEDC factors
4. Model 4 comprises all fourteen variables of knowledge, attitudes, and practice (KAP)
5. Model 5 covers the significant main effects of KAP factors
6. Model 6 includes the significant main effects and interactions of KAP factors
7. Model 7 consists of all six variables of proximate determinants
8. Model 8 comprises the significant main effects of proximate determinants
9. Model 9 contains the significant main effects and interactions of proximate determinants

**Table A5: Differences Between The Constant Only Model and
Best Fitting Models of Direct and Indirect Determinants
Based on The Likelihood Ratio Test Statistic (G)**

Description	Difference Between Models		
	Degree of Freedom	Log Likelihood	G
Model 11 minus Model 3	23	- 904.0242	1808.0484
Model 11 minus Model 6	17	- 256.3122	512.6244
Model 11 minus Model 9	11	-1014.5052	2029.0104
Model 11 minus Model 10	39	-1232.4747	2464.9494

Note:

1. Model 3 contains significant main effects and interactions of socioeconomic, demographic and cultural factors.
2. Model 6 includes the significant main effects and interactions of knowledge, attitudes, and practice.
3. Model 9 contains the significant main effects and interactions of proximate determinants.
4. Model 10 is the overall model containing all direct and indirect determinants early childbearing.
5. Model 11 is the constant only model.
6. The G estimates are significant at a p-value of 0.0001.

Table A6: Estimates on Fitting of Respective Models

Model	Outcome	Predicted Outcome		% Correct
		Parity 1+	Parity 0	
Model 1:	Parity 1+	778	301	83.2
	Parity 0	251	1946	72.1
Model 2:	Parity 1+	765	314	88.6
	Parity 0	243	1954	83.0
Model 3:	Parity 1+	787	292	70.9
	Parity 0	240	1954	88.9
Model 4:	Parity 1+	407	672	83.9
	Parity 0	292	1905	72.9
Model 5:	Parity 1+	399	680	89.1
	Parity 0	280	1917	70.6
Model 6:	Parity 1+	416	663	37.7
	Parity 0	283	1914	86.7
Model 7:	Parity 1+	923	156	70.7
	Parity 0	396	1801	37.0
Model 8:	Parity 1+	921	158	87.3
	Parity 0	395	1802	71.1
Model 9:	Parity 1+	939	140	38.6
	Parity 0	412	1785	87.1
Model 10:	Parity 1+	916	163	83.2
	Parity 0	248	1949	85.5

- Note: 1. Model 1 consists of all eleven variables of socioeconomic, demographic and cultural (SEDC) factors.
2. Model 2 covers the significant main effects of SEDC factor.
3. Model 3 contains significant main effects and interactions of SEDC factors.
4. Model 4 comprises all fourteen variables of knowledge, attitudes, practices (KAP).
5. Model 5 covers the significant main effects of KAPB factors.
6. Model 6 includes the significant main effects and interactions of KAP factors.
7. Model 7 consist of all six variables of proximate determinants.
8. Model 8 comprises the significant main effects of proximate determinants.
9. Model 9 contains the significant main effects and interactions of proximate determinants.

Table A7: Selected Parameters for The Logistic Regression Model on Socioeconomic, Demographic and Cultural variables

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Education Attainment: (Below post-primary)			
Post-primary	-1.189*	.146	.305
2. Employment Status: (Not employed)			
Employed	-.355**	.160	.701
3. Looking For Work: (No)			
Yes	.612*	.150	1.845
4. Area of Residence: (Non-urban)			
Urban	-.002	.120	.998
5. Living With: (Other)			
Mother Only	-.594*	.175	.552
Both Parents	-.858*	.123	.424
6. Age:	.543*	.020	1.721
7. Number of Siblings: (7 Plus)			
Less than 2	.190	.198	1.208
3 - 4	-.064	.148	.938
5 - 6	-.051	.134	.950
8. Number of Children Desired (7 Plus)			
1 - 3	-.293	.150	.746
4 - 6	-.147	.135	.863
9. Rank among Siblings: (Not Eldest Child)			
Eldest Child	-.010	.118	.990
10. Religious group: (Non-muslim)			
Muslim	1.018*	.219	2.767
11. Ethnic Group: (Other)			
Mandinka	-.565*	.145	.568
Constant:	-10.969*	.496	
Log Likelihood	-1186.000		
Pseudo R-square	.429		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

