PREVALENCE OF DEPRESSION AMONG PREGNANT ADOLESCENTS ATTENDING PUMWANI MATERNITY HOSPITAL AND CITY COUNCIL HEALTH CENTERS IN NAIROBI, KENYA.

A DISSERTATION SUBMITTED AS PART FULFILMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY

BY

MUCHAI JOHN WAMUTI

BACHELOR OF PSYCHOLOGY (COUNSELLING)

U.O.N

DEPARTMENT OF PSYCHIATRY

SCHOOL OF MEDICINE COLLEGE OF HEALTH SCIENCES

UNIVERISTY OF NAIROBI

2008

PREVALENCE OF DEPRESSION AMONG PREGNANT ADOLESCENTS ATTENDING PUMWANI MATERNITY HOSPITAL AND CITY COUNCIL HEALTH CENTERS IN NAIROBI, KENYA.

A DISSERTATION SUBMITTED AS PART FULFILMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY

BY

MUCHAI JOHN WAMUTI

BACHELOR OF PSYCHOLOGY (COUNSELLING)
U.O.N
DEPARTMENT OF PSYCHIATRY
SCHOOL OF MEDICINE COLLEGE OF HEALTH SCIENCES
UNIVERISTY OF NAIROBI

2008

DECLARATION

I, John W. Muchai, do hereby declare that this is my original work and that it has not been presented for the award of any degree to any other University.

Signed: _____

Date: 10/07/09

CERTIFICATE OF APPROVAL

This is to certify that this is a bona fide research work carried out independently by John Muchai under our guidance and supervision.

Supervisors:

1. Dr. P. Kigamwa,
   M.BCHB
   M.Med (Psychiatry), UON
   C.C.P, (uofs)
   Senior Lecturer,
   Dept. of Psychiatry
   College of Health Sciences
   School of Medicine
   University of Nairobi

   Signature ---------- Date 11th August 2009

2. Dr. A. Atieno Obondo,
   B.A (Hons) Sociology (India)
   MSW, (India)
   Dip. PSW (Manchester),
   Ph.D (Nairobi)
   Senior Lecturer
   Dept. of Psychiatry
   College of Health Sciences
   School of Medicine
   University of Nairobi

   Signature ---------- Date 11/8/09

DEDICATION

This study is a very special dedication to my lovely mother, Margaret Wambui, my heroine and confidant. She created a motherly environment that ensured perfect attachment/bonding with me, notwithstanding the fact that she bore me when she was an adolescent.

ACKNOWLEDGEMENTS

The most profound appreciation is hereby expressed to the God of Jesus Christ, the Primordial Healer, for gratuitously granting me a share of His healing concern and providing abundantly, all the resources I needed for the successful completion of the degree of Master of Science in Clinical Psychology.

This study was completed with the help of my Supervisors, Dr. P. Kigamwa and Dr. Anne Obondo of the Department of Psychiatry, University of Nairobi together with their colleagues. I am most grateful.

Finally, a research that carries the name of a single author should be inscribed with many others. I am deeply indebted to John K. Kinyanjui, my academic companion in pursuit of knowledge in a public University, Bernard W. Ikua, of Jomo Kenyatta University of Agriculture and Technology, and to many others whom I have not mentioned here.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Abbreviations

BDI	Beck Depression Inventory
KNH	Kenyatta National Hospital
WHO	World Health Organization

Operational definition

An adolescent is defined as any pregnant female between 18 and 20 years.

ABSTRACT

Objectives

Main objective:

To determine the prevalence of depression among pregnant adolescents attending Pumwani Maternity Hospital and City Council health centers in Nairobi.

Specific objectives:

To determine the correlation between depression and social demographic variables in the above group.

To compare the rates of depression in the above group with those found in other studies.

Respondents: The study sample consisted of 219 pregnant adolescents presenting in antenatal clinic who met the inclusion criteria over a period of one month.

Design: Cross sectional, descriptive study.

Results: Seventy three percent (73%) of the respondents in the current study suffered from depression, 32% had mild depression, 28% had moderate depression and 13% had severe depression. Only 27% of the respondents had no depression. Depression was significantly correlated with unemployment and being single.

Conclusion: Pregnant adolescents seeking antenatal services at Pumwani maternity Hospital and City council health centers in Nairobi suffer from very high levels of depression that need to be screened and managed. Unemployment and being single were the major factors contributing to the high levels of depression.

CHAPTER 1

1.0: INTRODUCTION

The idea of studying prevalence of depression in adolescent pregnancy from a clinical psychologist's point of view arose from the researcher's desire to pay homage to his mother, who conceived him when she was barely 15 years old.

1.1: Background Information

In recent decades adolescent pregnancy has become an important health issue in a great number of countries, both developed and developing. However, pregnancy in adolescence is by no means a new phenomenon. In these recent decades, declining age at menarche and increased schooling have prolonged the period of adolescence. Together with growing independence from parents and families, this has led in recent decades to more premarital sexual relations and increasing numbers of adolescent pregnancies (1).

A number of consequences are associated with adolescent pregnancy and early transition to parenthood. These are: an increased risk of antenatal complications, mortality and failure to complete school, socio-economic disadvantage and dependence on family, marital difficulties, maternal depression and less competent parenting (2).

This study was undertaken to determine the prevalence of depression among pregnant adolescents and the social demographic variables associated with depression in the above group.

It is expected that the results of this study will provide more information on this problem as well as suggest ways of helping this vulnerable population.

1.2 Defining adolescence

Adolescence is the period of transition between childhood and adulthood. The transition involves biological, cognitive and socio-emotional changes. The key task of adolescence is preparation for adulthood (3). There are no clearly defined age limits in the phases of this transition. Kendall (4) divided this transition into puberty, early adolescence and late adolescence.

Puberty

This period commences from 10 years up to 12 years of age. This phase marked by physiological maturation, but the child is still psychologically immature and still emotionally dependent on the family.

Early adolescence

This phase extends from 12 years to age 15, during which there is internal and physical maturation. Psychologically, the adolescents are capable of abstract thinking, and emotionally they are less dependent on the family with more need to separate themselves from the family.

Late adolescence

This phase covers young people between 15 to 18 years of age who are physically and cognitively mature. They seek emancipation and society tends to permit them more freedom.

In Kenya, cultural phenomena play a major role in defining adolescence. In the recent times churches have started to involve themselves with adolescents in areas of rites of passage by offering education, addressing such subjects as HIV/AIDS, drugs, and alternative rites of passage for girls and follow up sessions to monitor how the adolescents are faring on.

In some instances transition from childhood to adulthood may be so smooth that it goes unnoticed; whereas in some societies, transition from childhood to adulthood involves passage rites marked with traditional ceremonies such as killing a lion, circumcision and tattooing. These are also called initiation rites. Once the rites are over, the young person attains full adult status and assumes the role of an adult in society.

From the foregoing, adolescence begins with the onset of physiologically normal puberty and ends when an adult identity and behavior are accepted. This period of development corresponds roughly to the period between the ages of 10 and 19 years which is consistent with the World Health Organization's age -span of adolescence.

Braverman (5), has observed that those responsible for providing healthcare for adolescents, must allow sufficient flexibility in the age span to encompass special situations such as emancipated minor or the young person with a chronic condition leading to delayed development or prolonged dependency. In this study the terms adolescents and teenagers will be used interchangeably.

1.3: Problem statement

More than 14 million adolescent girls give birth each year. Although these births occur in all societies, 12.8 million, more than 90%, are in developing countries (6).

Teenage pregnancy and motherhood is usually a crisis for the pregnant. Most adolescents are unprepared for their roles and become frustrated by the constant demands of caretaking which lead to depression. Approximately 85% of pregnant women develop a relatively mild, self-limited mood disturbance called "baby blues" during gestation; at least 10% of pregnant adolescents develop a full depressive disorder (7).

Depression during pregnancy can raise the risk of delivering an underweight baby and a premature infant. Some adolescents with depression have difficulty caring for themselves during pregnancy. They may have trouble eating and will not gain enough weight during the pregnancy. They may have trouble sleeping, may miss antenatal visits and not follow medical instructions, may abuse harmful substances.

Untreated maternal depression is associated with small infant size in relation to gestational age, postpartum depression and maternal suicide. Given the above consequences, it is important to differentiate between the normal emotional disequilibrium associated with maturation and the more pathological mood state of depression among pregnant adolescents (8). It is important, therefore, to determine prevalence of depression among pregnant teenagers in Kenya.

1.4: Scope

This study focused on prevalence of depression among pregnant adolescents attending Pumwani Maternity Hospital antenatal clinic and City Council health centers in Nairobi over a period of one month.

Evidence for a link between the quality of the parent-child relationship and depression comes from a variety of sources: retrospective accounts of depressed adults, examination of the family functioning of depressed children, adolescents and studies of the role functioning of depressed women. These diverse studies have yielded largely convergent findings, suggesting that parenting in families with either a depressed child or a depressed parent is characterized by parental rejection, inattention, hostility, high criticism and lack of affection and involvement (8).

CHAPTER 2

2.0: LITERATURE REVIEW

Mental health is an important aspect of primary care, particularly for women of child bearing age who are at great risk of developing certain mood and anxiety disorders (9).

There is scarcity of research in this area in Kenya. The literature review focused on the following:

(i) Prevalence of depression in adolescent pregnancy
(ii) Prevalence of adolescent pregnancy
(iii) Social demographic variables associated with adolescent pregnancy.

2.1: Epidemiology of depression in teenage pregnancy

Adolescent pregnancy is a complex problem that affects the complete family system and represents a time of stress (10). This observation is supported by a number of studies from different parts of the world. A study in the USA found that 70% of pregnant adolescents reported depressive symptoms. In New Zealand, the prevalence of depression among pregnant adolescents was reported to be between 16% and 44%; which is almost twice as high as among adult pregnant women and non-pregnant adolescents. A study done in Pakistan established that 72% of adolescents who were physically abused during pregnancy were depressed. A prospective study of 500 pregnant adolescents in the UK found that 37% experienced depression during pregnancy (11).

The second and third trimesters are marked by increased bodily discomfort, compromised sleep, and fatigue. In addition, mood swings, anxiety about labor and delivery, fears about being an inadequate mother and having an abnormal baby predominate. Moreover, maternal introspection and nesting behavior increase as the mother prepares herself for a nurturing relationship with her infant (12).

Depressive symptoms increase in severity between the second and third trimester. A study on teenage pregnancy and use of drugs in the third trimester and prevalence of psychiatric disorders, found that prevalence of depression in the population studied (120) was (27.6%) (12).

This compared unfavorably with other similar studies in Sweden on pregnant adolescents, which indicated that depression in pregnant teenagers was 14.1%, and 10.2% in non-pregnant teenagers (13).

In Kenya, (14), in a study on psychiatric morbidity among 212 pregnant adolescents attending antenatal clinic at Pumwani Maternity Hospital found that 13.2% suffered from psychiatric morbidity (PM). Among the morbidity cases, the pattern of mental illness detected according to the International classification of diseases ICD10 (1992) criteria, 82.15% of the respondents suffered from depressive illnesses.

