Nutrition Education improves a nutritional status of School adolescents, in Jimma, South West Ethiopia: A cluster randomized control trial.

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Conference place: Dessalegn Hotel
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Introduction

• Adolescence defines as the age between 10 -19 years of age and from total world population, 19 % were Adolescence.

• Adolescence is particularly unique period in life and requires special attention to meet their nutritional needs because

  o it is a time of intense growth, psychosocial, and cognitive development
  o the second opportunities for catch up growth next to the first year of life. (Sajjan et al., 2011; Unicef, 2012).
The quality of children’s diets usually declines as they move from childhood to adolescence (Old wage and Egel, 2010).

The principal factor associated with nutritional status and intake of foods in adolescence are:

- Quality of dietary intake
- Limited knowledge on food choices
- Psychological and social aspects of behavior
- Socioeconomic status (Choi et al., 2008; Old wage and Egel, 2010).

The implementation of nutritional education programs in schools may help to teach and impress by frequent repetitions in the ability of identifying a healthy food choice in children (García-Casal et al., 2011).
• Nutrition education for adolescents should have a behavioral focus that will minimize the targeted risk factors.

– The pre-post experimental study in adolescent of Nicaragua revealed that a significant improvement in nutritional knowledge of adolescents from 2.16 (P< -0.35) to 11.5 (P< 0.001) after imparting nutrition education for 6 months (Preety et al.;2015).
Con’t

• It is hoped that, nutrition education interventions are considered to reduce the level of malnutrition by improving the knowledge of adolescents on dietary choices.

• However in Ethiopia, there is no data whether nutrition education improves the knowledge and nutritional status of adolescents.
Con’t

- Therefore, this research intended to assess the:
  
  - Nutritional status and nutritional knowledge
  - provided nutritional education
  - evaluated its impact on the nutritional status of adolescent school children in Serbo Schools, Kersa woreda, Jimma, and South West Ethiopia.
Objectives

General objective
  o To determine the impact of nutrition education intervention on nutritional status of school adolescents in Kersa Woreda, Jimma Zone, and South West Ethiopia.

Specific objective
  o To assess the nutritional status of school adolescent.

  o To assess the nutritional knowledge of school adolescent.

  o To determine the effect of nutrition education on the nutritional status of adolescent
Hypothesis

• The nutritional status of adolescent school children would be improved in those who received nutrition education than those who had not received.
Methodology

• Study area and period
  – located 330Km from the capital city of Ethiopia and 30 Km from Jimma town.

• Study design
  – A Cluster randomized control trial

• Population
  – Source population was all adolescent in kersa woreda schools
  – study population was adolescents in Kersa woreda schools who were randomly included in the study.

• Inclusion criteria
  – Adolescents students from 5th to 8th grade were included in the study.
Con’t

• Exclusion criteria
  – Students who had history of current illness.
  – Those children who attended less than 25% of the nutrition education session, were excluded from the study.
Sample size and technique: Sample size was calculated by considering comparison of two proportions of population.

Where

- \( n \) = Sample size for each group
- \( Z_1 = 1.96 \) for 95% CI
- \( Z_2 = 0.84 \) for 80% power
- \( P_2 \) = Anticipated value the population proportion of control group, since there were no prevalence of malnutrition as well as in the study area, the investigator was taken the prevalence as 50% (0.5).
- \( P_1 \) = Anticipated value the population proportion of outcome on intervention group reduced by 30% from 50%, it will be 0.15. Then reduced from the \( P_2 \), anticipated value for the intervention group will be 0.35.
- \( P_2 - P_1 \) = the difference in mean of intervention and control group will be 0.15.
- \( P = (P_1 + P_2) / 2 = 0.425 \)
- \( n = 170 \), \( 170 \times 2 = 340 \)
- 10% of 340 = 34 + 340 = 374

Final sample for control and intervention group became 187 for each.
11 Schools in kersa woreda
\[ n = 1282 \]

4 Schools
\[ n = 598 \text{ by SRS} \]

2 Schools
\[ n = 388 \text{ by SRS for intervention} \]

Systematic random sampling
With PPS
\[ N_f = 187 \]

2 schools
\[ n = 210 \text{ by SRS for control} \]

By Systematic random sampling
With PPS
\[ N_f = 187 \]

Fig. 1 Sampling technique
Con’t

Variables

• Dependent Variable
  – Nutritional status (BMI for Age and height for age)
  – Growth (weight and height increment)

• Independent variable
  – Age, sex, household family size, maternal education, paternal education, nutrition knowledge, nutrition education (intervention), individual dietary diversity score and food variety score, animal source food and wealth index.
Con’t

Tools and measurement :-

- Structured questionnaires
  - socio-demographic
  - knowledge on nutrition
- Anthropometric measurements (weight and height)
- 24 hrs dietary recall to generate dietary diversity, variety foods at base line and end line for both groups.

