

## EFFECT OF SHORT TERM PRECONCEPTION HEALTH EDUCATION ON HEALTH LOCUS OF CONTROL AMONG YOUNG FEMALES

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### ABSTRACT

**Objective:** To determine the effect of short term health education program on health locus of control in females (18-22 years of age), enrolled in Bachelor's program in Fatima Jinnah University.

**Study Design:** Quasi-experimental.

**Place and Duration of Study:** Fatima Jinnah University Rawalpindi Pakistan from Jan 2016 to Dec 2016.

**Material and Methods:** A sample of 281 young females was taken. Pre-intervention questionnaires were filled prior to the intervention. Intervention, in the form of a workshop was done comprising of oral lecture, video clip and flash cards. Post intervention questionnaires were filled by the same participants after 2 weeks. Questionnaires consisted of Sociodemographic profile and Multidimensional health locus of control form A.

**Results:** Out of 281 participants 13.7% were 18 years old and below, 20.1% were 19, 23.7% were 20, 22.3% were 21 and 20.1% were 22 years and above. No association was found between age groups and difference in mean of internal and external health locus of control scores. The mean of pre-intervention scores of internal health locus of control was  $23.78 \pm 6.10$  and that of post-intervention score was  $25.58 \pm 5.98$ . A  $p$ -value=0.001 (significant  $p$ -value <0.05). In case of external health locus of control mean of pre-intervention score was  $23.20 \pm 5.974$  and of post-intervention score came out to be  $23.11 \pm 5.388$ . A  $p$ -value=0.666 (significant  $p$ -value <0.05).

**Conclusions:** The results of this study depicts that short term health education program causes an effect on health locus of control as seen by change in both internal and external loci before and after the intervention. Health locus of control is an effective tool for measuring health belief in terms of internal and external loci. Increase in internal health locus of control shows that individuals become more self-reliant in terms of health.

**Keywords:** Health education, Preconception health.

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### INTRODUCTION

Preconception health refers to the health of women and men during their reproductive years, which are the years they can have a child. It focuses on taking steps now to protect the health of a baby they might have sometime in the future<sup>1</sup>. Preconception care refers to social, behavioral and biomedical interventions. It is done to women before conception occurs, to address health problems and risk factors leading to increased maternal and child mortality<sup>2</sup>. As the advancement in obstetric practice has occurred, recognition of preconception health has gained value. It is important for every woman because it is necessary not only for healthy pregnancy but

also for choosing healthy habits and living well<sup>1</sup>. Data from World Bank shows that although the maternal mortality ratio (MMR) for Pakistan has improved in the past years, 431 (1990) to 178 (2015) per 100,000 livebirths<sup>3</sup> but is still quite high, we need interventions to reduce it further. Most of the women enter pregnancy without having any knowledge of healthy preconception practices e.g. taking folic acid and iron supplementation, avoiding tobacco use and immunization against rubella<sup>4</sup>. Folic acid deficiency usually results in neural tube defects. If maternal folic acid intake is increased then the risk of occurrence of neural tube defect can be decreased up to 60%-70%<sup>5</sup>. It is recommended to start folic acid consumption during preconception period to avoid this serious complication. Anemia is the second highest cause of maternal mortality in Asia<sup>6</sup>. It can be avoided by regular iron supplementation during pregnancy.

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Strategies are needed for supplementing diet with required nutrients for women in preconception period. Presently food fortification is used which is also cost effective. However, more strategies are needed to be applied to cater for nutritional deficiencies of women in reproductive age, keeping in view the relationship between poor maternal health and its wide range of consequences<sup>7</sup>.

Health education deals with informing people how to achieve better health<sup>8</sup>. It focuses on helping individuals to learn and use health enhancing skills. It deals with the individual, group and community strategies to improve health knowledge and behavior. It improves the health status, quality of life and reduces premature death. It focuses on prevention, thus reducing the financial and human costs spent on medical treatment<sup>9</sup>. Studies prove that health education programs are actually beneficial and increase awareness among its participants<sup>10,11</sup>.