2.2 Epidemiology of adolescent pregnancy

Adolescent pregnancy occurs in all societies but the levels of teenage pregnancy and childbearing vary across countries (17). Statistics comparing the incidence of adolescent pregnancy between countries often give rates per 1000 adolescents aged 15–19 years. The WHO regional incidence in 2004 is indicated below.

In Sub-Saharan Africa, the regional average rate of births per 1000 females 15-19 years of age is 143, varying from 45 in Mauritius to 229 in Guinea. This is very high compared to the world average of 65. In some Sub-Saharan African countries, one in five adolescent females give birth each year, so almost all females are likely to have had a child by age 20.

In Middle East and North Africa, the regional average rate is 56, varying from 18 in Tunisia to 122 in Oman.

In Central Asia, the regional average rate is 59 varying from 19 in Azerbaijan to 152 in Afghanistan.

In East/South Asia and Pacific, the average is 56; varying from 4 in Japan to 115 in Bangladesh.

In South Asia the early marriage of adolescents is common; and 25%-35% of adolescent girls in Pakistan, Bangladesh, India and Nepal begin childbearing as early as 17 years. The regional average rate is 25 in Europe, varying from 4 in Switzerland to 57 in Bulgaria.

In North America pregnancy rates and birth rates among adolescents are among the highest in the developed countries.

The incidence of adolescent pregnancy and birth is widely divergent. The highest birth rates occur in Sub-Saharan Africa, and in some countries in South Asia and Latin America. Intermediate figures are found in the Middle East, North Africa, USA and Eastern Europe.

In developed countries the highest incidences of adolescent pregnancies, abortions and births are recorded in the USA, with a tendency to decrease in recent years. Somewhat lower figures are obtained in Canada, Australia and the United Kingdom. Other countries in Western and Northern Europe, such as the Scandinavian countries and the Netherlands, have low pregnancy and birth rates. The lowest rates are found in the Scandinavian countries, Switzerland, the Netherlands, Japan, Korea and China (1).

The incidence of adolescent pregnancy captured in the above statistics does not include the numbers of pregnant adolescents below 15 years. The figures indicated could be higher.

According to demographic health survey of 2003 adolescent fertility in Kenya occupies a prime place in the design and implementation of reproductive health strategies, policies, and programs. In an attempt to address the reproductive health needs and to reduce fertility of this special group, the government, through the Ministry of Health and the National Council for Population and Development, has recently put in place an Adolescent Reproductive Health Policy, to help meet the needs of this group.

Generally, teenage fertility has edged slightly upward, with the proportion that have begun childbearing rising from 21 percent in 1998 to 23 percent in 2003. The proportion of teenage mothers rose from 17 percent in 1998 to 19 percent in 2003, while the proportion of those pregnant with their first child rose as well, from 4 percent in 1998 to 5 percent in 2003 (18).

2.3 Social demographic variables associated with adolescent pregnancy

There are several predictors of sexual intercourse during the early adolescent years, these include; early pubertal development, a history of sexual abuse, poverty, lack of attentive and nurturing parents, cultural and family patterns of early sexual experience, lack of schooling or career goals, social deprivation, substance abuse and poor school performance or dropping out of school (19).

Absence of the father

Absence of fathers in the early years of the girls' life is particularly associated with adolescent pregnancy. Studies have found that girls whose fathers left the family earlier in their lives had the highest rates of early sexual activity and adolescent pregnancy. Girls whose fathers left them at a later age had a lower rate, with lowest rates found in girls whose fathers were present throughout their childhood. Even when the researchers took into account, other factors that could have contributed to early sexual activity and pregnancy, such as behavioral problems and life adversity, early father-absent girls were still about five times more likely in the United States and three times more likely in New Zealand to experience an adolescent pregnancy than were father-present girls (20).

Family and cultural patterns

There are family and cultural patterns that contribute to early sexual experience. In some societies, early marriage and traditional gender roles are important factors in the rate of teenage pregnancy. For example, in Sub-Saharan Africa, early pregnancy is often seen as a blessing because it is proof of the young woman's fertility. In the Indian subcontinent, early marriage and pregnancy is more common in traditional rural communities compared to the rate in cities (8).

Social deprivation

Social deprivation is highly correlated with teenage pregnancy. In California, the proportion of families living below poverty level within a given zip-code area was highly related to the birth rate among young adolescents (21).

In the United Kingdom, Sloggett (22), investigated the association between the level of social deprivation in electoral wards in England and Wales, and various life events. He concluded that adolescent birth showed a clear, significant and approximately linear association with social deprivation of ward of residence.

In Australia (Queensland) birth rates to adolescents who live in disadvantaged areas are two to four times higher than the rates for all of Queensland and 10 to 20 times higher than the rates in affluent areas (23).

Following an investigation, of women's sexual and reproductive behavior in five developed countries (Canada, France, Sweden, the United Kingdom and the USA). The author concluded that comparatively widespread disadvantages in the USA helped to explain why US adolescents have higher pregnancy and birth rates than those in other developed countries (24). As a general rule, poverty leads to increased childbearing among adolescents too, because the greater the disadvantage within a population, the less difference adolescent childbearing makes in determining long-term success. Poor people have few opportunities and reasons to avoid or delay childbearing and simply see no reason not to get pregnant (25, 26, and 27).

Education and urbanization

The effect of education in the development of modern adolescence has made the adolescent less dependent upon parents and family, and has postponed the age at marriage, and thereby the age of socially sanctioned sexual relations.

In the context of social background and determinants of adolescent pregnancies, another aspect of improved education is that the overall level of childbearing (i.e. not just among adolescents) is usually lower in better-educated women (compared to the less-educated); and in urban areas (compared with rural areas). Greater modernization such as living in an urban area or having a higher level of education is associated with lower levels of adolescent childbearing, all other factors being equal. For individuals and families, modernization means that an early start to childbearing (and a large family) is less desirable (28).

Adolescent sexual behavior

A comparison made of adolescent sexual behavior and contraceptive use in five countries (Canada, France, Sweden, the United Kingdom, and the USA). The proportion of adolescents who did not use any method of contraception during their first intercourse was 25% in the USA, 21–22% in the United Kingdom and Sweden and 11% in France. The condom was the method most likely to be used at first intercourse. The proportion of sexually active adolescents who were not at the time of the interview using any method of contraception was high (20%) in the USA, intermediate (12%) in France and lowest (4–7%) in Sweden and the United Kingdom.

The proportion of currently sexually active female adolescents using hormonal methods of contraception or an IUD was 52% in the USA, 56% in Sweden, 72% in the United Kingdom, and 73% in Canada. In 23%–33% of the women, condoms were the only method used. More women were using condoms in addition to a hormonal method.

The use of modern methods of contraception with the lowest failure rates (pill, injectable, implants and IUD) is lower in the USA than in the other countries. These differences are consistent with national differences in pregnancy rates and appear to be the likely cause of higher pregnancy rates in the USA (24).

According to World Health Organization, (2004) study on adolescent pregnancy issues on health and development, there was a lack of contraceptive knowledge among adolescents, and ambivalent feelings about pregnancy and contraception (girls want to prove their fertility, but do not want a child). Society too gives conflicting messages: according to rural tradition, prenuptial virginity is highly valued, but on the other hand the adolescents are surrounded by a modern reverence for material wealth, which is attained most easily by entering into a sexual relationship with an older, wealthy man. Finally, adolescents are usually involved with older and experienced partners, which make it difficult to demand the use of contraceptives. They have too little self-esteem to oppose the partner who does not support the idea of contraception (1).

Early childhood sexual abuse

Multiple studies have indicated a strong link between early childhood sexual abuse and subsequent teenage pregnancy in industrialized countries. Up to 70% of women who gave birth in their teens were molested as little girls, in contrast to the average of 25% for women who did not (1).

Age at marriage

In a number of countries age at marriage is an important factor determining the age at which the first pregnancy occurs. Marriage generally occurs earlier in developing than in developed regions. The age at which 50% of adolescents are married (median age at marriage) ranges from about 16 years in South Asia, 17

years in Sub- Saharan Africa, 18 years in Western Asia and 19 years in North Africa to above 20 years in Latin America. Countries with the earliest median age at marriage are Bangladesh (14.1years), Niger (15.1 years), Yemen (15.8 years), India (16.1 years) and Senegal (16.4 years).

In the Arab world, patterns of early and near universal marriage prevail. Marriage often translates into immediate childbearing as women and their families are anxious to prove the fecundity of the newly weds (29). In India, although the legal age at marriage is 18 years for females and 21 years for males, early marriage continues to be the norm (by age 15 as many as 26% of females are married).

By the age of 18, this figure rises to 54%. Most reproduction in India occurs within marriage, so the low age at marriage automatically links to early onset of sexual activity, and thereby fertility (1).

Biological factors

Biological factors such as the timing of menarche have also been linked with teenage pregnancy risk (29). In addition to this it has been argued that the timing of sexual development may place early maturing adolescents at higher risk of forming opposite sex relationships and becoming sexually active (30).

Infection by HIV and other sexually transmitted diseases (STDS)

In particular, the fact that older and experienced men seek sexual relations with adolescents without using contraceptives leads to the dissemination of these diseases. In countries with a high prevalence of HIV some men even purposely have sex with adolescents in a misconceived attempt to avoid becoming infected with HIV. In South Africa, one in five pregnant adolescents is infected with the virus (29).

Unprotected sexual intercourse is the risk behavior common to both unintended pregnancy and HIV infection. Under these circumstances adolescents at the beginning of their reproductive lives are at highest risk of HIV infection and relatively often a pregnancy in an adolescent will be combined with a recent infection and high viral load (31).

Based on the foregoing it is clearly evident that adolescent pregnancy is a multi-factorial problem with individual, psychosocial and socio-cultural factors.

2.4 Justification

In Kenya there is scarcity of data on experiences of depression among pregnant adolescents. This study sought to determine the prevalence of depression among pregnant adolescents attending Pumwani maternity hospital and city council health centers in Nairobi Province.

Depression is a serious handicap with profound negative impact on the overall care and management of adolescent pregnancy. Identification of depression among pregnant adolescents will enable institution of remedial medical and psychological measures.

2.5 Objectives

Main objective

1) To determine the prevalence of depression among pregnant adolescents.

Specific objectives

2) To determine the association between depression and social demographic variables in the above group.

3) To compare the rates of depression in the above group with those found in other studies.

CHAPTER 3: METHODOLOGY

3.1 Setting of the study

The study was carried out at Pumwani Maternity Hospital and City Council health centers in Nairobi. Pumwani Maternity Hospital was built during the colonial rule in 1926 for the purpose of rendering service to Africans. It was then known as Lady Grigg Hospital, Pumwani. The qualifier, Pumwani, differentiated it from Ngara Lady Grigg Hospital, which served the Asian community and had a wing for Europeans.

Records show that the first group of student nurses were admitted in 1934 for training in midwifery, using Kiswahili as the medium of communication. The Hospital has since undergone many changes and now caters for the Nairobi Province and its environs.

The choice of Pumwani Maternity Hospital as a study area was advantageous for the following reasons:

There is daily antenatal clinic except on weekends and the attendance is high. It is the only Public Maternity Hospital under the City Council of Nairobi and it serves as a Referral Hospital for other City Council run Health Centers.

3.2 Research design

This was a cross sectional descriptive study.