- There were 9 nutritional Knowledge questions, The responses of all of the questions were summed up to give the total score of knowledge for each adolescent

- DDS were calculated from 9 food groups by summing the number of unique food groups consumed by adolescents in the 24-hour period and calculated by counting food groups (FAO, 2011).

- Food variety score (FVS) is computing by summing up all the frequency of individual consuming food among 49 food items taken from 24 hour dietary recall
Con’t

- Anthropometric indicators were Z-scores height for age and BMI for age (BAZ) and HAZ < -2SD
- Nutrition education were given for 48 hours within 6 months on relevant topic for intervention group.
- All data were checked and analyzed using the SPSS-16, SAS 9.2, WHO Anthro Plus software.
- Descriptive statistics and chi-square and T-test analysis were used for describing variables.
- Mixed effects model was used to examine differences in heights and weight within individual subjects over the follow up period.
- This study was approved by Ethical Review Committee of Hawassa University
Result and Discussion

• Out of 374 study subjects
  – Only 1.6% were lost to follow up.
  – Mean age of the respondents was 14.37 ± 1.75
  – 57.8% were girls.
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Fig. 1 Mean knowledge scores of adolescents among intervention and controls by round in school adolescents in Kersa Woreda, Jimma Zone, South West Ethiopia, 2013.
Fig. 2 Mean dietary diversity score of the adolescents in Kersa Woreda, Jimma Zone, and South West Ethiopia, 2013.
Table 2 Mean food variety score of adolescents among intervention and control adolescents in Kersa Woreda, Jimma Zone, and South West Ethiopia, 2013.

<table>
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<td>5.74 ± 1.9</td>
<td>6.98 ± 2.10</td>
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Fig. 1: BMI for age (Z score < -2 sd) among the adolescents in intervention and control over time in Jimma Zone, 2013.
Con’t

• Findings showed that the nutrition education intervention produced significant improvements in nutrition knowledge, dietary diversity score (DDS), food variety score (FVS) and underweight among adolescents who received a nutrition education.

• Similar findings were reported in India regarding improvement of student knowledge towards nutrition in intervention groups after imparting nutrition education (Tarvinder et al., 2007; Sajaan et al., 2011).

• The majority of the students consumed less diversified and low variety food in both groups and this trends were improved after 6 months of nutrition education.
Con’t

• In turn their nutritional status of the adolescents who received nutritional education were improved comparing to those who didn’t receive. This finding was in line with meta analysis of Canadian study (Harris et al., 2009).

• After imparting education the intervention group were dropped from 18.2% to 6.3%,

  This is likely due to low awareness toward diversified diet and having monotonous diets which mainly source of energy contribute to the burden of underweight and stunting (Belachew et al., 2013).

• However, the nutrition education didn’t make differences on stunting (\( P = 0.148 \)).
• In current study, a significant difference was seen in thinness at end line survey within six months education in intervention and control groups (P<0.017).

• This shows that the nutritional education has impacts directly to nutritional status as the retained knowledge changes in to practice.
Con’t

• The linear mixed models predicted that weight of boy increased by 2.79 times in the intervention group during the follow up period ($\beta=2.79$, $P=0.0005$).

• The height of boys and girls increased by 2.88 cm ($\beta=2.88$, $p<0.0001$) and 1.61 cm ($\beta=1.61$, $p<0.001$) for a unit increase in the following year respectively in those adolescents height was normal at baseline.
Conclusion and Recommendation

• This study showed that the nutrition education intervention conducted over a period of 6 month has a positive impact on nutritional status, knowledge and habits dietary quality.

• Based on this study findings, we suggested that :-
  
  – Encourage and motivate the study on adolescents nutritional status and knowledge related to dietary practice
  – Identified and strengthened existing skills on good dietary practices in adolescents and communities
  – The school curriculum should need modification and add nutrition education.
Acknowledgement

- First of all thanks for almighty God.
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- Supervisors and data collectors
- the study subject
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- my beloved family.
Reference


- Unicef, 2012. adolescent database
THANK YOU