ORIGINAL ARTICLE

A Study to Evaluate the Effectiveness of Pamphlet Regarding Pregnancy Health Applications Among the Late Adolescents Girls From selected Degree Colleges in Bangalore

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Abstract

Introduction: The pregnancy health app is a mobile application that caters to the highly specific health interests of pregnant women who are undergoing a stage of pregnancy. These applications are helpful in tracking the ovulation period, symptoms of pregnancy, development of a baby throughout the gestation period, and care of the pregnant lady till birth

Objectives: To assess the existing knowledge regarding the pregnancy health app, evaluation of the effectiveness of pamphlet regarding the same and determination of the association between post-test knowledge scores with the selected demographic variables among the late adolescent girls from selected degree colleges in Bangalore.

Methodology: The research approach was an evaluative approach; the research design was quasi-experimental design and the setting was RR Advanced Studies College. The sample of this study comprised 60 final-year girls. Purpose's sampling technique was used to draw samples for the study.

Results: In the present study, majority (51.7%) of the late adolescent girls were found to have inadequate knowledge, 29.9.% of the group had moderately adequate knowledge, while 18.3%were found to have good knowledge. However, in the 'post test', 100% of the group members had adequate knowledge. None of them had either moderately adequate or inadequate knowledge. The knowledge was significantly associated with demographic variables and the type of diet of the late adolescent girls which is greater than the table value at respective df.

Conclusion: Pregnancy health apps proved to be beneficial to understand the nutrition requirements and monitoring the overall health during the pregnancy period.

Keywords: Evaluate; Effectiveness; Pamphlet; Pregnancy Health App; Late Adolescent Girls; Degree Colleges.

Introduction

Pregnancy is the term used to describe the period in which a fetus develops inside a woman's womb or uterus.[1]

According to the World Health Organization, 'health' is a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity.[2]

The app is most commonly a small, specific software or a program used for mobile devices. The term app originally referred to any mobile or desktop application, but as more app stores have emerged to sell mobile apps to smartphone and tablet users, the term has evolved to refer to small programs that can be downloaded and installed all at once.[3]

Pregnancy Health apps are programs that offer health-related services for smartphones and tablet PCs. A pregnancy health app is a mobile application that caters to the highly specific health interests of women who are undergoing a stage of pregnancy. These applications are helpful in tracking the ovulation period, symptoms of pregnancy, development of a baby throughout the gestation period, and care of the pregnant lady till birth. There are many health apps available for purchase from app stores. Pregnancy health app helps to track fertility, pregnancy, and parenting for newborns. This app was also used by employers to keep track of their employees' health to avoid future illnesses. It offers prescriptions and testing kits to be delivered and is best known for its hassle-free online service. It is a free period, fertility, ovulation, lifestyle and mood swings tracker that lets one keep track of the baby's development throughout the gestation. Additionally, it also serves as a pregnancy tracker, pill reminder, fitness tracker, and physical activity tracker. Because they're accessible to patients both at home and 'on-the-go', health apps are a part of the movement toward mobile health programs in the healthcare sector. Some are designed to help consumers make healthier choices in their everyday life by offering advice about fitness or nutrition. Some apps are aimed at physicians themselves—many apps combine health with electronic medical records (EMR), allowing doctors to keep accurate and easily accessible records.[4]

The benefits of the pregnancy health app are for the women who are tracking their ovulation, and fertility period; women who are trying to conceive and are looking for symptoms of pregnancy; antenatal women who are looking for nutritional advice, exercise guidance, psychological and emotional advice during pregnancy and women who are practicing family planning. The contraindications for pregnancy health apps are girls below the stage of puberty, women who are 60 and above, men, and women who are not interested in the app. The advantages of the pregnancy health app are ovulation period tracker for women, it helps to track body changes during pregnancy, guiding women on what's normal during a certain period and what's not, it also gives good information regarding diet during pregnancy, regarding antenatal exercise, care during the antenatal period till after delivery, tracks contractions, antenatal medication reminder, and freely available in the app store. The benefits of pregnancy health app include providing data collection, heath for caregivers and family, enhance physician efficiency, enhance diagnostic accuracy,

convenience and better communication.[5]

The result is an easily accessible library of mobile health applications without validation or peer review that can be downloaded by patients, students, and providers alike. Although some apps include a legal statement, they are not required to disclose their limitations or information sources. Thus, a legitimate concern regarding the development of harmful apps exists. Clearly, greater involvement of true health care professionals in the creation, development, and review of apps is a crucial step toward ensuring the safety of patients and reducing the risks of providers. Although the effectiveness of health apps has been questioned by some, many believe that the apps are transforming the medical world for both patients and health care providers. Over and above, many apps can be a portal to better health care by boosting communication between doctor and patient.[5]