3.3 Study population

The population comprised of adolescents antenatal clinic attendees of Pumwani Maternity Hospital and City Council health centers in Nairobi.

3.4 Sample Size

The sample size for this study was estimated using the following sample formula for a one-sample situation (32, 33).

$$n = \frac{\left(Z_1 - \frac{\alpha}{2}\right)^2 P(1-P)}{d^2},$$

where

n =minimum sample size

$Z_1 - \frac{\alpha}{2}$ at 95% confidence interval

P = estimated prevalence from other studies

D = margin of precision error 0.05).

Prevalence of depression P from other studies is 16-44%.

Therefore, the sample size n is given as

$$n = \frac{1.96^2 \times 0.16 \times (1-0.16)}{0.05^2} = 206.52$$

Thus, the sample size was 219.

Inclusion /exclusion criteria

1) The inclusion criteria

a) Antenatal clinic attendees who consent to the study.

b) Antenatal clinic attendees between 18 and 20 years.

2) The exclusion criteria

a) Antenatal clinic attendees unwilling to give consent.

b) Antenatal clinic attendees below 18 years.

c) Antenatal clinic attendees who were physically too ill or those on treatments for depression.

3.6 Study population

Pumwani Maternity Hospital and other City Council health centers antenatal clinic attendees in Nairobi.

3.7 Sampling method

The patients were recruited consecutively.

3.8 Hypotheses

Null hypothesis:

Depression is not common in pregnant adolescents presenting at Pumwani Maternity Hospital Antenatal Clinic and other City Council health centers in Nairobi.

.Alternative hypothesis:

Depression is common in pregnant adolescents visiting Pumwani Maternity Hospital Antenatal Clinic and other City Council health centers in Nairobi.

3.9 Instruments

Two instruments were used:

1) General social demographic instrument

2) Beck depression inventory

3.9.1 General socio-demographic instrument

All the participants were subjected to a general socio-demographic questionnaire (appendix 1). They also answered questions on Beck's Depression Inventory (appendix 2).

The general social demographic questionnaire was used to gather socio-demographic data e.g. age, education level, marital status, gestation of pregnancy, religious affiliation, employment status and acceptance of pregnancy and approval of premarital sex.

3.9.2 Beck Depression Inventory (BDI)

The original BDI, first published in 1961 was created by Dr. Aaron T. Beck in 1961 and later revised in 1971. The contents of BDI were obtained by consensus from clinical settings regarding symptoms of depressed patients (34). The revised BDI items are with 6 of the nine DSM-III categories for the diagnosis of depression (35). These earlier versions consist of 21 questions about how the subject was feeling in the last week. Internal consistency is good with a Cronbach's alpha co-efficient, of around 0.85 (36). It is also positively correlated with the Hamilton Depression Scale with a Pearson ratio of 0.71. The test was also found to have high one week test-retest reliability with a Pearson value of 0.93 (37). The BDI is a self administered self report which takes approximately 10 minutes to complete with demonstrated consistent properties over time and situation over and above what has already been said. Internal consistency for the BDI ranges from 0.73 to 0.92 with a mean of 0.86

(34). The BDI demonstrates high internal consistency, with alpha coefficients of 0.86 and 0.81 for psychiatric and non-psychiatric population respectively (38). A meta-analysis of studies on the revised BDI'S psychometric properties report advantages with the revised BDI'S high contents validity in differentiating between depressed and non-depressed people, reported that the revised BDI has been found to include 3-7 factors, depending on the method of factors extraction. These include factors that reflect negative attitudes towards self, performance impairment and somatic disturbances, as well as general factor of depression (39). Correlations with clinician ratings, of depression using the revised BDI range from 0.62 to 0.66 (40).

Clinical ratings for psychiatric patients are reported as being high to moderate ranging from 0.55 to 0.96 Means = 0.72. Groth-Marnat (1990), reported moderate correlations between the revised BDI and other scales measuring depression such as the Hamilton Psychiatric rating Scale for depression (.073) and the Zung Self Reported Depression Scales (.76) However, some short comings of BDI on construct validity have been reported by Groth-Marnat (1990), who reported that controversy, exists over whether the revised BDI is measuring state or trait variables. In 1996, the BDI was revised to what is referred to as BDI-II. The 1996 version of BDI was created to fall in line with the DSM-1V criteria for depression. Like the original BDI, the BDI-11 contains 21 questions; each answer being scored on a scale value of 0-3. BDI-II version will be used in this study.

3.9.3 BDI Interpretation

Add up the score for each of the 21 questions and obtain the total scores. The highest score for each of the 21 questions is 3; the highest possible total for the whole test is 63. The lowest possible score for the whole test is zero.

3.9.4 Ethical consideration

The research process began by obtaining approval from the Department of Psychiatry, University of Nairobi and application of research permit form the Kenyatta National Hospital Research and Ethics committee as well as the Ministry of Science and Technology.

The procedures and objectives of the study were explained to Pumwani Maternity Hospital, other study sites, the guardians, who accompany the patients to the clinic, the patients and the Heads of the Health Centers. Explanation to the Heads of the Health Centers will facilitate their participation, like requesting the patients to go to the waiting room from where the researcher explained to them everything concerning the research and requested their informed consent.

Details of the ethical considerations namely: assent explanation, consent explanation, confidentiality, personal and general benefits, risk and right not to participate and right to withdraw anytime were explained to the patients.

The heads of the health centers were given explanations concerning the above ethical issues in order to assure them that the interests of the patients were taken care of.

3.9.5 Data collection procedure

The participants completed the questionnaires in the waiting room. Their queries were responded to appropriately and those who needed help in filling the questionnaires were helped promptly. After answering the questions the researcher thanked each participant for taking part in the study.

At the end of each day of data collection, the completed questionnaires were put in a tamper proof box. Only the researcher opened the box.

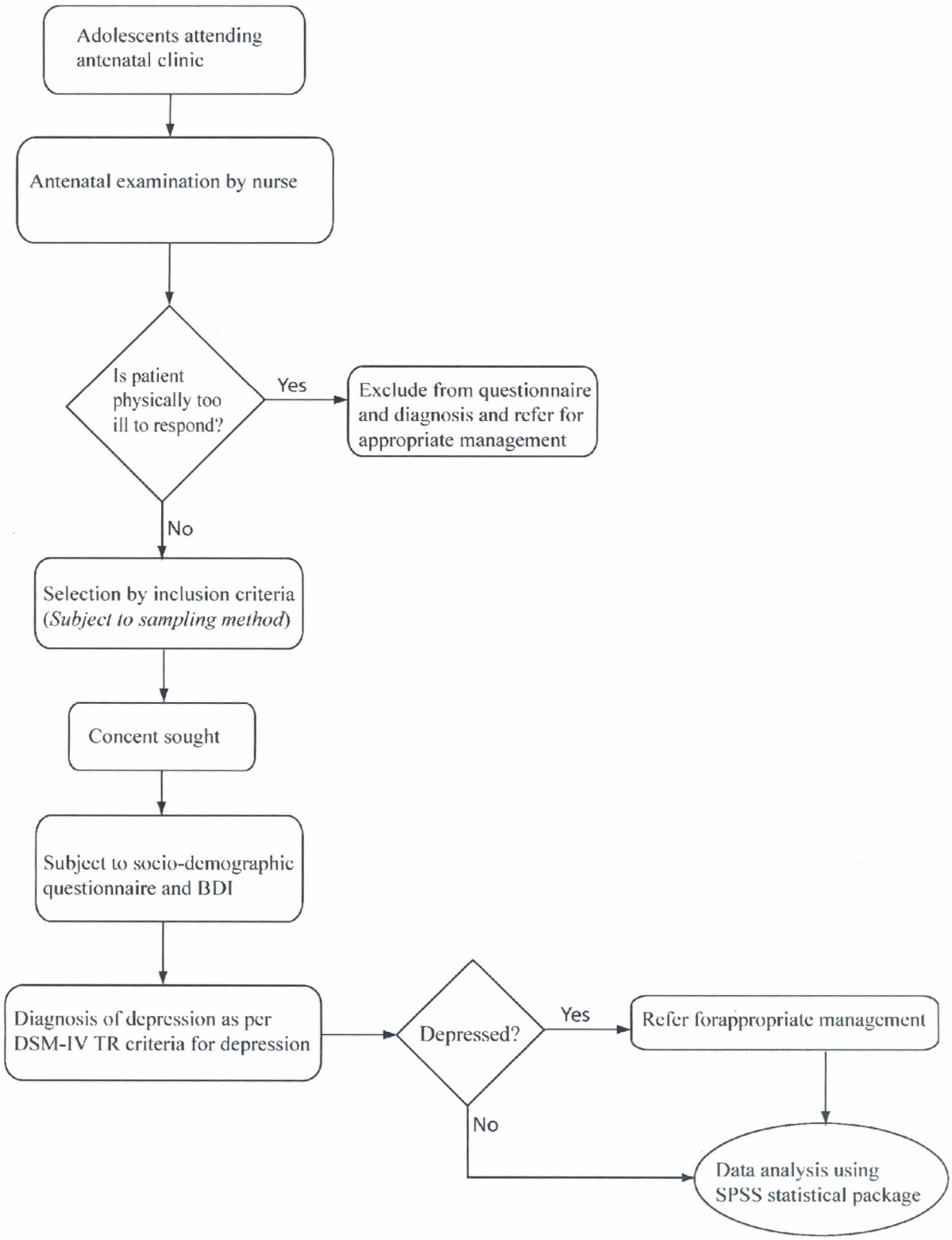


Fig. 3.1 Recruitment flow chart

3.9.6 Data analysis

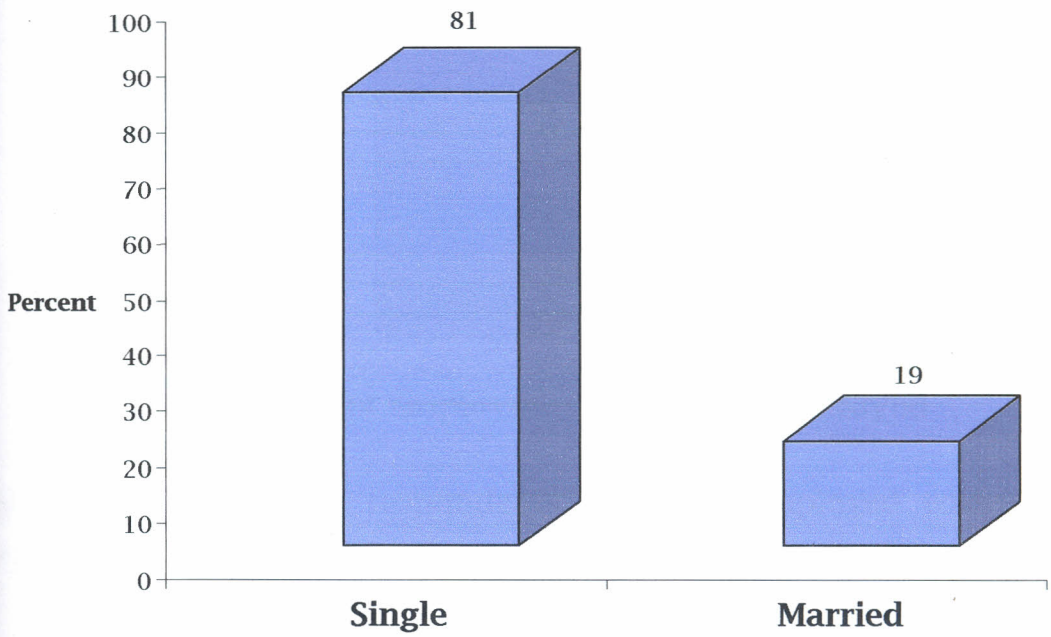
The statistical package for social sciences (SPSS) version 13 for windows was used to analyze the data by applying descriptive and inferential statistics. The results were presented in narratives, tables, bar charts and pie charts

CHAPTER 4: RESULTS

A total of 219 pregnant adolescents were interviewed for the study.