Health locus of control (HLOC) explains the individual health beliefs. It has two major dimensions internal and external i.e. I-HLOC and E-HLOC. Locus of control means the location of control. It is either internal (within the individual) or external (chance or powerful others). Internal means that an individual is responsible for his or her own health, his healthy lifestyle and self-care can reduce risk of disease occurrence. External dimension refers to the belief that other factors like environment, family members (powerful others) and fate (chance) play a major role in health outcome of a person<sup>12</sup>. Wallston and Wallston (1978) examined how locus of control influences the prediction of health behavior, and developed the Multi-dimensional Health Locus of Control scale (MHLC). MHLC scale contains three subscales: Internal, Powerful Others and Chance<sup>13</sup>. The reason of using MHLC scale is that the health belief of a person impacts his health seeking behavior. Internal belief shows positivity in knowledge, attitude and health behavior. While the external belief indicates negative health behavior<sup>14</sup>. In the past, MHLC questionnaire has

been used frequently in multiple studies both educational as well as psychological<sup>15-17</sup>. The importance of HLOC is that if we succeed in increasing the internal and decreasing the external health loci of control, then it means individual self-reliance/self-dependence in case of health has increased.

In the past, studies have been done to develop a relationship between positive health behavior and health locus of control<sup>18</sup>. HLOC has also used to evaluate health education in a number of studies. One such study was done in Iran. A significant difference in post intervention score was seen between the experimental and control groups with respect to internal HLOC ( $p < 0.001$ ), but no significant difference with respect to external HLOC ( $p = 0.890$ ). When the difference in mean scores pre and post-intervention were compared they showed significant differences between the experimental and control groups for all the dependent variables<sup>19</sup>. Rational of the study was to identify the effect of short term health education on health locus of control as preconception.

## MATERIAL AND METHODS

Pre/post intervention study was done on 281 unmarried females of Fatima Jinnah University Rawalpindi Pakistan, enrolled in Bachelors programs, 18-22 years of age. Sample size of 278 (95% confidence interval, 5% margin of error and 80% power of study) was calculated by Raosoft sample size calculator. Study was conducted in one year duration (January-December 2016). Students enrolled in Bachelors programs were selected by convenience sampling. Married females out of these were excluded.

Workshop was conducted in the auditorium of FJWU. Students who came willingly were included in the study. Written informed consent from the students was taken. Pre intervention questionnaire were distributed and collected after being filled by participants. Questionnaires consist of: Socio-demographic items and multiple health locus of control questionnaire. Its

Cronbach's alpha coefficient is 0.86 on the whole<sup>19</sup>, 0.57 for Internal, 0.65 for Powerful others, and for 0.65 Chance<sup>17</sup> separately. It consisted of 12 questions out of which 6 were for I-HLOC and 6 for E-HLOC. They were evaluated on Likert scale from 1-6. Minimum score was 6 and maximum was 36 for both I-HLOC and E-HLOC. Intervention comprising of a 2 hour workshop based on preconception health regarding nutritional conditions was arranged. It was conducted by principle investigator and a facilitator. IEC (information, education and communication) material consisted of: oral lecture, video clip, pamphlets and hands on practice. Lecture of approximately 1 hour and 40 min duration was prepared according to WHO and CDC guidelines and the material was taken from their websites<sup>20-25</sup>.

The topics discussed in it were: Preconception health, importance and areas addressed in preconception health, benefits of good nutrition during preconception period, basics of nutrition and nutrients (macro and micro nutrients), problems due to bad nutrition faced by a pregnant woman and its effect on mother and baby, healthy eating plate concept, importance of folic acid, iron, calcium and zinc, BMI, basics and its calculation, exercise and WHO recommendations about daily exercise. Video clip about preconception health by CDC was shown to the participants after the lecture<sup>26</sup>. Three pamphlets containing information about preconception health and healthy lifestyle, prepared from WHO and CDC websites were distributed among participants during workshop.

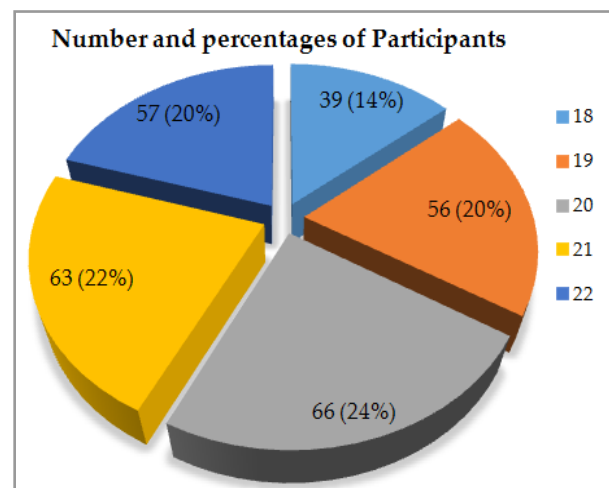
Participants were given three scenarios for hands on practice. They had to calculate BMI and interpret the findings. This practice helped the participants to have a better understanding of the subject. Certificates of participation were distributed among the participants of workshop.