It could also be very useful for expecting mothers, as they need to ensure their health is closely monitored during pregnancy.[6]

Monitoring variables like heart rate would give expecting mothers a way of ensuring their baby is doing well. Presently, it involves regular prenatal checkups, as there are no effective means of interpreting data in between. By constantly wearing a monitor, an expecting mother could have her phone alert her if something was amiss.[6]

Pregnancy health app are available on both iOS and Android and aggregate data into an easy-to-use interface. Entering data is as simple as tapping the big red button in the circular cycle, which shows both your ovulation and your fertile period and the development of the fetus throughout the pregnancy. The app also sends notifications to an individual as to when her period might start.[7]

Until there is solid research confirming the accuracy of all health apps on the market, their effectiveness will continue to be questioned. It seems, however, that with downloads of pregnancy health care apps set to boom in the coming year, consumers, health care providers, and researchers alike are positive about the manner in which they can revolutionize the medical world. In the future, digital health apps will schedule appointments, state the doctor's schedule, help monitor medications' side effects, and help an individual to follow a 'care plan' accurately. These changes will engage patients with their health and health care in new ways. It will also reform health care delivery radically.[8]

Objectives

1. To assess the existing knowledge regarding pregnancy health apps among the late adolescent girls from selected degree colleges, Bangalore.

2. To evaluate the effectiveness of pamphlets regarding pregnancy health apps among late adolescent girls in selected degree colleges, Bangalore.

3. To determine the association between the post-test knowledge score with their selected demographic variables among the late adolescent girls in selected degree colleges, Bangalore.

Methodology

The research approach was an evaluative approach, the research design was quasi-experimental design, and the setting was RR Advanced Studies College. The sample of this study comprised 60 final-year girls. Purposive sampling technique was used to draw samples for the study.
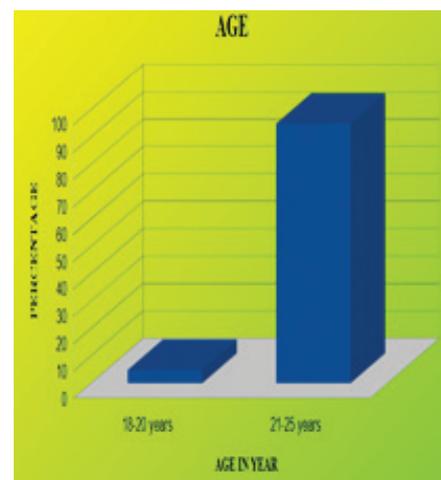
In the present study, 51.7% of late adolescent girls were found to have inadequate knowledge, 29.9% had moderately adequate knowledge and 18.3%were found to have good knowledge. In post-test, 100% of subjects had adequate knowledge, and none of them had moderately adequate or inadequate knowledge. It was evidenced that there is an increase in the knowledge after the distribution of pamphlets. The pre-test mean percentage was 47% and the post-test mean percentage was 90.4%. The paired t-test was carried out and it was found invariably significant at $p < 0.05$ level. Hence null hypothesis (H_0) is rejected, and the research hypothesis (H_1) was accepted. The knowledge was significantly associated with demographic variables and the type of diet of the late adolescent girls which is greater than the table value at respective df.

Results

I: Distribution of samples based on frequency and percentage of demographic characteristics.
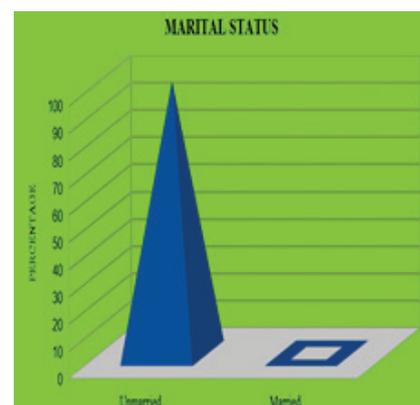
The majority of the late adolescent girls in the group were aged between 21-25 years (95%) and a few of them were aged between 18-20 years (5%) whereas the majority of the subjects in the group were Unmarried. Based on the religion, the subjects in the group were Hindu (83.33%), Christian (13.33) and a few of them were Muslim (3.3%). Depending on the type of family, 28.3% belonged to a joint family and 71.7% belonged