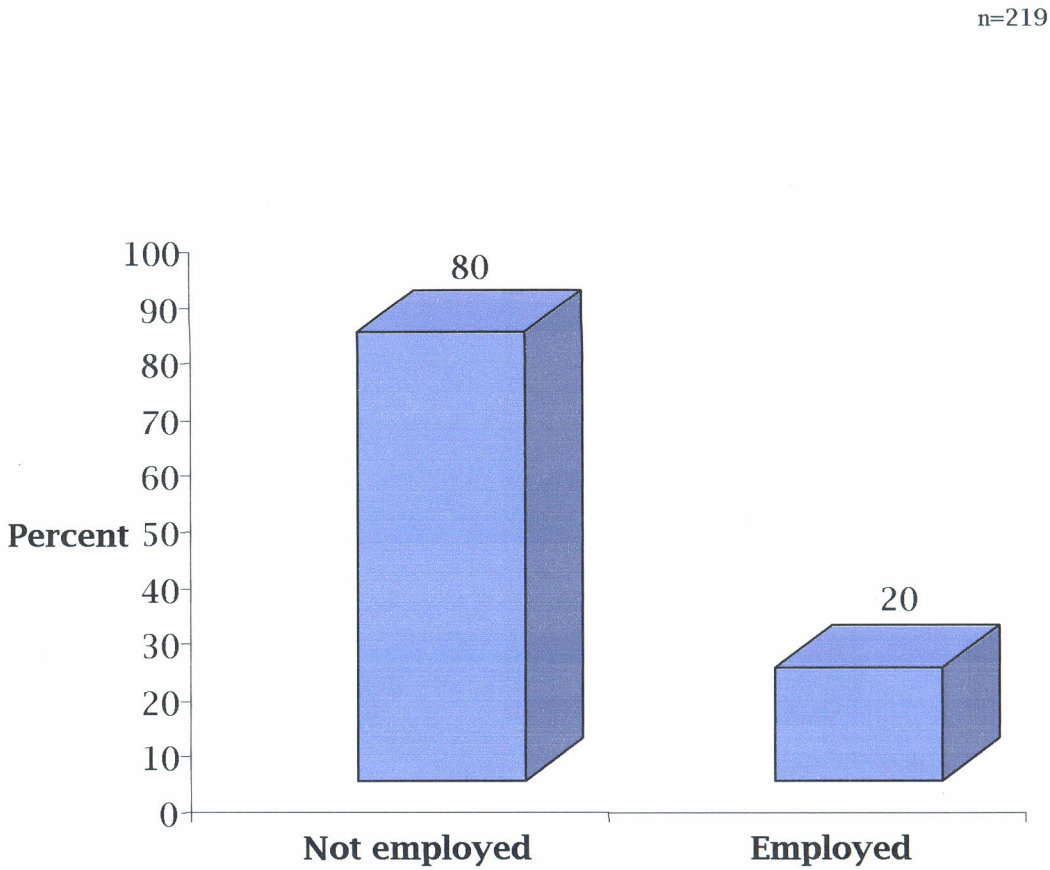
Figure 1: Distribution of respondents according to marital status

n=219



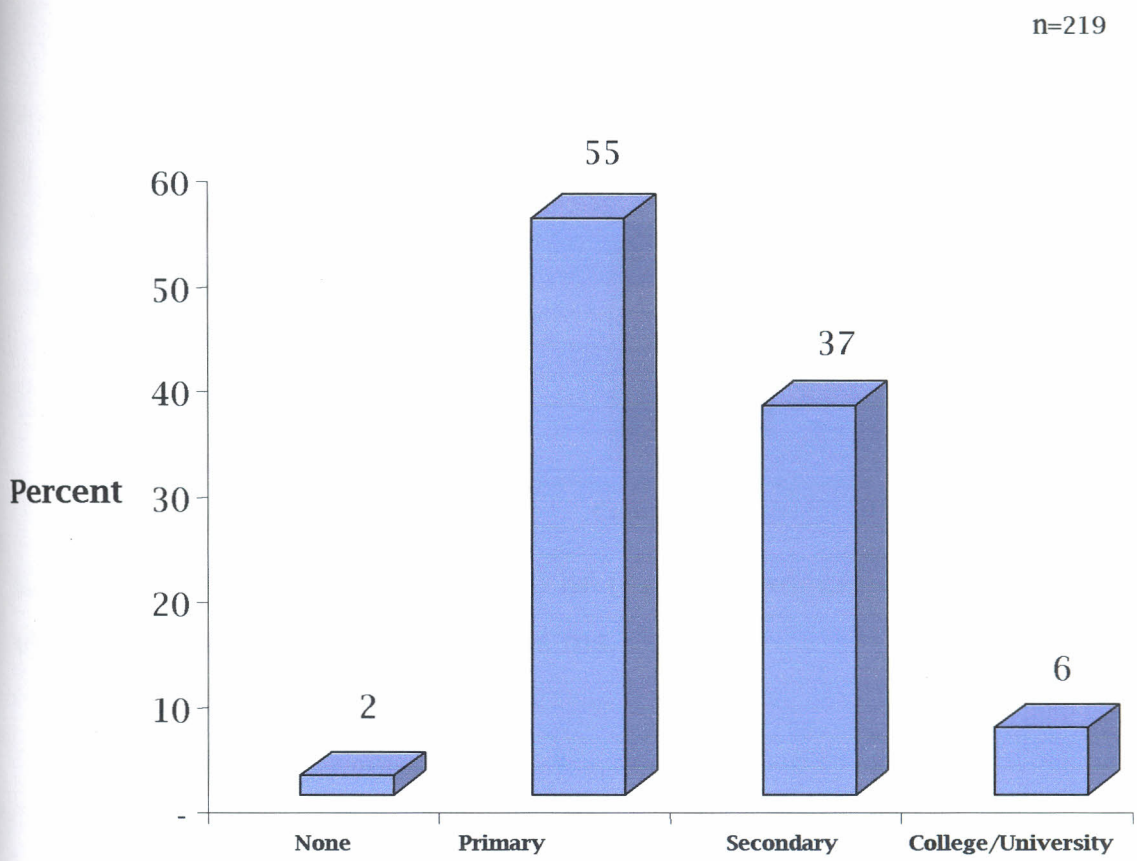
Single adolescents were the majority (81%) and (19%) were married.

Figure 2: Distribution of respondents according to employment status



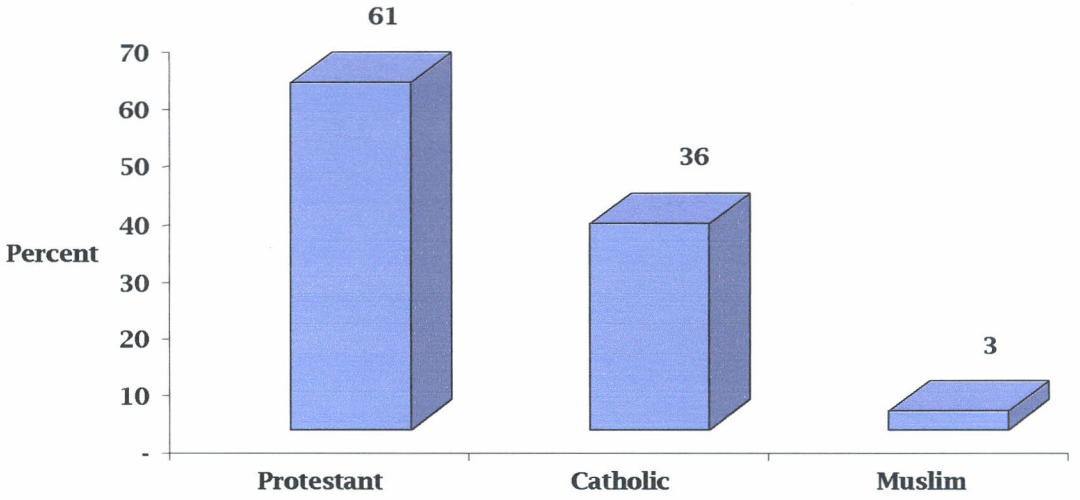
Majority (80%) of the respondents were not employed whereas (20%) were employed.

Figure 3: Distribution of respondents according to education level



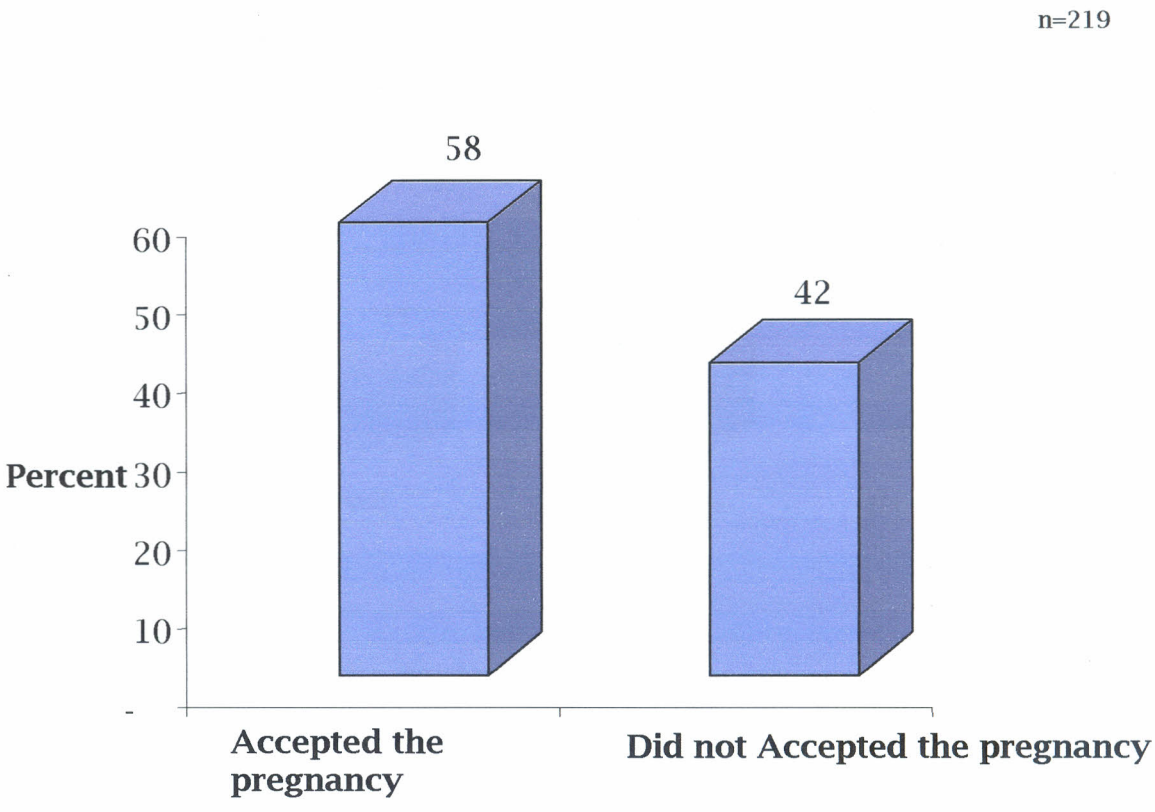
When categorized by level of education, (55%) had primary school level of education, (37%) secondary school level of education, (6%) college level of education and (2%) had none.