**Table A8: Selected Logit Parameters for The Model
Containing only The significant Socioeconomic,
Demographic and Cultural variables**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Education Attainment:			
(Below post-primary)			
Post-primary	-1.225*	.134	.294
2. Employment Status:			
(Not employed)			
Employed	-.378**	.158	.685
3. Looking For Work:			
(No)			
Yes	.604*	.150	1.829
4. Living With:			
(Other)			
Mother Only	-.626*	.174	.535
Both Parents	-.872*	.121	.418
5. Age:	.544*	.020	1.722
6. Religious group:			
(Non-muslim)			
Muslim	.986*	.214	2.682
7. Ethnic Group:			
(Other)			
Mandinka	-.560*	.144	.571
Constant:	-11.098*	.456	
Log Likelihood	-1189.000		
Pseudo R-square	.427		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

**Table A9: Selected Parameters for The Logistic, Regression
on Knowledge, Attitudes, and Practice of Young Women
About Childbearing and Contraception**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Informed About Menstruation Before:			
(No)			
Yes	.272*	.089	1.312
2. Contraceptive Knowledge:			
	-.013*	.001	.987
3. Best Age For Girls to Have Sex:			
(Less Than 14)			
15 - 19	.365*	.112	1.441
20 Plus	.126	.179	1.135
4. Best Age For Women To Wed:			
(25 Plus)			
Less Than 19	1.006*	.229	2.736
20 - 24	.873*	.212	2.393
5. Best Age For Women to Have 1st Child:			
(21 Plus)			
Less Than 17	.965*	.151	2.624
18 - 20	.509*	.138	1.663
6. Opinion About Virginity Before Marriage:			
(Do Not support it)			
Support	-.020	.092	.981
7. Opinion About Polygamy:			
(Do Not Support it)			
Support it	.099	.087	1.104
8. Opinion About Women working Outside The Home:			
(Do Not Support it)			
Support it	-.160	.112	.852
9. Unmarried Pregnant Girls Should:			
(Abort)			
Raise Child Alone	.034	.141	1.035
Opt for Abortion	.066	.140	1.068
10. Index of Sexual Permissiveness of Unmarried Women:			
(Conditional Approval)			
Completely Disapproved	-.121	.111	.886

Cont. Table A9:

11. Index of Sexual Permissiveness of Unmarried Men:			
(Conditional Approval)			
Completely Disapproved	-.126	.121	.882
12. Index of Opinion on Abortion:			
(Conditional Approval)			
Completely Disapproved	.019	.089	1.019
13. Sexual Activity of Friends:			
(Have Inactive Friends)			
Have Active Friends	.779*	.084	2.179
14. Attendance of Family Life Education:			
(Never Attend a Lecture)			
Have Attended Before	-.388*	.108	.679
Constant:	-2.214*	.299	
Log Likelihood	-1825.000		
Pseudo R-square	.121		

Note: 1. * indicates that $P \leq .01$

**Table A10: Selected Logit Parameters for The Model
Containing The Significant Main Effects of Knowledge,
Attitudes, and Practice of Young women About Childbearing**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Informed About Menstruation Before:			
(No)			
Yes	.280*	.088	1.323
2. Contraceptive Knowledge:			
	-.013*	.001	.987
3. Best Age For Girls to Have Sex:			
(Less Than 14)			
15 - 19	.342*	.110	1.408
20 Plus	.081	.178	1.084
4. Best Age For Women To Wed:			
(25 Plus)			
Less Than 19	.994*	.227	2.702
20 - 24	.867*	.211	2.379
5. Best Age For Women to Have 1st Child:			
(21 Plus)			
Less Than 17	.986*	.150	2.677
18 - 20	.525*	.137	1.690
6. Sexual Activity of Friends:			
(Have Inactive Friends)			
Have Active Friends	.779*	.082	2.177
7. Attendance of Family Life Education:			
(Never Attend a Lecture)			
Have Attended Before	-.380*	.107	.684
Constant:	-2.328*	.259	
Log Likelihood	-1830.000		
Pseudo R-square	.118		