to a nuclear family.With regard to diet majority of them (96.7%) were non-vegetarian and a few of them were vegetarian (3.3%),whereas, in terms of area of living, the majority of them belonged to urban areas (61.7%) and few of them from rural areas (38.3%). In regard to education, the majority of them were undergraduates (100%) whereas none of them were post graduates and a majority of them were having Prior Knowledge Regarding Technology (96.7%) and a few of them were not having any prior knowledge regarding technology, source of knowledge (3.3%). In regard to the source of knowledge(53.3%) were from friends,(43.3%) from family, (and 3.4%) were having no information.
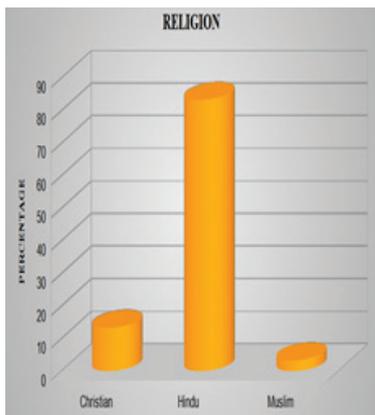

Figure 1: Bar diagram representing percentage distribution of respondents according to the age of late adolescent girls in selected degree colleges in Bangalore.

Based on the Figure 1, the majority of the subjects in the group were aged between 21-25 years (95%) and a few of them were aged between 18-20 years (5%).
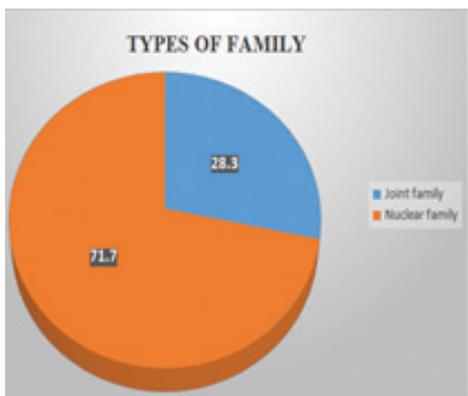

Figure 2: Pyramid diagram representing percentage distribution of respondents according to the marital status of late adolescents girls in selected degree colleges in Bangalore

Figure 2 shows, that a majority of the subjects in the group were unmarried (100%).

Figure 3: Cylindrical diagram representing percentage distribution of respondents according to the religion of late adolescents girls in selected degree colleges in Bangalore

Based on the religion, Figure 3 shows the majority of the subjects in the group were Hindu (83.33%), followed by Christian (13.33%), and Muslim (3.3%).

Figure 4: Pie diagram representing percentage distribution of respondents according to the types of the family of late adolescents girls in selected degree colleges in Bangalore

According to the types of family, Figure 4 shows a majority (28.3%) were having joint families and 71.7% were having nuclear families.
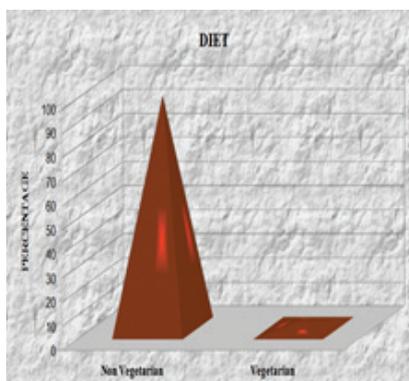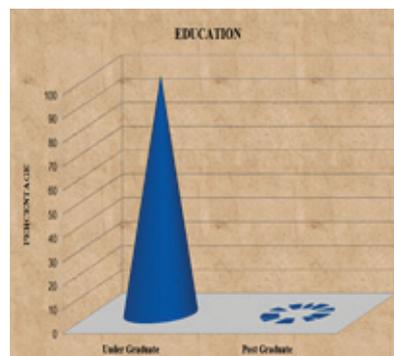

Figure 5: Pyramid diagram representing percentage distribution of respondents according to the diet of late adolescents girls in selected degree colleges in Bangalore

Based on the type of diet, Figure 5 shows the majority of them (96.7%) were non-vegetarian and a few of them were vegetarian (3.3%).
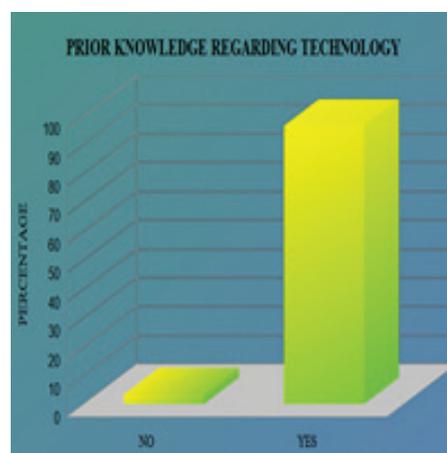

Figure 6: Pie diagram representing percentage distribution of respondents according to the areaof living of late adolescents girls in selected degree colleges in Bangalore.

