Effect of Instructional Guidelines on Adolescent Girls Knowledge and Attitude regarding Puberty Development

Tahany Mohammed Abd El Aliem[1], Amel Ahmed Hassan Omran [2] and Rehab Soliman Abd El Aliem [3]

(1) Teacher in Elbagour technical nursing school, (2) Professor of Obstetrics &Woman's Health Nursing, Faculty of Nursing - Benha University, Egypt and (3) Assistant Professor of Obstetrics &Woman's Health Nursing, Faculty of Nursing –Benha University, Egypt.

Abstract

Background: Puberty is the most important milestone of change in teenage life. This is a time to become adult with reproductive ability. **The aim** was to evaluate effect of instructional guide lines on adolescent girls knowledge and attitude regarding puberty development **Design:** A quasi experimental, one group study design was utilized. **Setting:** Secondary Nursing school which affiliated to general hospital and educational institutes at province of Qaliobya. **Sampling:** A convenient sample of 100 adolescent girls. **Three tools were used:** A structured interviewing questionnaire, assessment of adolescent girl's knowledge regarding puberty development and assessment of adolescent girl's attitude regarding puberty development. **Results:** Minority of the studied adolescent girls (11.0%) had good knowledge regarding puberty development pre intervention which increased to (81.0%) post intervention, however minority of studied adolescent girls (19.0 %) had positive attitude regarding puberty development pre intervention which increased to two thirds (67.0%) post intervention. Additionally, there were a highly statistically significant relation between total knowledge score and total attitude score pre intervention and post intervention. **Conclusion:** There was highly statistically significant relation between total knowledge and total attitude score pre intervention and post intervention. There was significant improvement in adolescent girls' knowledge and attitude regarding puberty development. Therefore, the study hypothesis was supported. **Recommendations:** encourage healthy and positive attitude about puberty development in girls at an early age before puberty occurs rather than teaching them when puberty occurs.

Keywords: Adolescent girls , Attitude, Instructional guideline Knowledge, Puberty development.

Introduction

Puberty is the process of physical changes by which a child's body matures into an adult body capable of sexual reproduction to enable fertilization which initiated by hormonal signals from the brain to the gonads: the ovaries in a girl, the testes in a boy. In response to the signals, the gonads produce hormones that stimulate libido and the growth, function, and transformation of the brain, bones, muscle, blood, skin, hair, breasts and sexual organs. Physical growth (height and weight) accelerates in the first half of puberty and is completed when the child has developed an adult body **(Payer et al., 2021).**

Notable among the morphologic changes in size, shape, composition, and functioning of the pubertal body that is the development of secondary sex characteristics, the "filling in" of the child's body; from girl to woman, from boy to man. Derived from the Latin

puberatum (age of maturity), the word puberty describes the physical changes to sexual maturation, not the psychosocial and cultural maturation denoted by the term "adolescent development" in Western culture, wherein adolescence is the period of mental transition from childhood to adulthood, which overlaps much of the body's period of puberty **(Ramee et al., 2020).**

Physical changes in girls include, breast development, the first physical sign of puberty in girls usually a firm, tender lump under the center of the areola of one or both breasts, and occur on around 10.5 years old. This is referred to the widely used Tanner staging of puberty, this is stage 2 of breast development (stage 1 is a flat, pre pubertal breast). Within six to 12 months, the swelling has clearly begun in both sides, softened, and can be felt and seen extending beyond the edges of the areola, this is stage 3 of breast development (**Susman et al., 2020).**

Vagina, uterus, ovaries, perineal skin keratinizes due to effect of estrogen increasing its resistance to infection. The mucosal surface of the vagina also changes in response to increasing levels of estrogen, becoming thicker and duller pink in color (in contrast to the brighter red of the prepubertal vaginal mucosa). Mucosa changes into a multilayered structure with superficial layer of squamous cells. Estrogen increase glycogen content in vaginal epithelium, which in future plays important part in maintaining vaginal pH. Whitish secretions are normal effect of estrogen as well **(Almeida et al., 2020).**