Note: 1. * indicates that $P \leq .01$

2. Reference categories are in parentheses.

**Table A11: Selected Logit Parameters for The Model on
Proximate Determinants of Childbearing Among Young Women**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Age at First Marriage:	-.020*	.002	.981
2. Age at 1st Intercourse:	-.038*	.004	.963
3. Contraceptive Use:			
(Never Use)			
Ever Use	1.477*	.155	4.379
4. Frequency of Intercourse in Last 4 Weeks:			
(None)			
1 - 3 Times	.488**	.207	1.629
4 Plus	.773*	.187	2.167
5. Intra-uterine Mortality:			
(Never Experienced it)			
Have Experienced it	.484*	.141	1.622
6. 'Age at 1st Maturation:	.011	.019	1.011
Constant:	-.749**	.331	
Log Likelihood	-1071.000		
Pseudo R-square	.484		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

**Table A12: Selected Logit Parameters for The Model
Containing Main Effects of Proximate Determinants
of Childbearing Among Young Women**

Variable	B (1)	S.E. (2)	Exp(B) (3)
1. Age at First Marriage:	-.020*	.002	.981
2. Age at 1st Intercourse:	-.038*	.004	.963
3. Contraceptive Use:			
(Never Use)			
Ever Use	1.484*	.154	4.412
4. Frequency of Intercourse in Last 4 Weeks:			
(None)			
1 - 3 Times	.492**	.207	1.636
4 Plus	.777*	.187	2.175
5. Intra-uterine Mortality:			
(Never Experienced it)			
Have Experienced it	.483*	.141	1.621
Constant:	-.892*	.217	
Log Likelihood	-1071.000		
Pseudo R-square	.484		

Note: 1. * indicates that $P \leq .01$, whereas ** implies $P \leq .05$

2. Reference categories are in parentheses

Appendix 8: Female Questionnaire

Questionnaire Number 2-9 Interviewer's Name:

Enumerator Area Number 8-C Interviewer's Number: 11

Household Number 12-3 Segment Number 14

ADDRESS

Date of Listing: day month year 18-24

Name of Household Head:

Occupation of Household Head: 25-29

Household Size 27-29 Total Number of Members Age 13-24 30-34

Unmarried Males 13-24 32-33 Married Males 17-24 35-37

Unmarried Females 13-24 34-35 Married Females 13-24 38-39

LOG OF VISITS FOR INTERVIEWER:

Date of Visit	Result	Result Codes
<input type="text"/> <input type="text"/> day <input type="text"/> <input type="text"/> month	<input type="text"/> <input type="text"/> 40-43 <input type="text"/> <input type="text"/>	1 Completed Interview
<input type="text"/> <input type="text"/> day <input type="text"/> <input type="text"/> month	<input type="text"/> <input type="text"/> 42-48 <input type="text"/> <input type="text"/>	2 Refusal Before Interview
<input type="text"/> <input type="text"/> day <input type="text"/> <input type="text"/> month	<input type="text"/> <input type="text"/> 30-33 <input type="text"/> <input type="text"/>	3 Refusal During Interview
<input type="text"/> <input type="text"/> day <input type="text"/> <input type="text"/> month	<input type="text"/> <input type="text"/> 38-39 <input type="text"/> <input type="text"/>	4 Nobody at Home
		5 Respondent Not Home
		6 Respondent Moved Away
		8 Other (specify.....)

EXPLAIN REASONS FOR REFUSALS BELOW:

INTERVIEWER NOTES (Please specify plans for re-visits)

PART I: BACKGROUND CHARACTERISTICS

I am working with the Central Statistics Department on a survey of young people. A similar survey has been conducted in Banjul and surrounding Areas. The purpose of the survey is to understand the needs and concerns of young people so that the Government can develop appropriate programmes to meet those needs. The Government is essentially concerned with the problems that young people experience during puberty. The questions that I shall be asking are very personal. They are about growing up and dealing with psychological, physical, and emotional problems during this period.

All information you give us is strictly confidential and your name will not appear on the questionnaire. Please make every effort to answer each question as honestly as possible. The success of the survey depends upon your cooperation.