After 2 weeks Post intervention questionnaires were distributed among the participants of the study to be filled<sup>19</sup>. On first contact response of 87 participants was taken. On second contact,

69 more responses were taken. On third contact, response from 73 participants were registered and on fourth contact 52 more responses were taken. This collection took 4 days in total. Data was analyzed on SPSS version 22. It was presented as mean and standard deviation. The difference between pre and post intervention scores was compared by using paired t-test. A  $p < 0.05$  was considered as statistically significant.

## RESULTS

After applying the exclusion criteria and getting post intervention responses, we were left



**Figure: Number and percentage of participants in each age group.**

with a final sample of 281 participants. Normality and randomization was checked by k.s. test and RUN test. Respondents of the study were divided into 5 groups according to age. Mean age was  $20.15 \pm 1.332$ . Majority of the participants were 20 years old i.e. 23.5%. The distribution of participants according to age and their percentages in each age group are shown in figure. Out of 12 questions, 6 were to measure internal health locus of control (I-HLOC). They were measured on 6 point Likert scale. Minimum score was 6 and maximum was 36. Mean score of Pre-intervention I-HLOC is  $23.78 \pm 6.10$ . Mean score of Post-intervention I-HLOC is  $25.58 \pm 5.98$ . When Paired t-test was applied, significant result was seen ( $p$ -value $<0.001$ ). Out of 12 questions, 6 were to measure external health locus of control (E-

HLOC). Likert scale ranging from 1-6 was used to measure it. Minimum score was 6 and maximum was 36. Mean score of Pre-intervention E-HLOC is  $23.20 \pm 5.974$ . Mean score of Post-intervention E-HLOC is  $23.11 \pm 5.388$ . When Paired t-test was applied, insignificant result was seen ( $p$ -value=0.666). As the results show that there is a difference in HLOC scores after short-term preconception health education, hence Null hypothesis is rejected and we can say that short term health education effects young females.

## DISCUSSION

This study was done to evaluate the effect of short duration health education program on changing the knowledge of young females about nutritional requirements during preconception period.

In this study an increase is seen in the mean post intervention results of internal health locus of control scores. This significant change in internal score suggests that health education program was effective in modifying the beliefs of the individuals in a way that dependence of health on their own self is increased. It is similar to the results seen in multiple interventional studies that have used MHLC questionnaire to calculate change in internal health locus of control of participants<sup>19,27</sup>.

Decrease is noted in the means of pre and post intervention external health locus of control E-HLOC scores. It means people's belief that their health is controlled by others or chance is decreased, after the knowledge they gained from the workshop. This result is similar to results seen in previous study<sup>19</sup>.

Our results are consistent with a study done in the past, which suggests that individuals with higher internal health locus of control score are more physically active and give importance to healthy nutrition. On the other hand individuals with higher chance and powerful others (E-HLOC) give less importance to physical activity and healthy nutrition<sup>28</sup>.

Another study suggests that high Internal locus of Control score is related to more physical activity. It was also been seen that chance LOC was found to have a significant negative relationship with physical activity, mental health and quality of life<sup>29</sup>. Similarly, depression and Health locus of control have a significant association, those having lower mean I-HLOC scores and higher C-HLOC scores showed depressive symptoms<sup>15</sup>.

In the past, studies have been done to evaluate the effectiveness of health education programs. One such study comprising of mindfulness based intervention to reduce stress in pregnant women during second half of the pregnancy when compared with control group receiving no intervention showed that it effectively reduced stress in the study population. This indicates that health education programs can produce positive changes regarding health and thus improves pregnancy outcomes<sup>30</sup>.

## Strengths of the Study

A short term health education program was designed, conducted and was able to increase awareness about nutritional conditions regarding preconception health among females.

Students were also engaged in hands on practice. This resulted in student's participation in the workshop and better understanding of the subject.

This study was done on a small scale as only one university was used and only students enrolled in bachelors program were approached which compromises the generalizability of this study.

## CONCLUSION

The results of this study depict that short term health education program causes an effect on health locus of control as seen by change in both internal and external loci before and after the intervention. Health locus of control is an effective tool for measuring health belief in terms of internal and external loci. Increase in internal

health locus of control shows that individuals become more self-reliant in terms of health.

### CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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