The first menstrual bleeding is referred to menarche; the average age of menarche is 12.5. In fact, anytime between 8 and 16 is normal. While in Egypt, the average age of menarche is 12.5 and the time between menstrual period (menses) is not always regular in the first two years after menses appearance **(Hassan, 2021).**

There are many factors that can affect the age at which puberty begins such as both genetic factors and environmental factors as race, climate and nutritional state and social circumstances **(Vuralli, et al., 2020).**

The psychological changes associated with puberty as adolescent girls become more moody and irritable during this period of their lives. This moodiness is commonly attributed to the sudden and fluctuating hormonal levels, or "raging hormones". It is certainly true that sex hormones are powerful chemical agents that can affect mood. During puberty, the body is adjusting to these fluctuating hormone levels and this fluctuation does create mood swings. However, there are several other physical causes accounting for increased moodiness apart from fluctuating hormone **(Kumari., 2020).**

The role of nurse as educator is transformation of information and health behaviors for girls in order to have a healthy transition from the critical stage of puberty. Nurses care for adolescents in a variety of settings, including communities, schools, and public health and acute care clinics, which affords many opportunities to improve adolescents' sexual and reproductive health which includes both (preventive counseling and treatment), nurses can use the unique combination of knowledge and skills required to deliver evidence-based counseling and services to adolescents and parents to make a positive impact on adolescent sexual and reproductive outcomes. Nurses have the capacity and opportunity to disseminate information about sexual and reproductive health to adolescents girl about physical changes **(Mohamadi et al .,2021).**

Significance of the study

Puberty is considered a neglected period and critical juncture between childhood and

adulthood and is a time of growing, changing, and gaining reproductive power. Sudden and obvious changes in teenagers in all cultures despite the difference in its meaning are an effective and significant event in the lives of girls. Without adequate guidance, transition from this stage of life can create numerous challenges for adolescent girls, families, and communities **(Bahari et al ., 2021).**

According to **UNICEF**, there are nearly 1.2 billion adolescents (10–19 years old) worldwide; 85% of whom live in developing countries. Puberty is not a problem to be solved. Rather, it is a complicated time of accelerated physical growth and sexual development. But by facing this vital phase of life unprepared, learners are left confused and unsupported, which in turn affects the quality of their education **(Fialkov et al., 2021).**

In Egypt health education is weak and the public school curriculum offers little to educate students about health in general and about reproductive health in particular **(Wahba et al., 2019).**

Aim of the study

The study aimed to evaluate effect of instructional guideline on adolescent girl's knowledge and attitude regarding puberty development

Study hypothesis:

-The instructional guidelines will improve adolescent girl's knowledge about puberty development than pre intervention.

-The instructional guidelines will help in acquiring a positive attitude of girls toward puberty development than before intervention.

Subjects and method

Study Design:

A quasi-experimental design (pre and posttest) was utilized to fulfill the aim of the study.

Study setting:

The study was carried out in secondary nursing school which affiliated to general authority of hospital and educational institutes in teaching hospital at Benha City.

Sample:

a- Sample type: A convenient sample technique was used.

b- Sample size: (The total number of adolescent girls in secondary nursing school were 100).

Tools for data collection:

Three tools were used for data collection:

I: A structured interviewing questionnaire:

It was designed by the researchers after reviewing related literature It was written in Arabic language and encompassed of two parts;

- **Part 1:** Socio demographic data of the studied women which included age, residence, parents' level of education, grade number.
- **Part 2:** Menstrual history of the studied adolescent girls which included age of onset of menses, age of menarche, regularity of menstruation, amount of menstruation, length of menstruation, reason for seeking of counseling during menstruation and premenstrual syndrome.

II: Assessment of adolescent girl's knowledge regarding puberty:

It was designed by the researcher after reviewing related literature **(Westen et al .,2018 , Coast et al., 2019)** to assess adolescent girl's knowledge regarding puberty development. It was encompassed of 16 items including definition of puberty, suitable age of puberty, types of puberty, causes of early puberty, factors affecting onset of puberty, first signs of puberty in girls, later signs of puberty, components of female reproductive

system, emotional changes and hormonal changes during puberty, danger of puberty stage, source of information regarding puberty and with whom speak about embarrassing things.