There are four parts to the questionnaire. The first part asks about your education, your parents, and your work. Duplicate sets 1-5
From card 1

1. In what month and year were you born? 9-9
month year month year
Age in years if she is under 13 or over 24, END INTERVIEW 10-11

2. Are you attending school now?
 1 yes 12
 2 No (SKIP TO 4)

3. What class are you in now? (CIRCLE CLASS)

1 Primary	1	2	3	4	5	6	
2 Secondary Technical	1	2	3	4			
3 High School	1	2	3	4	5	6	7
4 Technical Institute/Vocational	1	2	3	4			
5 College	1	2	3	4			
6 University	1	2	3	4			
8 Other (specify).....							<input type="text"/> 13-14

4. What was the highest level of education you completed?
 (CIRCLE HIGHEST CLASS COMPLETED)

0 No schooling	0						
1 Primary	1	2	3	4	5	6	
2 Secondary Technical	1	2	3	4			
3 High school	1	2	3	4	5	6	7
4 Technical Institute/Vocational	1	2	3	4			
5 College	1	2	3	4			
6 University	1	2	3	4			
8 Other (specify).....							<input type="text"/> 15-16

5. How many times did you repeat a class?Number of Times 17

6. What level of education do you plan to complete by the time you are 25?

- 0 No schooling
- 1 Primary
- 2 Secondary Technical
- 3 High school
- 4 Technical Institute/Vocational
- 5 College
- 6 University
- 8 Other (specify).....
- 9 Does Not Know

18-19

7. At what age did you enter school?Age in years

20-21

8. Do you have a job that pays you? (in cash or in kind)

- 1 yes
- 2 No (SKIP TO Q10)

22

9. What type of job do you have?

- 1 Farmer/Gardener/Animal Husbandry worker
- 2 Trader/Shopkeeper/Business
- 3 Fisherman/Hunter/Forestry worker
- 4 Dressmaker/Weaver/Shoemaker
- 5 Blacksmith/Toolmaker/Golds and Silversmith
- 6 Teacher
- 7 Nurse/Medical personnel
- 8 Other (specify).....

23-24

(SKIP TO Q11)

10. Are you looking for a job?

- 1 yes
- 2 No

25

11. Who is now responsible for your upkeep?

- 1 Myself
- 2 Parents
- 3 Other relatives
- 4 Spouse/Partner
- 5 Friend
- 8 Other (specify).....

26-27

12. What was the highest level of education your father completed?

- 0 No schooling
- 1 Primary
- 2 Secondary Technical
- 3 High School
- 4 Technical Institute/Vocational
- 5 College
- 6 University
- 8 Other (specify).....
- 9 Does Not Know

28-29

13. What is the main job of your father?

- 0 Farmer/Gardener/Animal Husbandry Worker
- 1 Trader/Shopkeeper/Business
- 2 Fisherman/Hunter/Forestry Worker
- 3 Dressmaker/Weaver/Shoemaker
- 4 Blacksmith/Gold and Silversmith/Toolmaker
- 5 Teacher
- 6 Nurse/Medical Personnel
- 8 Other (specify).....

30-31

14. What was the highest level of education your mother completed?

- 0 No schooling 0
- 1 Primary 1 2 3 4 5 6
- 2 Secondary Technical 1 2 3 4 5 6 7
- 3 High School 1 2 3 4 5 6
- 4 Technical Institute/Vocational 1 2 3 4
- 5 College 1 2 3 4
- 6 University 1 2 3 4
- 8 Other (specify).....
- 9 Does Not Know

32-33

15. What is the main job of your mother?

- 1 Farmer/Gardener
- 2 Trader/Shopkeeper/Business
- 3 Dressmaker/Weaver
- 4 Teacher
- 5 Nurse/Medical Personnel
- 8 Other (specify).....

34-35

16. How old is your mother?

- Age of Mother
- 97 Age 97 or older
- 98 Mother Died
- 99 Does Not Know

36-37

17. How many living children including you does your mother have?

Number of Children:.....

38-39

18. Are you her eldest child?

- 1 Yes (SKIP TO Q20)
- 2 No

40

19. How old is her oldest child?Age in years

41-42

20. Do you live with your parents?

- 1 Mother only
- 2 Father only (SKIP TO Q22)
- 3 Both Mother and Father
- 4 Neither Mother nor Father
- 5 Both parents have Died

43

21. Whom do you live with?

- 1 Other relative
- 2 Friends
- 3 Spouse/Partner
- 4 Live Alone
- 5 Other (specify).....

44-45

22. How many children would you like to have altogether?

- Number of Children
- 00 None
- 88 Other (specify).....
- 98 As many as possible/As many as God would provide
- 99 Does Not Know

46-47

23. What religion do you currently practice?

- 0 None; No religious affiliation
- 1 Muslim
- 2 Christian
- 3 Traditional/African
- 8 Other (specify).....