Figure 4: Distribution of respondents according to religious affiliation



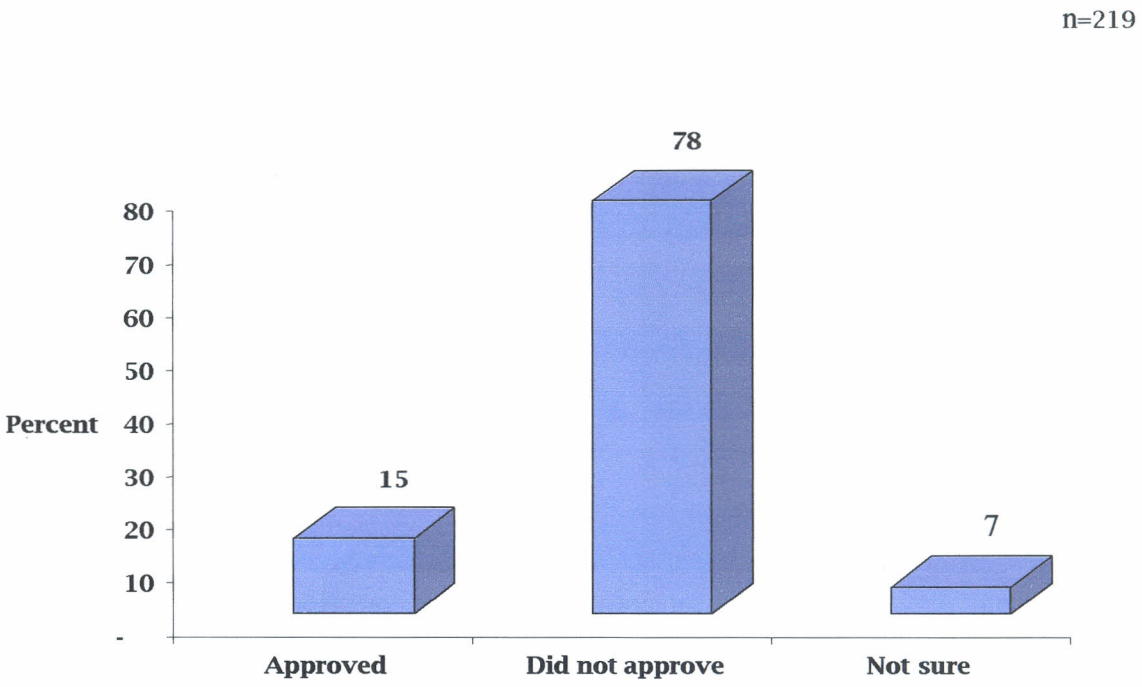
Significantly more than half (61%) of the respondents were Protestants, (36 %) were Catholics and (3 %) were Muslims.

Figure 5: Distribution of respondents according to acceptance of pregnancy



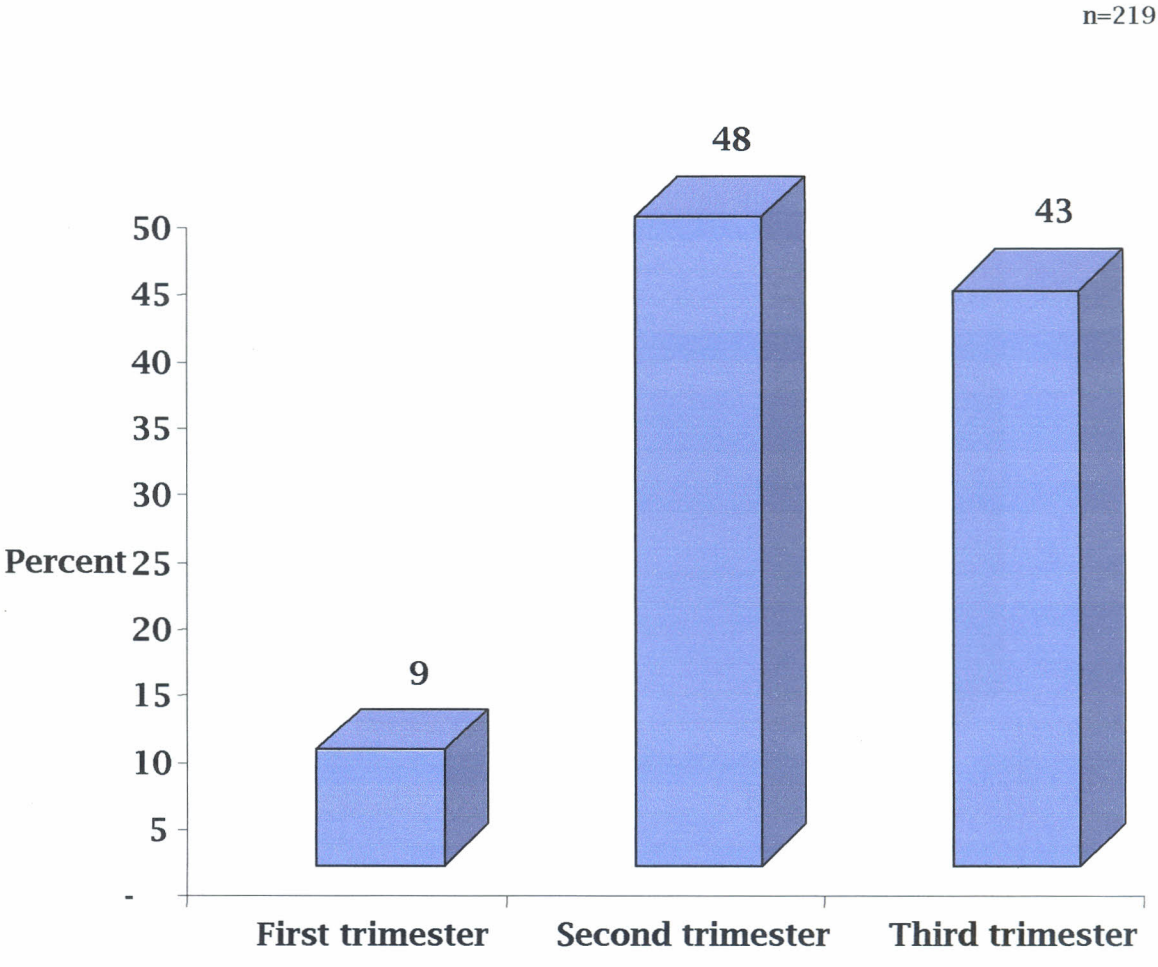
When categorized by whether the pregnancy was wanted (58%) wanted the pregnancy and (42%) did not.

Figure 6: Distribution of respondents according to approval of premarital sex



Significantly (78%) of the respondents did not approve premarital sex, (15%) approved premarital sex and (7%) were not sure.

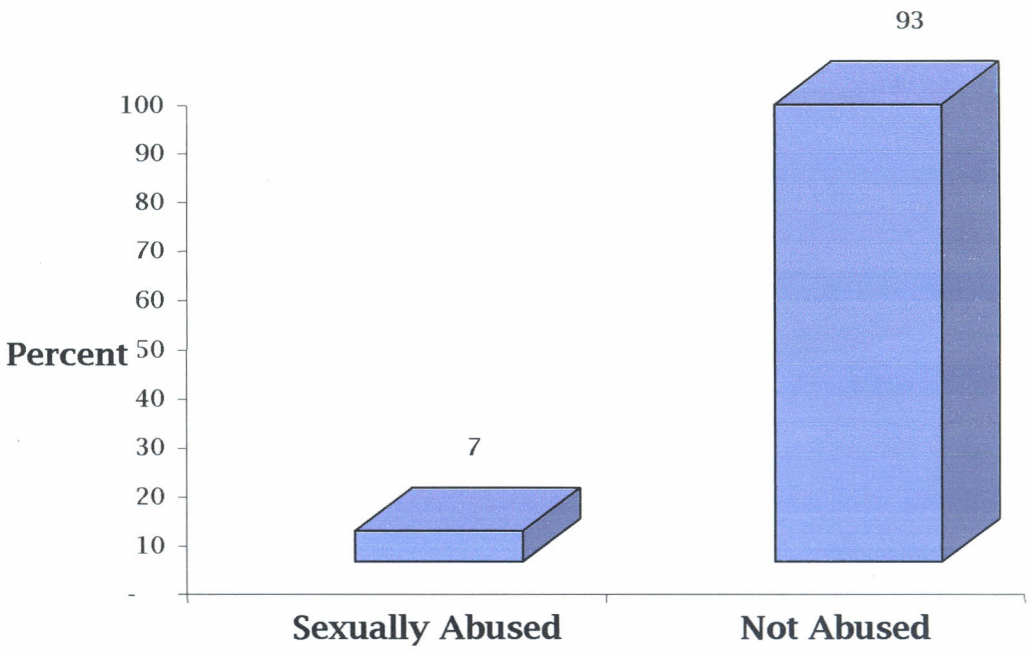
Figure 7: Distribution of respondents according to gestation of pregnancy



Almost half (48%) of the respondents were in the second trimester of the pregnancy, (43%) in the third trimester and (9%) in the first trimester.

Figure 8: Distribution of respondents according to childhood sexual abuse

n=219



Majority (93%) of the respondents were not sexually abused as children whereas (7%) were sexually abused in their childhood.