Scoring system:

Each question was assigned a score of 2 when the answer was completely correct, 1 when the answer was incompletely correct and 0 when answer was unknown. The total of each part was calculated by summation of the scores of its items. The total score for the knowledge of a participant was calculated by the addition of the total score of two parts. The mean and standard deviation was calculated. As adolescent girl's total knowledge score was classified as the following:

- Good when total score was 75% to 100%.(27-36)degree
- Average when the total score was 50% to less than 75 %.(18-26) degree.
- Poor when the total score was less than 50%.(<17)degree

III: Assessment of adolescent girl's attitude regarding puberty:

The tool was designed by the researcher after reviewing related literature (**Sundgot-Borgen, 2020 , Jatin, & Thomas., 2021)** to assess adolescent girl's attitude regarding puberty development, that was measured by three points likert scale that included degree of agreement and disagreement and sometimes agree which encompassed of 2 parts.

Part 1 encompassed 14 items related to personal hygiene.

Part 2 encompassed 25 items related to psychological changes.

Scoring system:

Each item was scored as the following: score 2 for agree, score 1 for uncertain and score 0 for disagree. Women's attitude was classified to the following:

- Positive when the total score was 75% to 100% (65-86) degree.
- Uncertain when the total score was 5o% to less than 75% (43-64) degree.
- Negative when the total score was less than 50% (<42) degree.

Tools validity:

Tools of data collection were reviewed by panel expertise of three Obstetrics and Gynecological Nursing specialists to test content validity. Pre-testing of the tools revealed that the tool was clear, feasible and there was no ambiguity in the language**.**

Reliability :

Internal consistency and a reliability coefficient done by (Cronbach's alpha test), and it was 0.852 for knowledge assessment sheet and reliability of the attitude was 0.862.

Ethical consideration:

- An official permission from the selected study setting was obtained for the fulfillment of the study**.**
- The aim of the study was explained to each woman before applying the tools to gain adolescent girls' confidence and trust**.**
- An oral consent was used to obtain adolescent girls agreement to participate in the study and withdraw when adolescent girl needs**.**
- The study did not have any physical, social or psychological risk of the adolescent girls.
- The data was collected and treated confidentially**.**
- Each adolescent girl was informed about time throughout the study**.**
- Approval of faculty ethics committee for scientific research was be obtained for the fulfillment of the study**.**

Pilot study

Ten percent of the total sample (10 adolescent girls) was included in the pilot study to test the clarity and applicability of the study tools. It was done to estimate the

period required to fill in the questionnaire, evaluate applicability & clarity of tools and assess feasibility of field work. The questionnaire weren't requiring modifications. Adolescent girls involved in the pilot study were included in the study and the total sample were (100) adolescent girls.

Field work:

The study was started from the beginning of March 2021 to the end of Mai 2021 covering period of three months. The researcher visited the pre mentioned setting from12 am to 12.30 pm 5 days per week (Sunday to Thursday).(this time was chosen because it's the time of break for students).

The researcher obtained essential administrative permission from the director of the selected study setting. The study was conducted through the following phases;

Preparatory and assessment phase

The researcher introduced herself and explained the aim of the study briefly to adolescent girls to gain their co-operation and obtain their oral consent to participate in the study. The data collected would be treated confidentially and used only for the purpose of the research.

The researcher interviewed first grade students (25) students. The researcher explained questionnaire to adolescent girls student and distribute questionnaire to students which contains questions about socio demographic characteristics, menstrual history and adolescent girl's knowledge regarding puberty development. And adolescent girl's attitude regarding puberty development so the average time needed to complete tools ranged from 20-30 minutes. Data collected for first grade from the beginning of March (first week of March) as pretest for first grade students and made need assessment. And for second grade data collected at (second week of March).and for third grade data collected at (third week of March).