48

24. What ethnic group do you belong to?

- 1 Wolof
- 2 Mandinka
- 3 Fula
- 4 Jola
- 5 Serahuli
- 6 Manjago
- 7 Serere
- 8 Other (specify).....

49-50

25. What is your marital status?

- 1 Single (SKIP TO Q27)
- 2 Married
- 3 Divorced
- 4 Separated
- 5 Widowed

51

26. If ever married, Age at first marriage? Age

52-53

17. Where were you born?

.....(specify settlement and if outside Cambodia, state Country)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	94-97
--------------------------	--------------------------	--------------------------	--------------------------	-------

18. What is your nationality?

<input type="checkbox"/>	98
--------------------------	----

19. How long have you been living in this settlement/village?years

<input type="checkbox"/>	<input type="checkbox"/>	99-80
--------------------------	--------------------------	-------

PART II: OPINIONS ON DATING, MARRIAGE, CHILDBEARING

10. In your opinion, what is the appropriate age for a girl to have sexual intercourse for the first time?

- Age
- 85 Other (specify).....
- 94 Does Not Know, Not Sure

<input type="checkbox"/>	<input type="checkbox"/>	6-62
--------------------------	--------------------------	------

11. What is the appropriate age for a girl to marry?

- Age
- 86 Other (specify).....
- 94 Does Not Know, Not sure

<input type="checkbox"/>	<input type="checkbox"/>	63-64
--------------------------	--------------------------	-------

12. Do you think the girl should be a virgin when she marries?

- 1 yes
- 2 No
- 3 Does not matter
- 9 Does not know

<input type="checkbox"/>	65
--------------------------	----

13. In your opinion, what is the appropriate age for a man to have sex for the first time?

- Age
- 88 Other (specify).....
- 99 Does Not Know

<input type="checkbox"/>	<input type="checkbox"/>	66-67
--------------------------	--------------------------	-------

14. What is the appropriate age for a man to marry?

- Age
- 88 Other (specify).....
- 99 Does Not Know, Not sure

<input type="checkbox"/>	<input type="checkbox"/>	68-69
--------------------------	--------------------------	-------

15. In your opinion, what is the appropriate age for a woman to have her first child?

- ... AGE
- 84 Other (specify).....
- 90 Does Not Know, Not Sure

70-71

16. How many years should she wait before she has her second child?

- Number of Years:.....
- 8 2 or more years
- 9 Does not know

72

17. Do you think a man should have more than one wife?

- 1 yes
- 2 No
- 9 Do not know

73

18. Do you think a woman should have a job outside the home after she marries?

- 1 yes
- 2 No
- 8 Other (specify).....
- 9 Do not know

74

19. I would like to have your opinion about when it is OK for women to have sex before marriage?

ASK EACH QUESTION SEPARATELY AND RECORD EACH ANSWER

- A. Is it OK if the dowry has been paid?
- B. Is it OK if the two people have discussed marriage?
- C. Is it OK if the man has been formally introduced to the girl's parents?
- D. Is it OK if both people love each other?
- E. Is it OK if the man is giving adequate financial support?

YES	NO	
1	2	<input type="checkbox"/> 75
1	2	<input type="checkbox"/> 76
1	2	<input type="checkbox"/> 77
1	2	<input type="checkbox"/> 78
1	2	<input type="checkbox"/> 79

20. When is it OK for young men to have sexual relations before marriage?

ASK EACH QUESTION SEPARATELY AND RECORD EACH ANSWER

- A. Is it OK if the dowry has been paid?
- B. Is it OK if the two people have discussed marriage?
- C. Is it OK if the man has been formally introduced to the girl's parents?
- D. Is it OK if both people love each other?
- E. Is it OK if the man is giving adequate financial support?
- F. Is it OK if the woman is a prostitute?

Question 20-21
Franker, J.

YES	NO	
1	2	<input type="checkbox"/> 80
1	2	<input type="checkbox"/> 81
1	2	<input type="checkbox"/> 82
1	2	<input type="checkbox"/> 83
1	2	<input type="checkbox"/> 84
1	2	<input type="checkbox"/> 85

41. What do you think a young unmarried woman should do if she gets pregnant and cannot marry the father? (READ OPTIONS)

- 1 Have the baby and give it to a relative.
- 2 Have the baby and raise it without the father.
- 3 Have the baby and raise it with the father's support.
- 4 Have an abortion.
- 5 Put the baby up for adoption.
- 6 Other (specify).....
- 7 Does not know.

