

Original Research Article

# Pre-Conception Nutrition Knowledge and Attitudes among Female Undergraduate Students at Kenyatta University, Kenya

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## ABSTRACT

**Introduction:** Pre-conception nutrition is a key determinant of the pregnancy outcome and the health of a newborn. Nutrition knowledge and attitude are known to influence dietary practices. However, in Kenya, pre-conception nutrition information is scanty and there is concern that women put little consideration into their pre-conception nutrition status. This study aimed to establish the pre-conception nutrition knowledge and attitudes among female undergraduate students at Kenyatta University, Kenya

**Methods:** The study adopted a cross-sectional analytical design involving sample of 422 female undergraduate students randomly selected from Kenyatta University. A semi-structured questionnaire was used to collect respondents' information. Pre-conception nutrition knowledge was determined based on nutrition knowledge scores while attitude were measured using a five point likert scale. Data was analyzed using SPSS version 22.

**Results:** The study results showed that close to half (45.9%) of the participants had low pre-conception nutrition knowledge while majority exhibited a positive attitude towards pre-conception nutrition (99%).

**Conclusion:** The present study reveals that the participants of the study had low level of knowledge on pre-conception nutrition. Female students taking health related courses had higher pre-conception nutrition knowledge compared to their counterparts in other courses. Institutions of higher learning should come up with common courses in nutrition for undergraduate students especially where nutrition is not taught directly or indirectly

**Key words:** Pre-conception nutrition, female students, pre-conception nutrition knowledge, pre-conception nutrition attitudes

## INTRODUCTION

### Background to the Study

A woman's pre-conception nutrition is an important determinant of pregnancy outcome and health of the new born. <sup>[1]</sup>

Women in their reproductive age require to be in optimal nutrition status that would enable them prepare to meet the future needs of pregnancy. <sup>[2]</sup> However, the ongoing rapid urbanization in Kenya has

resulted to changes in lifestyle and feeding habits hence affecting the health and nutrition status of the citizens. [3-4] Currently, women in the reproductive age mostly receive nutrition information when they are already pregnant, during the pre-natal period and after delivery. However, the consequences of poor maternal nutrition start even before conception takes place, continues throughout the pregnancy to delivery and finally into lactation where the cycle may resume. [5]

The rapidly changing feeding habits and lifestyles in Kenya have led to the overweight/obesity transition. [6] Currently, three hundred million women worldwide are estimated to be obese making obesity a global health problem. This prevalence is higher in the urban areas where almost 50% of women aged between 19 and 49 years in Kenya are obese. [7] A study conducted among undergraduate female students in Nairobi showed that 22.9% of the students were overweight and obese while 5.5% were underweight. Research has shown that overweight and obese women who get into pregnancy are at higher risk of pre-term delivery, gestational diabetes, pre-eclampsia, macrosomia, foetal death and neonatal death. [8] Women getting into pregnancy while underweight have increased risk of giving birth to low birth weight babies, pre-term births and intrauterine growth retardation (IUGR). Poor maternal nutrition reduces the chances of the woman to survive childbirth and give birth to a healthy baby, which translates to higher maternal and infant morbidity and mortality. [9]

In Kenya, micronutrient deficiencies are a concern among women of child bearing age. Folic acid is especially very important before conception as it is proved to reduce the risk of neural tube defects (NTD) such as spina bifida. [10] About 47.9% of non-pregnant women in Kenya suffer from iron deficiency anaemia. A woman benefits from boosting her iron stores before pregnancy as it helps prepare her body for the future needs of the fetus.

Low levels of hemoglobin and ferritin during the pre-conception period increase the risk of poor fetal growth and increase the risk of giving birth to low birth weight babies. [2,10]

While adverse pregnancy outcomes are a world concern, inadequate health care, poverty and inadequate knowledge on health are among the factors that influence morbidity and mortality in developing countries. [1] A study conducted among undergraduate students in Nairobi universities showed that more students have lower micro-nutrients knowledge compared to knowledge in macro-nutrients. [7] Although nutrition knowledge is believed to be important in promoting healthier feeding habits, it may not be sufficient to change feeding habits on its own hence improving attitude towards healthy feeding habits.