Figure 9: A Pie Chart showing Levels of Depression according to BDI

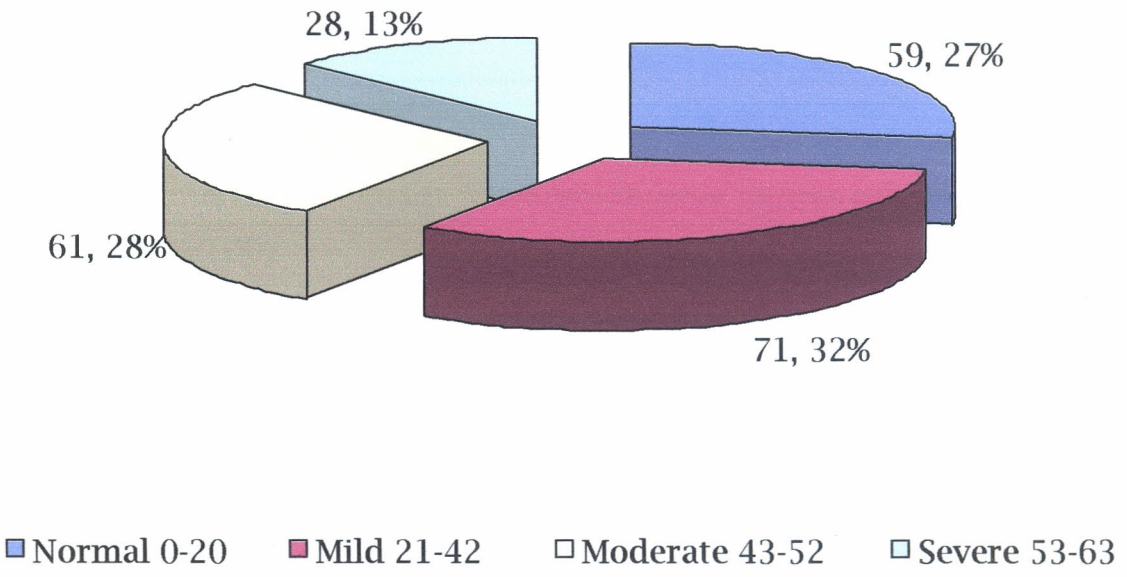


Table 1: Depression by marital status

Marital status	Beck Depression Inventory Score		
	Not depressed	Depressed	Total
Married	18	24	42
	43%	57%	100%
Single	40	137	177
	23%	77%	100%

There was a strong significant correlation between depression and marital status. More married pregnant adolescents were depressed compared with the unmarried (p==0.00).

Table 2: Depression levels by marital status

Marital status	Normal	Mild	Moderate	Severe
Married	8	18	9	7
	19%	43%	21%	17%
Single	62	41	52	22
	35%	23%	29%	12%
Total	70	59	61	28
	27%	32%	28%	13%

Seventeen percent 17% of the married respondents suffered from severe depression compared with 12%among the single respondents. On the moderate level, 29% of single respondents suffered from depression compared with 21% from the married respondents.

Table 3: Depression by employment status

Employment status	Beck Depression Inventory Score		Total
	Not depressed	Depressed	
Employed	22	22	44
	50%	50%	100%
Not employed	37	138	175
	21%	79%	100%

There was a significant correlation between employment status and depression. More unemployed pregnant adolescents were depressed (p=0.00).

Table 4: Depression levels by employment status

Employment status	Normal	Mild	Moderate	Severe
Employed	12	22	7	3
	27%	50%	16%	7%
Unemployed	59	37	54	25
	34%	21%	31%	14%
Total	71	59	61	28
	32%	27%	28%	13%

Fourteen percent (14%) of the unemployed respondents suffered from severe depression compared with 7% in the employed category. On the moderate level, 31% of the unemployed respondents had depression compared with 16% from the employed respondents.

Table 5: Depression by level of education

Level of education	Beck Depression Inventory Score		Total
	Not depressed	Depressed	
None	1	4	5
	20%	80%	100%
Primary	28	92	120
	23%	77%	100%
Secondary	26	55	81
	32%	68%	100%
College/University	3	10	13
	23%	77%	100%

There was no significant correlation between depression and the level of education (p=0.59).

Table 6: Depression by religious affiliation

Religious affiliation	Beck Depression Inventory Score		Total
	Not depressed	Depressed	
Protestant	36	98	134
	27%	73%	100%
Catholic	22	57	79
	28%	72%	100%
Muslim	2	4	6
	33%	67%	100%

There was no significant correlation between depression and religion (p=0.96).

Table 7: Depression by acceptance of pregnancy

Acceptance of pregnancy	Beck Depression Inventory Score		Total
	Not depressed	Depressed	
Acceptance of pregnancy	35	92	127
	27%	73%	100%
Did not want the pregnancy	26	64	92
	30%	73%	100%

There was no significant correlation between depression and acceptance of pregnancy (p=0.929).

Table 8: Depression by approval of premarital sex

Approval of premarital sex	Beck Depression Inventory Score		Total
	Not depressed	Depressed	
Approved	15	18	33
	45%	55%	100%
Did not approve	44	127	171
	26%	74%	100%
Not sure	5	10	15
	33%	67%	100%

There was no significant correlation between depression and approval of premarital sex (p=0.058). More pregnant adolescents who did not approve premarital sex were depressed.

Table 9: Depression by gestation of pregnancy

Gestation of pregnancy	Beck Depression Inventory Score		Total
	Not depressed	Depressed	
First trimester	6	13	19
	31%	69%	100%
Second trimester	28	78	106
	26%	74%	100%
Third trimester	25	69	94
	27%	73%	100%

There was no significant correlation between depression and gestation of pregnancy (p=0.89).

Table 10: Depression by childhood sexual abuse

Childhood sexual abuse	Beck Depression Inventory Score		Total
	Not depressed	Depressed	
Sexually abused	3	12	15
	20%	80%	100%
Not abused	56	148	204
	27%	73%	100%
Total	**59**	**160**	**219**

There was no significant correlation between depression and childhood sexual abuse (p=0.615).

One-Sample Test

	Test Value = 1 (Normal)					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Depression codes	18.311	260	.000	1.134	1.01	1.26

On a scale of 1 to 4 where 1 is normal, 2 is mild, 3 moderate and 4 severe, it is assumed that the respondents will score 1 (normal). A t-test was used to measure variation against 1 and the above results obtained where the p-value=0.00 which shows statistically significant variation.

Null

There is no depression among pregnant adolescents presenting at Pumwani Maternity Hospital and other City Council Health Centres in Nairobi. (Reject)

Alternative

There is depression among pregnant adolescents presenting at Pumwani Maternity Hospital and other City Council Health Centres in Nairobi. (Accept)

CHAPTER 5: DISCUSSION

World Health Organization reports that depression is the fourth leading cause of the global burden of disease worldwide (45). Seventy three percent (73%) of the respondents in the current study suffered from depression, 32% had mild depression, 28% had moderate depression and 13% had severe depression. Only 27% of the respondents had no depression.

This study supports the results found in studies conducted in different parts of the world. A study in the USA found out that 70% of pregnant adolescents reported depressive symptoms. A study done in Pakistan established that 72% of adolescents were depressed (11).

These studies show that antenatal adolescent depression is very high in these settings compared with depression levels found elsewhere in the world. In New Zealand the prevalence of depression among pregnant adolescents was reported to be between 16% and 44%; and in a prospective study of 500 pregnant adolescents in the UK, 37% of the respondents experienced depression during pregnancy (11). The levels of depression captured in this study are still very high compared with an estimated 5% at any one time, and a lifetime prevalence of 15-20% among adolescents (50).

The researcher speculates that poverty that leads to lack of basic needs could be the main cause of the high levels of depression in the sample of the current study. Of the 219 respondents, the majority (79%) was unemployed.

Depression was significantly associated with unemployment. Similar studies (47 48, 49) also found that poverty was significantly associated with depressive symptoms.

Depression was significantly correlated with being single. Marcus (46) found that being unmarried was significantly associated with symptoms of depression during pregnancy.

Most respondents (74%) in the second trimester of pregnancy were depressed. In a longitudinal study (7), found that depressive symptoms among pregnant adolescents increased between the second and third trimester.

This increase in severity could be associated with stressors such as conflict with the baby's father, lack of social support, adoption, and concerns about one's ability to care for the infant.

No significant conclusions could be drawn from the cross tabulations of religious affiliation, education level, gestation of pregnancy and childhood sexual abuse because equal numbers from each subgroup could not be obtained in significant proportions.

Surprisingly two percent (2%) of the respondents had no formal education. Seventy eight percent (78%) of the respondents did not approve of pre marital sex yet eighty one percent (81%) became pregnant before marriage. This finding calls into question whether insistence on abstinence from sex before marriage works. Opinions and attitudes do not necessarily translate into action.

CHAPTER 6: CONCLUSIONS/RECOMMENDATIONS/LIMITATIONS

1 Pregnant adolescents seeking antenatal services at Pumwani maternity Hospital and City council health centers in Nairobi suffer from very high levels of depression that needs to be screened and managed.

2 This study concluded that unemployment and being single were the major factors contributing to the high levels of depression.

3 This study underscores the need to involve mental health professionals in antenatal services delivery.

RECOMMENDATIONS

1 There is need to increase awareness across the spectrum of health care professionals who care for pregnant adolescents about the high levels of depression through pastoral counseling, group discussions, life skills counseling and seminars.

2 More extensive studies on factors that contribute to adolescent pregnancy and how it relates with psychiatric morbidity should be conducted. Studies targeting pregnant adolescents in first trimester of pregnancy and below 17 years should also be conducted.

3. Contraceptives should be made available to adolescents in order to curb the increase in adolescent pregnancy.

LIMITATION

The health centres were small and crowded and therefore the researcher was unable to identify a quiet place that would have been ideal for interview.

APPENDICES

Appendix 1: Consent Explanation

Introduction

My name is Muchai John Wamuti of Psychiatry Department, University of Nairobi I am doing a research on prevalence of depression among pregnant adolescents attending City Council dispensaries ante natal clinics. I will also use the information for my Master's Degree Dissertation in Clinical Psychology from the same University. Although I have the permission of the Management to talk to you, I would like to explain what I intend to do so that you can decide for yourself whether to participate or not.

I would like to request your participation in a research to determine the prevalence of depression among pregnant adolescents, to determine the socio-demographic variables associated with depression in the above group and to compare the rates of depression in the above group with those found in other studies. If you agree to participate I will ask you to read and respond appropriately to a list of questions that ask about your personal details and issues to do with how you feel about your pregnancy. This exercise will not take more than fifteen minutes.

Right to withdraw from the study

Your acceptance to participate in this study does not prevent you from withdrawing from the study any time. Your withdrawal will not be penalized in any way, for example you will not be denied the services that you are receiving from this facility or incur the wrath of the researcher. If you do not want to complete the questionnaire seal it and drop it in the tamper proof box.

Personal and General Benefits

If I discover that you have a problem that needs attention I will refer you for appropriate management. On the other hand, if you want to get in touch with me do one or all of the following:

Text me a message on this number 0722 897979 and I will call back or,

Write a letter to me on this address Muchai John Wamuti P.O.Box 21243 Nairobi 00505.

The results of this study could be used to introduce a component of depression management among pregnant adolescents in this dispensary and other health centers in Kenya and beyond.

You will not be paid money to participate or for participating in this study but part or the whole of this study findings can be availed to you on request.

Confidentiality

Your personal details will not appear in the final report therefore nobody will know what you filled in the questionnaires. I will not be able to associate any response in the questionnaire with you because after answering the questions you will fold the questionnaires and slot them in a tamper proof box. There will be very many questionnaires inside that box such that it will not be possible for me to associate you with any of them.

Risk/Discomfort

The only risk from this study may be the uncomfortable feeling you might experience when I ask invasive questions surrounding this pregnancy.

Last but not the least there are no wrong or right answers.

Appendix 2: Consent Form

I....., having been explained the nature of the study and the implications of my participation, by Muchai John Wamuti, P.O.Box 21243, Nairobi 00505, Tel. 0722 897979 do hereby give my consent to participate in the study. By signing this assent form I am once again affirming that I have understood everything contained in the assent explanation.

Name:.....

Signature:.....

Date:.....