Planning phase

The researcher designed instructional guideline in

Arabic language supported by figures after knowing adolescent girl's deficit knowledge and health practices regarding puberty development from pretest assessment. The instructional guideline was designed according to adolescent girl's need and emphasizing the principles of adult learning and enhancing active participation, interaction, and critical thinking. The instructional guidelines contained proper information about components and functions of female reproductive system and puberty(definition, stages of puberty, physiological and psychological changes of puberty) and information about menstruation such(definition of menstruation, phases of menstruation, signs and symptoms of menstruation, definition of premenstrual syndrome and signs and symptoms of premenstrual syndrome, proper personal hygiene during menstruation ,how to deal with minor discomforts during menstruation such as menstrual pain and healthy diet during menstruation.

Implementation phase

This phase was done by collecting adolescent girls and distributing the instructional guideline which was in clear Arabic language and has sufficient information about the topic of puberty development and each grade students received four session .the duration of each session took approximately 30 minutes. Different teaching methods were used by the researcher as group discussion and lecture, in addition to instructional guidelines given to each adolescent girl at the end of the session. First grade students at(first week of April)

and second degree (second week of April) and third degree at(third week of April).

First session: The researcher distributed a guide line to each adolescent girl about puberty development**.** . Firstly, the researcher provided overview about the booklet, and then took adolescent girl's feedback about puberty development.

The researcher provided proper information regarding components and functions of reproductive system; the researcher supported the information with clear pictures. As female reproductive system consists of external genital organ and internal genital organs. external genital organs consists of (Mon pubis, labia maijora, labia minora, Bartholin glands and clitoris).while the internal genital organ consists of (vagina,uterus,fallopian tubes and ovaries).and explained to students function of each components.

At the end of the session, the researcher gave the adolescent to express their opinions in the session, Benefits acquired from the session and allow them to ask questions and answer it.

Second session: In this session the researcher make rapid revision on the previous session to ensure adolescent girl contact for 5 minutes, and then inform the adolescent girl about definition of puberty ,stages of puberty and characteristics of each stage and physiological changes associated with puberty and abnormal puberty definitions and causes.

The researcher provided healthy instructions for adolescent girl about physiological changes during puberty and puberty as normal process as a passage from child hood to adult hood. At the end, the researcher gave the women five minutes to ask any question about puberty and health instructions.

Third session: In this session, the researcher revised the previous sessions for providing feedback about previous sessions. Then, the researcher took women's feedback menstruation, most of adolescent girls said that menstruation occurs every month but did not know physiology of menstruation, provided them correct information about menstruation definition as(periodic vaginal bleeding that occurs with shedding of uterine mucosa) and phases of menstruation(follicular ,ovulatory and secretory phase.

The researcher provided the women with proper information about signs and symptoms of menstruation as abdominal pain and how to relieve it by placing a heating pad or hot water bottle on lower back and abdomen, rest when needed and exercise suitable exercise as yoga and avoid caffeine consumption and eating well balanced diet

Then the researcher informed women with measures that can decrease acne as treat acne early. It is easier to treat a few pimples than a breakout. Early treatment also can help prevent acne in adult years and reduce scars. . Protect skin from the sun, Sun exposure can make acne worse, and some medications make skin susceptible to the sun's rays. apply a nonoily moisturizer that includes sunscreen, . Avoid excessive amounts of cosmetics and Protect skin from items that create friction or cause pressure**.**

Fourth session: In this session the researcher revised the previous sessions and gave the adolescent girl opportunity to ask any question. The researcher explained the importance of personal hygiene as take warm bath daily. advice and explained to girls to maintain good hygiene during menstruation, girls need to change their sanitary towels regularly, especially in the first two to three days menstrual absorbent healthy towels should change three or four times a day and girls should wash the area around the vagina at least twice a day with soap and water. And girls should wear cotton under wear.