In order to overcome the associated risks of poor nutrition before pregnancy, women in the child bearing age need empowerment to make healthy food choices. This can be achieved by providing them with pre-conception nutrition knowledge and improving their attitudes towards healthy eating. [11] In Kenya, there is limited literature on pre-conception nutrition knowledge and attitudes. This study aimed to fill this gap.

The purpose of this study was to establish pre-conception nutrition knowledge and attitudes among female undergraduate students at Kenyatta University, Kenya.

### **Objectives of the Study**

The specific objectives of the study were to:

1. Determine demographic characteristics among female students at Kenyatta University.
2. Determine pre-conception nutrition knowledge among female students at Kenyatta University.
3. Determine pre-conception nutrition attitudes among female students at Kenyatta University.

### **MATERIALS AND METHODS**

A cross-sectional analytical study design was adopted in the study

### Study Population

The study population was female undergraduate students at Kenyatta University, Kenya.

### Data Collection Tools

Data on pre-conception nutrition knowledge and attitudes was collected using a researcher administered questionnaire.

### Data Analysis

Data obtained was analyzed using Statistical Package for Social Sciences (SPSS) version 22 for windows. Descriptive statistics like standard deviations, ranges, percentages and mean were used to describe the study population.

Pre-conception nutrition knowledge was determined based on knowledge scores (Correct response as (1) and incorrect response as (0). The total of correct responses in percentages was used to determine overall knowledge level with scores of  $\leq 40\%$ , 41–69% and  $\geq 70\%$  categorized as low, moderate and high knowledge, respectively. Attitude of respondents was measured by using a five point Likert Scale ranging from 5=Strongly Agree, 4=Agree, 3=Undecided, 2=Disagree, 1= Strongly Disagree. The likert items were summed up for each of the study participants to create a composite score for all the responses. A composite score above

or equal to the average test score was rated positive attitude whereas composite score below the average test score was rated negative attitude. [12] Analysis of Variance (ANOVA) was used to test for significant differences in mean knowledge of respondents based on their course of study. In all the analyses, a P value of  $<0.05$  was considered significant.

### Ethical approval

Approval to conduct the research was sought from Kenyatta University graduate school and ethical clearance obtained from Ethical Review Committee of Kenyatta University. A research permit was obtained from the National Council for Science Technology and Innovation (NACOSTI). Participation was voluntary through informed written consent from the respondents. Confidentiality and privacy of the data collected was assured and maintained during and after the study.

## RESULTS

### Socio-demographic Characteristics of the Female Students

#### Distribution of Participants

The distribution of participants is shown in Table 1. The number of participants was distributed equally among 16 schools in the University and the years of study

Table 1: Distribution of participants

Schools (Course)	Department selected	Sample per department
Agriculture	Agricultural Resources Management	25
Applied human science	Food, Nutrition and Dietetics	25
Architecture	Construction and real estate management	23
Business	Business Administration	24
Creative arts	Film and Theater Arts	23
Economics	Applied Economics	25
Engineering	Computing and Information Technology	23
Environmental studies	Environmental Planning and Management	24
Education	Educational Communication and Technology	27
Hospitality and tourism	Hospitality Management	25
Humanities and social sciences	Geography	25
Medicine	Medical Laboratory Science	25
Nursing	Reproductive Health Nursing	24
Pure and applied science	Chemistry	24
Public health	Community Health	25
Visual and performing arts	Fine Arts and Design	23
Total		390

### Age and religion of the participants

Table 2 below shows the age and religion of the study participants. The mean age was  $21.2 \pm 1.5$  SD years with a minimum age of 18 years and maximum age of 27 years. Majority of the students were aged 21-23 years at 50.2% while majority were Protestants (59.5%).