Witnessed by:

Name:.....

Signature:.....

Date:.....

Appendix 3: Social Demographic Questions

1. What is your marital Status?

   Married
   Single?

2. Are you employed or not?

3. What is your education level?

   None
   Primary
   Secondary
   College/university

4. What is your religion?

   Protestant
   Catholic
   Muslim

5. Have you accepted this pregnancy?

   Yes
   No

6. Do you approve of premarital sex

   Approve
   Does not approve
   Not sure

7. How old is this pregnancy?

   0-3 months
   4-6 months
   7-9 months

8. Were you ever sexually abused as a child?

   Yes
   No

Appendix 4: Beck's Depression Inventory

This questionnaire contains a group of statements. Please, read each of the statements carefully, then circle the one statement in each group which best describes the way that you have been feeling in the past week, including today. There is no correct or wrong answer, just be honest.

1	0	I do not feel sad.
	1	I feel sad.
	2	I am sad all the time and l can snap of it.
	3	I am sad, unhappy that l can't stand it.
2	0	I am not particularly discouraged about the future.
	1	I feel discouraged about the future.
	2	I feel l have nothing to look forward to.
	3	I feel that the future is hopeless and that things cannot improve.
3	0	I do not feel like a failure.
	1	I feel like l have failed more than the average person.
	2	As l look back on my life, all l can see is a lot of failures.
	3	I feel I am a complete failure as person.
4	0	I get much satisfaction out of things as l used to.
	1	I don't enjoy things the way l used to.
	2	I don't get real satisfaction out of anything anymore.
	3	I am dissatisfied or bored with everything.
5	0	I don't feel particularly guilty.
	1	I feel guilty a good part of the time.
	2	I feel guilty most of the time.
	3	I feel guilty all the time.
6	0	I don't feel I may be punished
	1	I feel may be punished
	2	I expect to be punished
	3	I feel I am being punished
7	0	I don't feel disappointed in myself.
	1	I am disappointed in myself.
	2	I am disgusted with myself.
	3	I hate myself.

8	0	I don't feel I am worse than anybody else
	1	I am critical of myself for my weakness or mistakes
	2	I blame myself all the time for my faults
	3	I blame myself for everything bad that happens
9	0	I don't have thoughts of killing myself
	1	I have thoughts of killing myself, but I would not carry them out
	2	I would like to kill myself
	3	I would kill myself if I had the chance
10	0	I don't cry any more than usual.
	1	I cry more than l used to.
	2	I cry all the time.
	3	I used to be able to cry, but now l can't even though I want to.
11	0	l am no more irritated now than I ever was
	1	I get annoyed or irritated more easily than l used to.
	2	I feel irritated all the time now.
	3	I don't get irritated at all by the things that used to irritate me.
12	0	l have not lost interest in other people.
	1	l am less interested in other people than l used to be.
	2	l have lost most of my interest in other people.
	3	l have lost all of my interest in other people.
13	0	I make decisions about as well as I ever could.
	1	I put off making decisions more than I used to.
	2	I have greater difficulty in making decisions more than l used to.
	3	I can't make decisions at all anymore.
15	0	I can work about as well as before.
	1	It takes an extra effort to get started at doing something.
	2	I have to push myself very hard to do anything.
	3	I can't do any work at all.
16	0	I can sleep as well as usual.
	1	I don't sleep as well as l used to.
	2	I get tired from doing almost anything.
	3	I am too tired to do anything.
17	0	I don't get more tired than usual.
	1	I get tired more easily than l used to.
	2	I get tired from doing almost anything.
	3	I am too tired to do anything.

18	0	My appetite is no worse than usual.
	1	My appetite is not as good as it used to be.
	2	My appetite is much worse now.
	3	I have no appetite at all anymore.
19	0	I haven't lost much weight, if any, lately.
	1	I have lost more than 2 kgs.
	2	I have lost more than 4kgs.
	3	I have lost more than 6 kgs
20	0	I am no more worried about my health than usual.
	1	I am very worried about my physical problems such as aches and pains; or upset stomach; constipation.
	2	I am very worried about physical problems and it's hard to think of much else.
	3	I am worried about my physical problems that I cannot think about anything else.
21	0	I have not noticed any recent change in my interest in sex.
	1	I am less interested in sex than before.
	2	I am less interested in sex now.
	3	I have no interest in sex completely.

Appendix 5: Kiswahili BDI

Nambari..... **Tarehe**.....

Vifuatavyo ni vifungu vya sentensi. Tafadhali soma kila kifungu kwa makini. Chagua kutoka katika kila kifungu, sentensi ambayo inaelezea vyema jinsi ulivyokuwa unahisi jumla lililopita na wakati huu. Ashiria sentensi moja kwa kuweka alama ya mviringo kwa nambari ya sentensi hiyo. Hakikisha umesoma sentensi zote kabla ya kuchagua sentensi. Hakuna sentensi isiyokubalika, kuwa muaminifu.

1.	0	Sijisikii huzuni
	1	Ninajisikia huzuni
	2	Nina huzuni kila wakati na siwezi kujitoa hapo).
	3	Nina huzuni sana, sina raha hata siwezi kuvumilia hili.
2	0	Si mimi tu nimetaka tama na maisha ya baadaye
	1	Najisikia kukata tama na maisha ya baadaye
	2	Najisikia kukata tama na maisha
	3	Ninahisi maisha yangu si kitu na hakuna kitu kitakacho badilisha maisha haya.
3	0	Sioni au sijisikii kama nimeshindwa
	1	Niemona nimeshindwa kuliko kiwango kilichowekwa
	2	Nikiangalia maisha yangu ya nyuma kile nimepitia au kukumbana) nayo ni kushindwa
	3	Mimi si mtu anayeweza kushinda.
4	0	Ninatosheka na vitu ambavyo ninavitumia.
	1	Sifurahi kama ilivyokuwa kawaida
	2	Sitosheki na kitu chochote kwa sasa
	3	Sitosheki na sifurahii na kitu chochote
5	0	Sijihisi kama mwenye hatia
	1	Wakati mwingine, nahisi kuwa mwenye hatia.
	2	Nahisi kuwa mwenye hatia kila wakati
6	0	Sijihisi kuwa nimeadhibiwa
	1	Nahisi kuwa nitaadhibiwa
	2	Natarajia kuadhibiwa
	3	Nahisi kuwa nimeadhibiwa

7	0	Sina udhia kamwe
	1	Ninaudhika
	2	Ninajichukia
8	0	Sifikiri kuwa hali yangu ni mbaya zaidi ya wengine
	1	Ninajua udhaifu wangu au makosa yangu
	2	Ninajilaumu kila wakati kwa makosa yangu
9	0	Siwazi kujiuwa
	1	Nina mawazo ya kujiuwa lakini sitajiuwa
	2	Ningependa kujiua
	3	Nikipata nafasi, nitajiua
10	0	Silii tena kama ilivyokuwa desturi yangu. Au silii tena kama ilivyokuwa kawaida yangu
	1	Ninalia zaidi sasa kuliko ilivyokuwa desturi yangu (au kawaida yangu)
	2	Ninalia kila wakati
	3	Nilikuwa nikilia lakini kwa sasa sifikiri kama nitaweza kulia tena.
11	0	Sina hasira sasa kama ilivyokuwa hapo awali
	1	Ninakuwa na hasira kwa haraka kuliko ilivyokuwa pale mbeleni
	2	Kila mara hupandwa na hasira
	3	Siudhiki na yaliyokuwa yakiniudhi pale mbeleni
12	0	Ninajali nawapenda watu kama zamani
	1	Nawapenda watu kwa kiasi tu
	2	Nimepoteza sana moyo wa kupenda wengine
	3	Siwapendi watu kabisa
13	0	Ninatoa maamuzi kama kawaida
	1	Nahairisha kutoa maamuzi nilivyokuwa na nikifanya mbeleni
	2	Napata ngumu kutoa maamuzi kuliko ilivyokuwa kawaida
	3	Siwezi kufanya tena maamuzi
14	0	Ninafanya kazi kama ilivyokuwa zamani
	1	Ninajilazimisha wakati ninataka kufanya kitu chochote
	2	Ninajilazimisha sana wakati ninafanya kitu chochote.
	3	Nahisi uchovu mwingi hivi kwamba siwezi kufanya chochote
15	0	Ninafanya kazi kama ilivyokuwa zamani
	1	Ninajilazimisha wakati ninataka kufanya kitu chochote
	2	Ninajilazimisha sana wakati ninafanya kitu chochote.
	3	Nahisi uchovu mwingi hivi kwamba siwezi kufanya chochote

16	0	Naweza kulala vizuri kama ilivyokuwa kawaida
	1	Silali kulala kama ilivyokuwa kawaida
	2	Nahisi uchovu hata nisipofanya chochote
	3	Nahisi uchovu kufanya chochote
17	0	Sichoki kama ilivyokuwa kawaida
	1	Ninachoka upesi kuliko ilivyokuwa kawaida
	2	Nahisi uchovu hata nisipofanya chochote
	3	Nahisi uchovu kufanya chochote
18	0	Hamu yangu ya chakula sio mbaya kuliko ilivyokuwa
	1	Hamu yangu ya chakula si nzuri kama ilivyokuwa
	2	Hamu yangu ni mbaya kuliko ilivyokuwa
	3	Sina hamu ya chakula hata kidogo sasa
19	0	Sijapunguza uzito sana hivi karibuni
	1	Sijapoteza zaidi ya kilo mbili
	2	Sijapoteza zaidi ya kilo nne
	3	Sijapoteza zaidi ya kilo sita
20	0	Sihofu afya yangu kuliko kawaida
	1	Ninahofia matatizo na maumivu mwilini
	2	Ninahofia kuhusu matatizo ya mwilini kitu chochote
21	0	Sijahisi mabadiliko ya hamu ya ngono
	1	Hamu ya ngono imepunguka kuliko hapo mbeleni
	2	Sina hamu ya ngono siku hizi
	3	Sina hamu ya ngono hata kidogo

For PERMANENT SECRETARY
MINISTRY OF EDUCATION
SCIENCE AND TECHNOLOGY

THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss JOHN WAMUTI MUCHAI

of (Address) UNIVERSITY OF NAIROBI P.O.BOX 30197 NAIROBI

has been permitted to conduct research in PUMWANI MATERNITY HOSPITAL & HEALTH CENTRES Location, NAIROBI District, NAIROBI Province,

on the topic PREVALENCE OF DEPRESSION AMONG PREGNANT ADOLESCENTS ATTENDING PUMWANI MATERNITY HOSPITAL AND CITY COUNCIL HEALTH CENTRES IN NAIROBI

for a period ending 30TH OCTOBER, 2008

Research Permit No. MOHEST 13/001/38C 443

Date of issue 29.7.2008

Fee received SHS.500

Applicant's Signature

FOR: Permanent Secretary
Ministry of
Science and Technology
M.O.ONDIEKI

REPUBLIC OF KENYA

MINISTRY OF HIGHER EDUCATION SCIENCE & TECHNOLOGY

Telegrams: "SCIENCE TEC", Nairobi
Telephone: 02-318581
E-Mail:ps@scienceandtechnology.go.ke

JOGOO HOUSE "B"
HARAMBEE AVENUE,
P.O. Box 9583-00200
NAIROBI

When Replying please quote

Ref. MOHEST 13/001/ 38C 443/2 **5th August 2008**

John Wamuti Muchai
University of Nairobi
P.O. Box 30197
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on, ***'Prevalence of Depression among Pregnant Adolescents Attending Pumwani Maternity Hospital and City Council Health Centres in Nairobi,***

I am pleased to inform you that you have been authorized to carry out research in Pumwani Maternity Hospital and various Health Centres within the Nairobi City Council for a period ending 30th October, 2008.