Evaluation phase

The effectiveness of the instructional guideline was evaluated by using the same tools of pretest, after 2 weeks of implementation of the instructional guideline the posttest was administered to adolescent girls as the following posttest for first grade at(the second week of Mai) and for second year at(third week of Mai) and for third grade at(fourth week of Mai).

Limitation of the study:

Sometimes the sessions were protracted due to noise and other individual's interruption.
Time allowed to meet student wasn't enough

Statistical analysis:

Data entry and statistical analysis were done using the Statistical Package for Social Science (SPSS version 22.0). Descriptive statistics included frequencies and percentages, means and standard deviations. Inferential statistics as (Chi-square test) and Pearson correlation coefficient were used. For all of the statistical tests done, p-value > 0.05 indicated no statistical significant difference, p-value ≤ 0.05 indicated a statistical significant difference, and p-value P ≤ 0.001 indicated a highly statistically significant difference.

Results:

Table 1 shows that, less than half of the studied adolescent girls (42.0%) aged 16years with mean ± SD 16.08±0.76 years, and about two thirds of the studied girls (63.0%) were living in rural and nearly half of studied adolescent girls' mothers (48.0%) had secondary schools. A additionally half of studied adolescent girls' fathers had secondary schools (52.0%), and about two third of studied adolescent girls (59%) is the first baby for their parents, while nearly three quarters of studied adolescent girls (73%) are nuclear family additionally three quarters of studied adolescent girls `s family income(75%) is moderate.

Table 2 clarifies that there was a highly positive statistical correlation between total knowledge and total attitude scores of studied adolescent girls at pre-and post-intervention phase (p≤0.001).

Figure 1 reveals that the minority of studied adolescent girls (11.0%) had good knowledge about puberty development pre intervention which increased to (81.0 %) post intervention.

Figure 2 show that the lowest percentage (19%) of studied adolescent girls had positive attitude at pre intervention which increased to (two thirds) post intervention.

Table 1: Distribution of the studied adolescent girls according to their socio demographic data (n=100).

Socio demographic data	No	%
Age (years)		
>15	25	25.0
>16	42	42.0
>17	33	33.0
Mean ±SD	16.08±0.76	
Grade level		
Grade one	25	25.0
Grade two	42	42.0
Grade three	33	33.0
Residence		
Rural	63	63.0
Urban (city)	37	37.0
Educational level of mothers		
Illiterate	4	4.0
Read and write	11	11.0
secondary school	48	48.0
High education	37	37.0
Educational level of fathers		
Illiterate	2	2.0
Read and write	6	6.0
secondary school	52	52.0
High education	40	40.0
Birth order		
First	59	59.0
Second	24	24.0
Third	15	15.0
≥Fourth	2	2.0
Family type		
Nuclear	73	73.0
Extended	27	27.0
Family income		
Lower	21	21.0
Moderate	75	75.0
Upper	4	4.0

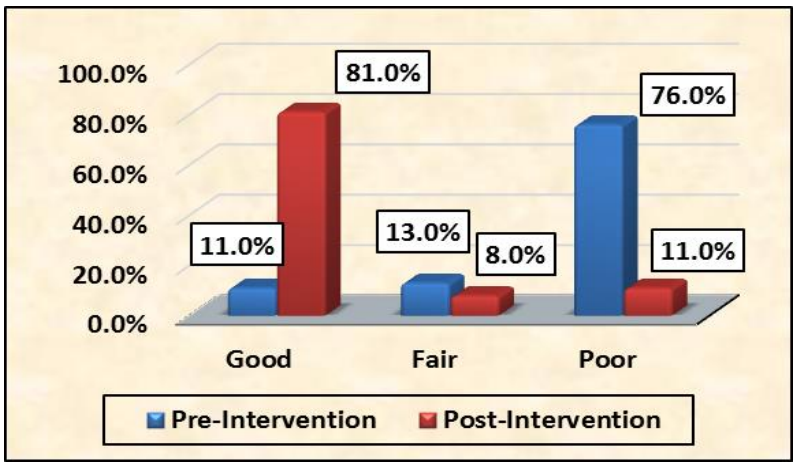

Figure 1: Percentage distribution of studied adolescent girls regarding their total knowledge score about puberty at pre and post intervention phases (n = 100).