 13

42. Do you know of any girl who have been punished by her father for having boyfriend?

- 1 yes
- 2 No (SKIP TO Q44)

 14

43. What did the father do?

(DO NOT READ LIST, CIRCLE ALL THAT APPLY)

- 1. Beat the girl.
- 2. Threw the girl out of the house.
- 3. Did not buy her clothes or presents.
- 4. Yell at the girl, insult her.
- 5. Other (specify).....

 15

44. Do you have friends who are sexual active?

- 1 yes
- 2 No
- 9 Does Not Know

 16

45. In your opinion is it OK for an unmarried girl to have an abortion if:

(READ EACH QUESTION BELOW)

	Yes	No	Does Not Know
A. She was raped?	1	2	9
B. The partner refuses responsibility?	1	2	9
C. The partner is not working and cannot support a child.	1	2	9
D. The pregnancy threatens her life?	1	2	9
E. She cannot afford to take care of the child?	1	2	9
F. The only alternative is to abandon the baby?	1	2	9
G. She is age 10 or younger?	1	2	9
H. She is still in school?	1	2	9

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45. Now I am going to read you a list of problems that young people might have. Tell me whether you think the problem is common or uncommon among people of your age in this settlement or village.

(CIRCLE 1 IF COMMON, 2 IF UNCOMMON)

	Common Problem	Uncommon Problem	Do Not Know	
A. Lack of job opportunities	1	2	9	<input type="checkbox"/> 25
B. Abuse of alcohol	1	2	9	<input type="checkbox"/> 26
C. Abuse of drugs like marijuana(jamba)	1	2	9	<input type="checkbox"/> 27
D. Cigarette smoking	1	2	9	<input type="checkbox"/> 28
E. Incomplete education	1	2	9	<input type="checkbox"/> 29
F. Unwanted Pregnancy	1	2	9	<input type="checkbox"/> 30
G. Family Problems	1	2	9	<input type="checkbox"/> 31
H. Sexually Transmitted Diseases/VD	1	2	9	<input type="checkbox"/> 32
I. Difficulty in getting information about Family Planning	1	2	9	<input type="checkbox"/> 33
J. Difficulty in getting Family Planning Methods	1	2	9	<input type="checkbox"/> 34

PART III: REPRODUCTIVE HEALTH KNOWLEDGE

Now I am going to ask you some questions about more personal topics. The answers we get will help in designing health and family planning programmes for people of your age.

47. Have you ever attended a Family Life Education Lecture?

- 1 Yes
- 2 No (SKIP TO Q50)

35

48. Where did you attend the lectures?

- 1 School
- 2 Youth Center
- 3 Gambia Family Planning Association's Clinic
- 4 Other (specify).....

36

49. During any lecture did you learn about:

	Yes	No	Does Not Know	
A. Reproduction	1	2	9	<input type="checkbox"/> 37
B. Human Reproduction	1	2	9	<input type="checkbox"/> 38
C. Family Planning Methods	1	2	9	<input type="checkbox"/> 39
D. Sexually Transmitted Diseases/VD	1	2	9	<input type="checkbox"/> 40
E. Pregnancy	1	2	9	<input type="checkbox"/> 41
F. Labour	1	2	9	<input type="checkbox"/> 42
G. Breastfeeding	1	2	9	<input type="checkbox"/> 43

30. Have you ever personally talked with anyone about.... TOPIC? FOR EACH ONE TALKED ABOUT ASK: WHOM DID YOU TALK WITH?

TOPICS	Yes	No	If Yes, What?	
1. Menstruation	64-66
2. Sexual Intercourse	67-68
3. Family Planning Methods	69-72
4. Sexually Transmitted Diseases/VD	73-75
5. Pregnancy	76-79
6. Labour and Delivery	80-81
7. Breastfeeding	82-84

31. How old were you the first time you menstruated?

Age in years	
98 Has Never Menstruated (SKIP TO Q54)	
99 Does Not Know, Not Sure	<input type="checkbox"/> 65-66