**Table 2: Age and religion of the the participants**

Age, religion and average amount of money spent on food daily N=390		
	n	%
Age group(years)		
18-20	147	37.8
21-23	196	50.2
24-26	41	10.4
over 26	6	1.6
Religion of the participants		
Catholic	141	36.2
Protestant	232	59.5
Muslim	15	3.8
Others	2	0.5

### Pre-conception Nutrition Knowledge

Table 3 shows that nearly half of the respondents (45.9%) had low knowledge on pre-conception nutrition, 39.4% had moderate knowledge while 14.7% had high pre-conception nutrition knowledge. The mean knowledge score was  $4.62 \pm 1.8$  SD

with a minimum score of 1 point and maximum score of 10 points.

**Table 3: General Knowledge on pre-conception Nutrition**

Standard score	N=390	
	n	%
40 and below	179	45.9
41 to 69	154	39.4
70 and above	57	14.7
Total	390	100.0

The results showed a significant difference in mean knowledge among the female students in different courses (ANOVA;  $p < 0.001$ ). Those taking applied human sciences courses had the highest mean (6.50), while those in creative arts had the lowest mean (3.38).

### Attitude towards Pre-conception Nutrition

Most of the participants (94.8%) felt that eating healthy in preparation for pregnancy is important while 93.3% of the participants agreed that it is necessary for women to receive pre-conception nutrition counseling. Over half of the respondents (60.7%) felt that a woman who gets in pregnancy while overweight is at risk of pre-term delivery and diabetes. (Table 4).

**Table 4: Attitudes towards pre-conception nutrition**

Attitude	N=390					
	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean score
It is important to eat healthy in preparation for pregnancy.	0.9	2.3	2.0	39.9	54.9	4.5
A woman preparing to get pregnant should consume three main meals and one snack in a day to maintain good healthy state.	5.7	17.2	25.0	41.4	10.0	3.3
A woman who gets into pregnancy while overweight is at risk of pre-term delivery and diabetes.	4.3	8.0	27.0	41.4	19.3	3.6
It is necessary for women to receive pre-conception nutrition counselling?	1.7	1.1	3.7	39.9	53.4	4.4
Women should receive Iron and Folate supplementation before conception.	2.9	4.6	20.1	45.7	26.7	3.9
Women in the reproductive age should eat as many different kinds of foods as possible.	5.5	15.5	23.0	35.9	20.1	3.5
The type of food I take before conception affects the outcome of pregnancy.	8.9	13.2	14.1	32.5	31.3	3.6

SD- Strongly disagree; D- Disagree; N- Neutral; A- Agree; SA- Strongly agree

## DISCUSSION

The university population mostly constitutes of young students and this contributes to the poor feeding habits among the students. [7,13,14] Junk food makes up the main meals for most young people in urban and peri-urban centres. The low knowledge on pre-conception nutrition observed in this study is in consistent with a study that reported that women and men lack adequate

knowledge about positive health practices and pre-conception risk factors. [15] However, there was a significant difference in the level of pre-conception nutrition knowledge among participants in different courses. The female students taking applied human sciences were more knowledgeable about pre-conception nutrition than students taking creative arts and business courses. This difference could be attributed to the

participants in these courses having more exposure to nutrition information during the course of their studies. Previous studies have shown that nutrition knowledge is related to the field of study whereby students in health sciences have been shown to have higher levels of nutrition knowledge. [7, 16] In this study, awareness of Folic acid and folate seemed to be a new area of interest for most of the female students. This heightens the need for further nutrition education and the contributing factors to healthy pregnancy outcomes. Generally, the female students had above average attitude score, depicting positive attitude towards pre-conception nutrition. Results of a previous study showed students have a positive attitude towards nutrition. [7] However, there is limited data in relation to attitudes towards pre-conception nutrition. Increased access to the internet, television and print media may have played a role in the positive attitude reported by participants towards pre-conception nutrition.

## CONCLUSION

The low knowledge on pre-conception nutrition reported in this study warrants the need for urgent interventions. Policy makers in the ministry of health and the ministry of education should use this information to come up with sustainable methods of ensuring that women of reproductive age are made aware of strategies to optimize pre-conception nutrition. Empowering women with the right information contributes to a healthier society. Access to School and the mass media are critical in enhancement of positive attitudes regarding pre-conception nutrition which can help promote healthy lifestyles of future mothers. Universities may come up with common nutrition courses for undergraduates especially where nutrition is not taught directly or indirectly.

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