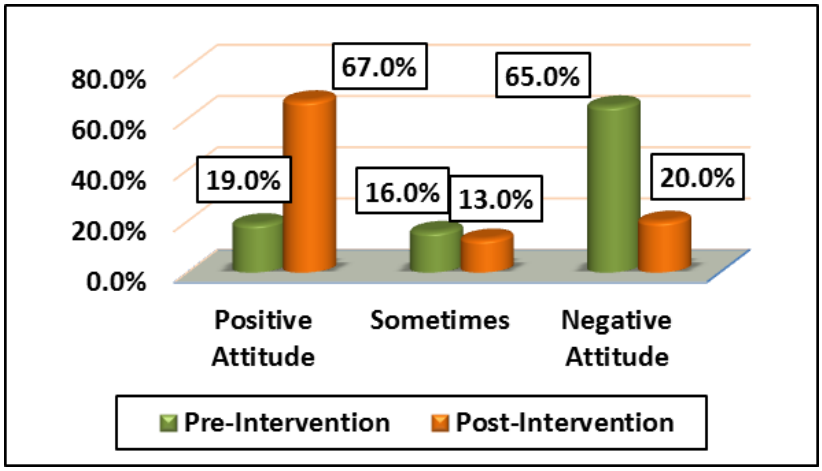

Figure 2: Percentage distribution of studied adolescent girls' total attitude regarding puberty at pre-intervention, post-intervention phases (n = 100).

Table 2: Correlation coefficient between total knowledge and total attitude scores of studied adolescent girls at Pre-intervention, Post- intervention phases (n=100).

Variables	Total knowledge			
	Pre-intervention		Post-intervention	
	R	P-value	r	P-value
Total attitude	0.86	0.000**	0.83	0.000**

Discussion:

The discussion of the current study will be categorized under five main parts: general characteristic of adolescent girls, adolescent girls Knowledge, adolescent girls attitude, correlation between the study variables.

Age is the most important factor that affects health of adolescent girls. In the present study, less than half of the studied adolescent girls were 16 years old. This result agrees

with **Malleshappa et al., (2020),** who studied Knowledge and attitude about reproductive health among rural adolescent girls in Kuppam mandal: An intervention study , who found that age of the studied adolescent girls in intervention group, was 16years old. .this study conducted in India.

Concerning residence, the present study showed that nearly two thirds of the studied adolescent girls lived in rural area. This result agree with **Ghongdemath et al., , (2020),** who study the. Impact of adolescent health education on adolescent girls in rural schools and colleges. and report that, most of the studied adolescent girls lived in rural area.

This result disagrees with **Chandra-Mouli, & Patel , (2020),** in his study about. Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in urban areas, who mentioned.

Education is considered as one of the decisive and highly influential factors in reproductive behavior. The present study showed that half of the studied adolescent girls fathers and mothers had diploma . This result congruent with **Gavin et al. , (2019),** in the study about effect of Programs to strengthen parent–adolescent communication about reproductive health: a systematic review, who mentioned that, about half the studied parents are diploma educated. On the other hand, this result disagrees with **Ngom et al. , (2020),** who studied Highly Parental education presence and adolescent reproductive health among the Nairobi urban. who reported that, the majority of the studied adolescent girls parent s were university and higher educational level. However, this may be due to differences in culture and society of adolescent girls setting of the study.

Regarding birth order the current study revealed that nearly two thirds of studied adolescent girls are the first baby for their parents. This result is similar to the result conducted by **Christensen et al .,(2019)** who studied. Pubertal pathways in girls enrolled in a contemporary British cohort. And reported that just over two thirds of studied adolescent girls were the first child born to hers parents. Also this result is similar to **Kumari ,(2020),**who studied effect of birth order on adolescents' perceptions of parent-adolescent relationship among families of four different social classes.. who reported that nearly two thirds of studied adolescent girls were the first child for their parents.