According to the area of living, Figure 6 shows the majority of them belong to urban areas (61.7%) and 38.3% were from rural areas.
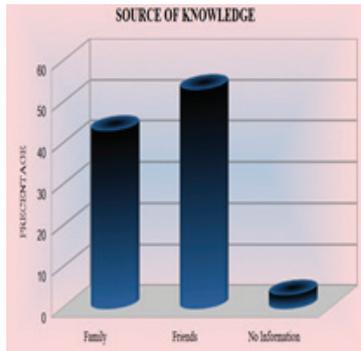

Figure 7: Cone diagram representing percentage distribution of respondents according to the area of living of late adolescents girls in selected degree colleges in Bangalore

Based on their education, Figure 7 shows the majorityof them were undergraduate (100%) whereas none of them were postgraduate.

Figure 8: Bar diagram representing percentage distribution of respondents according to the prior knowledge regarding the technology of late adolescents girls in selected degree colleges in Bangalore

Based on Figure 8, the majority of them were having prior knowledge regarding technology (96.7%) and a few of them were not having any prior knowledge regarding technology.
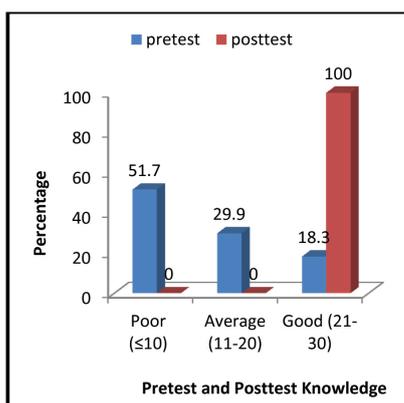

Figure 9: Cylindrical diagram representing percentage distribution of respondents according to the source of knowledge of late adolescent girls in selected degree colleges in Bangalore

Figure 9 shows the source of knowledge from friends (53.3%), family (43.3%), and no information (3.4%).

II– *Assessment of pre and post-test knowledge regarding pregnancy health apps among late adolescent girls in selected degree colleges, Bangalore.*

Figure 10 shows thatin the pre-test, 51.7% had poor knowledge, 29.9% had average knowledge, and the remaining 18.3% had good knowledge. But, in the post-test, all 60(100%) had good knowledge, it was evidenced that there is an increase in the knowledge of late-adolescent girls.

Figure 10: Bar diagram representing percentage distribution of respondents according to the pretest and post-testscores of late adolescents girls in selected degree colleges in Bangalore

III – *Effectiveness of pamphlet regarding pregnancy health app among late adolescent girls in the selected degree colleges, Bangalore* Findings represents the mean pre-test and post-test.The paired t-test was carried out,calculated 't' value is 13.339 which is greater than the tabulated 't' value, where df is 59 and it was found significant at p<0.05 level, hence null hypothesis

(H_{01}) is rejected, and the research hypothesis (H_1) was accepted. It provides evidence that the pamphlet was significantly effective in providing knowledge regarding the Pregnancy health app.

IV - *Association between post-test knowledge with their selected demographic variables*

Note: S-Significant at 95% (P<0.05); NS-Not significant at 95% level (p>0.05)

Findings showed the outcomes of association between post-testknowledge and demographic variables. Out of demographic variables, Education is education wasgreater than the table value at respective df(Chi-square value=3.84, df=1) was significantly associated with knowledge. The other variables were not statistically significant at the 95% level (p>0.05).

Limitations

➢ The study is limited to the late adolescent girls who are studying final year in RR Education and Advance Studies College, Bangalore.

➢ The study is limited to late-adolescent girls who are able to read and write English.

➢ The data collection period is limited to 4-6 weeks.

➢ The sample size is limited to 60 late-adolescent girls

➢ The small number of samples limits the generalization of the study.

➢ The study is limited to late-adolescent girls who were available at the time of the study.

➢ The study did not use a control group.

➢ The investigator had no control over the events that took place between pre-test and post-test.