32. In what month did you have your most recent menstrual period?

Month:.....	Year:.....	
		<input type="checkbox"/> 67-70

33. Did anyone tell you about menstruation before you menstruated the first time?

1 Yes	
2 No	<input type="checkbox"/> 71

34. Have you heard of the safe period?

1 Yes	
2 No (SKIP TO Q56)	<input type="checkbox"/> 72

35. Who told you about the safe period?

1 Husband or partner	
2 Mother	
3 Father	
4 Aunt/Sister	
5 Uncle/Brother	
6 Other relative	
8 Youth Adviser/Teacher	
9 Nurse/Health Worker	
98 Other (specify).....	
99 Does not know	<input type="checkbox"/> 73-74

56. When do you think pregnancy is most likely to occur?
(READ OPTIONS, CIRCLE ONLY ONE)

- 0 Anytime
1 About 14 days before a menstrual period
2 A few days before a menstrual period
3 During a menstrual period
4 During the first few days after a menstrual period
5 Some other time (specify).....
9 Does not know

 76

57. Do you think a girl can get pregnant the first time she has sexual relations?

- 1 Yes
2 No
9 Does not know

 76

58. Have you heard of any of these venereal diseases?

Yes	No	
1	2	Syphilis
1	2	Gonorrhea (fire)
1	2	Unguis
1	2	Herpes
1	2	AIDS
1	2	Chlamydia

 77

76-79 items

KNOWLEDGE OF FAMILY PLANNING

59. There are various ways that a couple can delay the next pregnancy or avoid having children. Have you heard about any family planning method or practice?

- 1 Yes
2 No (SKIP TO Q66)

 6

60. Do you approve or disapprove of married couples using family planning methods?

- 1 Approve
2 Disapprove

 7

61. Do you approve or disapprove of unmarried couples who are sexually active using family planning methods?

- 1 Approve
2 Disapprove

 8

62. Is it easy or difficult for young women of your age to obtain family planning methods?

- 1 Easy (SKIP TO Q65)
2 Difficult
9 Does not know (SKIP TO Q65)

 9

 80

Duplicate copies 3
From card 1

63. Why is it difficult?.....

10

64. What do you think should be done to make it easier to obtain family planning methods?

11

65. Which family planning methods have you heard of?

CIRCLE 1 (YES) IN COLUMN A BELOW FOR EACH METHOD HEARD OF

66. Just to be sure, have you ever heard about.....

(EACH METHOD NOT CIRCLED IN COLUMN A)?

	COLUMN A Q65 Knowledge (Unprompted)		COLUMN B Q66 knowledge (prompted)		
	YES	NO	YES	NO	
A. Pill/Oral Contraceptives	1	1	2	3	<input type="checkbox"/> 17
B. Condom/Rubber/Durex	1	1	2	3	<input type="checkbox"/> 18
C. IUD/Loop/Pessary	1	1	2	3	<input type="checkbox"/> 19
D. Spermicides/Foam/Vaginal tablets	1	1	2	3	<input type="checkbox"/> 20
E. Diaphragm	1	1	2	3	<input type="checkbox"/> 21
F. Injection/Depo provera	1	1	2	3	<input type="checkbox"/> 22
G. Rhythm/Calendar/Safe Period	1	1	2	3	<input type="checkbox"/> 23
H. Withdrawal	1	1	2	3	<input type="checkbox"/> 24
I. Female Sterilization	1	1	2	3	<input type="checkbox"/> 25
J. Male Sterilization	1	1	2	3	<input type="checkbox"/> 26
K. Traditional Methods/Practices (specify):.....	1	1	2	3	<input type="checkbox"/> 27
L. Abstinence	1	1	2	3	<input type="checkbox"/> 28
M. Other (specify):.....	1	1	-	-	<input type="checkbox"/> 29

67. In your opinion, what would be a greater risk to your health, taking birth control methods or getting pregnant?

- 1 Birth control method
- 2 Getting pregnant
- 3 About the same risk
- 9 Does not know

25

68. How much does your monthly supply of contraceptives cost?

- 0
- 99 99 Does not know

28-29

PART IV: FAMILY PLANNING AND PREGNANCY OUTCOMES

First Sexual Experience

Now I am going to ask you a few very personal questions. Your answers are completely confidential and your name will never be put on this questionnaire. Please answer the questions as honestly as you can.