From the researcher point of view as when the adolescent girl is the first baby really has less knowledge about reproductive health and puberty development comparing with adolescent girl who is third girl and fourth .this result is dis agree with **Aime, & Pugalenthi .,(2021)** who studied Knowledge on Menstruation Problem in High School Adolescent Girls of Rwanda, Kayonza District **,**who reported that majority of studied adolescent girls were the first child for their parents and have more knowledge about menstruation from their mothers. This study conducted in Rwanda.

Regarding type of family this study revealed that nearly three quarter of studied adolescent girl's family is nuclear family.This result is agree with the study conducted by **Ahmad et al .,(2021),** who studied Knowledge and practices related to menstruation among Lucknow college students in North India ,who reported that three quarters of studied adolescent girls are from nuclear family.

From the researcher's point of view improving of girl from nuclear family knowledge is easily than girl from extended family. because girl in nuclear family is affected by parents only.

Regarding family income, the present study showed that three quarters of studied adolescent girls `s family income is moderate.

This study is agree with **Kelly et al .,(2017),**who studied , Early puberty in 11-year-old girls: Millennium Cohort Study findings. Archives of disease in childhood, who reported that nearly three quarters of studied adolescent girls family income is moderate. This study conducted in London. From the researcher point of view: this result is due to girls with low family income are unable to do healthy practice related menstruation due to expensive costs.

The current study showed that minority of the studied adolescent girls had good knowledge about puberty development pre intervention which increased post intervention; compared to about three quarters of them had poor knowledge about puberty pre intervention, which decreased post intervention.

This result is congruent with **Kheirollahi et al , (2019)** who studied Puberty health status among adolescent girls: a model-based educational program .who reported that that minority of the studied adolescent girls had good knowledge about puberty development pre intervention which increased post intervention; compared to about three quarters of them had poor knowledge about puberty pre intervention , which decreased post intervention.

This also disagreed with **Saghi et al,(2020),** who studied Knowledge and attitude about pubertal health and their socio-demographic predictors in Iranian adolescents, who reported that more than half of adolescent girls had moderate knowledge pre intervention.

The present study findings demonstrated that there was highly statistical significant (P≤ 0.001) relation between total knowledge score and total attitude score at pre intervention and post intervention phase. This result is in accordance with **Shapu et al, (2020),** who studied Systematic review: Effect of health education intervention on improving knowledge, attitudes and practices of adolescents on malnutrition**,** who reported that there was highly statistical significant(P≤ 0.001) relation between total knowledge score and total attitude score at pre intervention and post intervention phase**.** In view of the above-mentioned findings, hypothesis which stated that adolescent girls knowledge and attitude regarding puberty development improved after application of instructional guideline than before application was supported**.**

Conclusion:

The minority of the studied adolescent girls had good knowledge about puberty development pre-intervention which increased to more than three quarters post intervention. A minority of the studied adolescent girls had positive attitude about puberty development pre intervention which increased to two thirds post intervention. Additionally, there were highly statistically significant relation between total knowledge score and total attitude score pre intervention (P ≤ 0.01); and there were a highly statistically significant relation post intervention. Therefore, the study hypothesis was supported.

Recommendations:

- Use a booklet and posters as methods to increase girls' awareness about puberty development for late primary school.
- Activate the counseling program and provide guideline to male at adolescence period regarding puberty development
- Encourage healthy and positive attitude about puberty development for girls at an early age rather than teaching them when grown up.
- Replication of the study on large sample size in different setting.

References:

Ahmad, A., Garg, S. G., Gupta, S., & Alvi, R. (2021). Knowledge and practices related to menstruation among Lucknow college students in North India: results from a cross-sectional survey. medRxiv.

Aime, N., & Pugalenthi, T. (2021). Knowledge on Reproductive Health among Adolescent High School Girls in Rwanda, Kayonza District. Psychology and Education Journal, 58(3), 2229-2232.