You are advised to report to the Provincial Director of Education Nairobi and the Principals of the Secondary Schools you will visit before embarking on your research.

On completion of your research, you are expected to submit two copies of your research report to this office.

M. O. ONDIEKI
FOR: PERMANENT SECRETARY

Copy to:

The Medical Officer In-charge
Pumwani Maternity Hospital
NAIROBI

KENYATTA NATIONAL HOSPITAL
Hospital Rd. along, Ngong Rd.
P.O. Box 20723, Nairobi.
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP", Nairobi.
Email: KNHplan@Ken.Healthnet.org

Ref: KNH/UON-ERC/ A/71

22nd September 2008

Mr. Muchai John Wamuti
Dept. of Psychiatry
School of Medicine
University of Nairobi

Dear John

RESEARCH PROPOSAL: "PREVALENCE OF DEPRESSEION AMONG PREGNANT ADOLESCENTS ATTENDING PUMWANIMATERNITY HOOPSITAL AND CITY COUNCIL HEALTH CENTERS IN NAIROBI" (P148/7/2008)

This is to inform you that the Kenyatta National Hospital Ethics and Research Committee has reviewed and **approved** your above revised research proposal for the period 22nd September 2008 –21st September 2009.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimen must also be obtained from KNH-ERC for each batch.

On behalf of the Committee, I wish you fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of database that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

PROF. A N GUANTAI
SECRETARY, KNH/UON-ERC

c.c. Prof. K.M. Bhatt, Chairperson, KNH-ERC
The Deputy Director CS, KNH
The Dean, School of Medicine, UON
The Chairman, Dept.of Psychiatry, UON
Supervisors: Dr. P. Kigamwa, UON
Dr. Ann Obondo, UON

PUMWANI MATERNITY HOSPITAL

Tel: 02/6763291– 4
Fax: 02/6762965

P.O. Box 42849
Code: 00100- GPO
Nairobi.

PMH/DMOH/84/870/08

28TH OCTOBER 2008

TO: MUCHAI JOHN WAMUTI

RE: APPROVAL FOR RESEARCH

This is to inform you that the Pumwani Maternity Hospital Ethical and Research Committee has reviewed and approved your research proposal entitled **"Prevalence of Depression among Pregnant Adolescents Attending Pumwani Maternity Hospital and City Council Health Centres in Nairobi."** .

By this letter authority is hereby granted for you to begin your research undertakings here at PMH . However rules governing the hospital should be observed and upon completion of your study you are expected to submit a copy of your research findings.

We wish you all the best.

DEPUTY MEDICAL OFFICER
OF HEALTH
PUMWANI MATERNITY HOSPITAL

DR C. WANYONYI
MEDICAL SUPERINTENDENT

c.c. Research Coordinator [PMH]

References

1 World Health Organization (2004), Adolescent Pregnancy Issues in Adolescent Health and Development, Geneva WHO ISBN. (92) 4 159145 5.

2 Furstenberg F.F, Brooks-Gunn J, Morgan SP et. al (1987), Adolescent Mothers in Later Life, New York: Cambridge University.

3 Santrock John.W. (2005), Adolescence The tenth Edition, The McGraw-Hill Companies Inc., 1221 Avenue of the Americas, New York. 205.

4 Kendall, R.E., Zeally, A.K (1998), Companion to psychiatry studies, Fourth Edition. Chapter on adolescence. 536-549.

5 Braverman P. K, Strasburger (1997), Office-based adolescent health care: Issues and solutions, Adolesc. Med. (8). 1-14.

6 United Nations (2002), World Population Monitoring 2002 - Reproductive rights and reproductive health: selected aspects.

7 Szigethy Eva M., Pedro Ruiz, M.D (2001), Depression among Pregnant Adolescents: An Integrated Treatment Approach, Am J Psychiatry. (158). 22-27.

8 Woodward L.J, Horwood L.J, Fergusson D.M. (2001), Teenage pregnancy: cause for concern, NZ Med J. (114). 301-303.

9 Coleman V.H, Morgan M.A, (2006), Clinical approach to mental health issues among obstetrician-gynecologists: A review, Obstet Gyenecol Srv. (61) 51-58.

10 Lloyd S. L. 2004, pregnant adolescent reflections of parental communication, journal of community health nursing. (21). 239-251.

11 Niaz S, Izhar N, Bhatti (2004), anxiety and depression in pregnant women presenting in the opd of a teaching hospital. Pak J Med Sci. (20). 117-119.

12 Mitsuhiro Sandro Sendin, (2006), Teenage pregnancy: use of drugs in the third trimester and prevalence of psychiatric disorders, Rev Bras Psiquiatr. (282).122-5.

13 Freitas, G. V., Botega (2002), Prevalence of depression, anxiety and suicide ideation in pregnant adolescents, Revista Da Associacao Medica Brasileira. (483). 245-249.

14 Kitazi, Nelly Aaliveza (1997), Psychiatric morbidity among pregnant adolescents presenting at Pumwani Maternity Hospital antenatal clinic M.Med (psycho),.Dissertation University of Nairobi, Kenya.

15 Ndetei, D. M, Ongesha-Awuor F, and Khasakhala I. The prevalence of mental disorders and attitudes of staff in general medical facilities in Kenya. 2006; Africa Mental Health Foundation. Monograph Series.

16 Kariuki, Esther, 2008 Association between maternal depression and underweight infants at Kangemi Health Centre, Nairobi, MSc Dissertation University of Nairobi, Kenya

17 Kenya Demographic Health Survey, 2003 Central Bureau of Statistics Nairobi, Kenya.

18 Singh Susheela, Darroch Jacqueline E. (2001), Adolescent Pregnancy and Childbearing: Levels and Trends in Developed Countries Family Planning Perspectives. Volume. (33). 244-250.

19 Centers for Disease Control and Prevention (2004), Youth Risk, Behavior Surveillance United States. (53) SS-2 .1–29.

20 Ellis Bruce, J. (2003), Does Father Absence Place Daughters at Special Risk for Early Sexual Activity and Teenage Pregnancy?, Child Development. (74). 801-21.

21 Kirby D, Coyle K, Gould J.B. (2001), Manifestations of poverty and birth rates among young teenagers in California zip code areas, Family planning perspectives.(33). 63-69.

22 Sloggett A, Joshi H.(1998), Deprivation indicators as predictors of life events 1981–1992 based on the UK ONS longitudinal study,. J Epidemiol Community Health.(52). 228-233.

23 Coory M., (2000), Trends in birth rates for teenagers in Queensland, 1988 to 1997: an analysis by economic disadvantage and geographic remoteness. Aust NZ J Public Health. ; 24: 316-319.

24 Singh S, Darroch J.E, Frost J.J, (2001), Socioeconomic disadvantage and adolescent women's sexual and reproductive behavior: the case of five developed countries, Family planning perspectives. (33). 251-258.

25 Singh S., (1998) Adolescent childbearing in developing countries: a global review. Studies in Family Planning. (29) 117–136.

26 Furstenberg F.F (1998), When will teenage childbearing become a problem? The implications of Western experience for developing countries. Studies in Family Planning. (29). 246-253.

27 Mawer C. (1999), Preventing teenage pregnancies, supporting teenage mothers, Br Med J. (318).1713–1714.

28 Singh S. (1998), Adolescent childbearing in developing countries: a global review, Studies in Family Planning. (29). 117–136.

29 Singh S, Samara R. (1996), Early marriage among women in developing countries, Int Family Planning Perspectives. (22). 148–157.

30 Whaley A.L (1999), Preventing the high-risk sexual behavior of adolescents: focus on HIV/AIDS transmission, unintended pregnancy, or both? J. Adolesc Health. (24). 376-382.

31 Jewkes R, Vundule C, Maforah F, et al (2001), Relationship dynamics and teenage pregnancy in South Africa, Soc Sci Med.(52). 733-744.

32 Scaramella, L., V., Conger, R. D., Simons, R. L., et al (1998), Predicting risk for pregnancy by late adolescence: A social contextual perspective. Developmental Psychology. (34). 1233-1245.

33 Hosner, D. W., Stanely, L., Jnr, Klar, J., et al (1990), Adequacy of sample size in health studies, New York John Wiley.

34 Hulley, B., C., Wilkins, (1988), Designing clinical research. London, Williams.

35 Beck, A.T., Ward, C. H., Mendeleson, M et. al., (1961), An inventory for measuring depression, Archives of General Psychiatry. (4). 561-571

36 Ambrosini P.J., Metz C., Bianchi M.D., et al. (1991), "Concurrent validity and psychometric properties of the Beck Depression Inventory in outpatient adolescents"., J AM Acad Child Adolesc Psychiatry. (30). 51-57

37 Beck, A. T., Steer, R. A., Brown, G.K. (1996), Manual for the Beck Depression Inventory-II, San Antonio, TX: Psychological Corporation.

38 Beck, A. T., Steer, R.A.Garbin, M., G. (1988), Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation, Clinical Psychology Review. (8). 1: 77-100.

39 Groth-Marnat G. (1990), The handbook of psychological assessment (2nd ed.), John Wiley & Sons, New York.

40 Brown, C., Schulberg, H.C., (1995), Assessing depression in primary care practice with the Beck Depression Inventory and the Hamilton Rating Scale for Depression, Psychological Assessment. (1). 59-65.

41 World Health Organization. The World Health Report 2001: New Understanding, New Hope. Geneva, WHO, 2001(1)

42 Helena Karnani, MD and Heidi A. Pomm, PhD Screening for Adolescent Depression and Anxiety in the Primary Care Environment: Calming the Storm Within. Org Northeast Florida Medicine Vol. 57, No. 4 2006

43. Fergusson DM; Horwood LJ; Woodward LJ. Unemployment and psychosocial adjustment in young adults: causation or selection? Soc Sci Med; 53(3):305-20, 2001 Aug

44. Anzi RG, Pascoe JM, Keltner B, Ramey S. Correlates of maternal depressive symptoms in a national Head Start sample. Arch Pediatr Adol Med. 1999; 153:801–807 adjusted odds ratio, 1.56; 95% CI 1.30–1.88)

45. William Morrow & Company. Inc., New York Pacific Postpartum Support Society. Postpartum Depression and Anxiety: A Self-Help Guide for Mothers. 4th edition. Vancouver: PPPSS, 1977.

46. Marcus SM; Flynn HA; Blow FC; Barry KL Depressive symptoms among pregnant women screened in obstetrics settings. J Women's Health (Larchmt) 2003 May; 12(4):373-80.

47. Cheasty M, Clare AW, Collins C. Review childhood sexual abuse as a risk factor for depression in women: psychosocial and neurobiological correlates. [Am J Psychiatry. 1999]