69. Have you ever had sexual intercourse?
(IF NO, PROBE AND ASK AGAIN: "HAVE YOU EVER HAD SEX")
- 1 Yes 30
2 No (SKIP TO Q82)
70. How old were you when you had sex the first time?
..... Age in years 31-32
71. How old was your partner?
..... Age in years 33-34
99 Does not know
72. At that time, were you married?
- 1 Yes (SKIP TO Q74)
2 No 35
73. Were you officially engaged?
- 1 Yes 36
2 No
74. The first time you had sex, did you or your partner use a family planning method or do anything to prevent pregnancy?
- 1 Yes (SKIP TO Q79) 37
2 No
75. Was this because you wanted to get pregnant?
- 1 Yes (SKIP TO Q77) 38
2 No
76. What was the main reason you did not use a family planning method the first time? (CIRCLE ONLY ONE RESPONSE)
- 0 Did not plan on having sexual relations
1 Did not know about methods
2 Could not obtain a method
3 Side effects
4 Did not believe could get pregnant
5 Self/Partner against methods
6 Religion against methods
7 May cause infertility
8 Other (specify)..... 39
9 Does not know

77. Did you or your partner ever use a family planning method or do something to avoid pregnancy?

- 1 Yes (SKIP TO Q79)
- 2 No

40

78. Why have you never used family planning?

- 0 Wanted to become pregnant
- 1 Did not know about methods
- 2 Could not obtain a method
- 3 Side effects
- 4 Did not believe could get pregnant
- 5 Self/Partner against methods
- 6 Religion against methods
- 7 May cause infertility
- 8 Other (specify).....
- 9 Does not know

41

79. Have you ever used any of the following family planning methods?

READ LIST

	Yes	No
A. Pill	1	2
B. IUD/Loop/Poosch	1	2
C. Spermicides/Foam/Vaginal Tablets	1	2
D. Diaphragm	1	2
E. Injectables/Depo Provera	1	2
F. Rhythm/Calendar/or Safe Period	1	2
G. Withdrawal	1	2
H. Abstinence	1	2
I. Traditional methods/practices	1	2

42
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80. Where do you normally get your contraceptive supplies?
 (CIRCLE MORE THAN ONE FOR METHODS USED IN Q79)

- 1 GFPA clinic
- 2 pharmacy/Drug Store
- 3 Hospital
- 4 Private doctor/clinic
- 5 Other (specify).....

51

81. How many times have you had sex in the past four weeks?

- 00 None
- Number of times

52-53

PREGNANCY OUTCOMES

52. Have you ever been pregnant?

- 1 Yes
- 2 No (End Interview)

54

53. How old were you the first time you got pregnant?Age

55-56

54. How old was the father of the child?Age

57-58

55. At that time, were you married to him?

- 1 Yes (SKIP TO Q87)
- 2 No

59

56. Were you officially engaged?

- 1 Yes
- 2 No

60

- 87. Were you attending school when you got pregnant the first time?
1 Yes
2 No (SKIP TO Q89) 81
- 88. Did you have to leave school because you got pregnant?
1 Yes
2 No 82
- 89. Did you want the pregnancy?
1 Yes
2 No
9 Does Not Know 83
- 90. Are you currently pregnant?
1 Yes
2 No 84
- 91. Is this the first time you have been pregnant?
1 Yes (SKIP TO Q95)
2 NoNumber of times 85-88
- 92. Have you ever had a live birth, that is, have you ever given birth to a baby that cried or showed some sign of life, even if the baby lived only for a short time?

1 Yes
2 No 87
- 93. How many live births have you had? Number 88
- 94. Have you ever had a stillbirth?
1 Yes
2 No 89
- 95. Have you ever had a miscarriage or an abortion?
(CIRCLE MISCARRIAGE OR ABORTION DEPENDING ON SITUATION)
1 Yes
2 No (SKIP TO Q99) 90
- 96. How old were you the first time you had a miscarriage or abortion?Age 91-92
- 97. Did you have any of the following:

	Yes	No	
A. Severe Bleeding	1	2	<input type="checkbox"/> 93
B. Fever	1	2	<input type="checkbox"/> 94
C. Other Complications (specify)	1	2	<input type="checkbox"/> 95
- 98. Did you see a doctor, nurse, or traditional healer to help with the bleeding, fever, or complications?

1 Yes (specify):.....
2 No 96-97
- 99. Have you ever had a sexually transmitted disease/VD?
1 Yes
2 No (END INTERVIEW) 98
- 100. Did you receive treatment for the disease(s)?
1 Yes
2 No 99

END OF INTERVIEW AND THANK RESPONDENT

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