Implications

Nurses are key persons of a health team, who play a major role in health promotion and maintenance. Since nursing is a practicing profession, the researchers generally integrate the findings from nurses into practice. This study implies a basis for providing knowledge regarding pregnancy health apps among late adolescent girls which will help to develop and improve the knowledge level among the late adolescent girls, and in which the late adolescent girls can impart their knowledge to other late-adolescent girls and married women regarding the importance of pregnancy health app.

Discussion

In the present study,the majority 51.7% of late adolescent

girls were found to have inadequate knowledge, 29.9.% had moderately adequate knowledge and 18.3% of them were found to have good knowledge but, in the post-test, 100% had adequate knowledge, none of them had moderate knowledge and none of them had inadequate knowledge. It was evidenced that there was an increase in knowledge after the distribution of the pamphlet. The pre-test range was within 7-25, the mean of 14.1, the standard deviation was 6.114, the mean percentage was 47% and the post-test range was 22-30, the mean was 27.12, the standard deviation was 2.57, and the mean percentage was 90.4%.

A study was conducted based on many mobile telephone apps in order to help women self-monitor aspects of pregnancy and maternal health. This literature review aims to understand midwives' perspectives on women self-monitoring their pregnancy using eHealth and mHealth, and establish gaps in research. As a result, twelve relevant papers covering midwives' perspectives of the use of eHealth and mHealth by pregnant women were obtained for inclusion in this review. Seven of these publications focused on midwives' views of eHealth, and five on their perspectives of mHealth interventions. These literatures demonstrate that midwives generally hold ambivalent views toward the use of eHealth and mHealth technologies in antenatal care. Often, midwives acknowledged the potential benefits of such technologies, such as their ability to modernize antenatal care and to help women make more informed decisions about their pregnancy. However, midwives were quick to point out the risks and limitations of these, such as the accuracy of conveyed information, and negative impacts on the patient-professional relationship. It is concluded that post-COVID-19, where technology is continuously developing, there is a compelling need for studies that investigate the role of eHealth and mHealth in self-monitoring pregnancy, and the consequences this has for pregnant women, health professionals and organizations, as well as midwifery curricula.[9]

In the present study, the mean percentage of pre-test knowledge was 47% and the mean percentage post-test was 90.4%. The results indicated that there was a significant improvement in the knowledge among the late adolescent girls regarding pregnancy healapps. Hence the pamphlet was effective.

In the pre-test mean knowledge score was 14.1 the 0, the mean percentage is 47% and the standard deviation was 6.114. Post-test mean knowledge is found to be 27.12, the mean percentage is 90.4% and the standard deviation is 2.57. Findings showed that there was a significant improvement in the knowledge regarding pregnancy health apps among late-adolescent girls. It was evidenced that the pamphlet was statistically significant in improving knowledge among late-adolescent girls. There will be a significant difference between the mean pretest and post-test knowledge of the late adolescent girls regarding pregnancy health apps is accepted.

Though there is lack of literature on the effectiveness of pamphlet regarding pregnancy health apps by comparing the pre-test and post-test knowledge scores, there have been multiple studies on the effectiveness of pamphlet for young women.

The Chi-square analysis was carried out to determine the association between knowledge with their selected demographic variables.The Chi-square analysis was carried out to determine the association of knowledge with their selected demographic variables of late adolescent girls and it was found to be associated with one variable i.e., type of diet which is greater than the table value at respective df (Chi-square value=3.84, df=1) whereas others variables like age, education, marital status, religion, type of family, area of living, knowledge regarding technology and source of information were not statistically significant. The result of chi-square analysis indicated that since there was one variable which was significant so there was significant association of knowledge with their selected variables. Hence research hypothesis (H_2) was accepted, and the null hypothesis (H_0) was rejected.

Conclusion

Pregnancy health app is very important because people can get various information with the use of internet, by downloading any apps from the play store, which gives people information according to their needs by sitting at home.

Adequate knowledge of pregnancy health app helps in reducing morbidity rate in pregnant women as well as newborns, it gives various information regarding body changes during pregnancy to many women, development of the fetus during pregnancy, nutrition require during pregnancy, it helps in various health aspects during pregnancy, it helps to prevent any complication that may arise during pregnancy by checking the signs and symptoms as well as level of glucose level which we track in the pregnancy health app, it is quite beneficial for all women as they can track their problems at home, it is freely available in play store, and this app also meets the needs of various pregnant women.

Acknowledgement

Conflict of Interest

None

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