Ali, T., & Rizvi, S. (2020). Menstrual knowledge and practices of female adolescents in urban Karachi, Pakistan. Journal of adolescence, 33(4), 531-541

Almeida, T., Comber, R., Wood, G., Saraf, D., and Balaam, M. (2020). On looking at the Vagina through Labella. In Proceedings of the 2019 Conference on Human Factors, The Journal of Early Adolescence, 2(8), Pp 45-87.

Bahari, R., Shokravi, F. Anosheh, M., & Moridi, M. (2021). Effect of a health education program on puberty knowledge among visually impaired female adolescent students. Medical Journal of the Islamic Republic of Iran, 35, 74..

Chandra-Mouli, V., & Patel, S., (2020). Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low-and middle-income countries. The Palgrave handbook of critical menstruation studies, 609-636.

Christensen, K., Maisonet, M., Rubin, C., Holmes, A., Flanders, W. D., Heron, J., & Marcus, M. (2019). Pubertal pathways in girls enrolled in a contemporary British cohort. International journal of pediatrics, Volume 2019article ID 329261 | https://doi.org/10.1155/2010/329261 |

Coast, E., Lattof, S. R., & Strong, J. (2019). Puberty and menstruation knowledge among young adolescents in low-and middle-income countries: a scoping review. International journal of public health, 64(2), 293-304

Fialkov, C., Haddad, D., Ajibose, A., Le Flufy, C., Ndungu, M., & Kibuga, R. (2021). The impact of Menstrual Hygiene Management and gender on psychosocial outcomes for adolescent girls in Kenya. International Journal of Adolescence and Youth, 26(1), 172-184.

Gavin, L., Williams, J., Rivera, M., & Lachance, C., (2020). Programs to strengthen parent–adolescent communication about reproductive health: a systematic review. American journal of preventive medicine, 49(2), S65-S72.

Ghongdemath, J., Sidhmalswamy, A., Mallapur, A., & Shindholimath, V. (2020). Impact of adolescent health education on adolescent girls in rural schools and colleges. Int J Reprod Contracept Obstet Gynecol, 5(1), 53-7.

Hassan, N.. (2021). Determination of the Date of Menarche in a Sample of Girls in Karbala City.51241.

Jatin, G., & Thomas, S. (2021). Adolescence in India: An Interdisciplinary Perspective (1st ed.). Routledge India. https://doi.org/10.4324/9781003054351.

Kelly, Y., Zilanawala, A., Sacker, A., Hiatt, R., & Viner, R. (2017). Early puberty in 11-year-old girls: Millennium Cohort Study findings. Archives of disease in childhood, 102(3), 232-237.

Kheirollahi, F., Rahimi, Z., Arsang-Jang, S., Sharifirad, G., Sarraf, P., & Gharlipour, Z. (2019). Puberty health status among adolescent girls: a model-based educational program. International Journal of Pediatrics, 5(7), 5369-5378.

Konuk, T. G., & Tanyer, D. (2019). Investigation of nursing adolescent students'

perception of caring behaviors. Journal of caring sciences, 8(4), 191.

Kumari, A. (2020). Effect of birth order on adolescents' perceptions of parent-adolescent relationship among families of four different social classes.. Developmental Psychobiology, 62(6), 792-803

Malleshappa, K., Krishna, S., & Nandini, C. (2019). Knowledge and attitude about reproductive health among rural adolescent girls in Kuppam mandal: An intervention study. Biomedical Research (0970-938X), 22(3).

Mohamadi, S., Paryab, S., Mousavi, S. Keramat, A., Motaghi, Z., & Garkaz, O. (2021). Comparison of the effect of motivational interview and peer group education on knowledge and performance about puberty and mental health in adolescent girls. Journal of Nursing and Midwifery Sciences, 8(3), 178.

Ngom, P., Magadi, M., & Owuor, T. (2020). Highly Parental education presence and adolescent reproductive health among the Nairobi urban. Journal of adolescent health, 33(5), 369-377**.**

Payer, M., Schwarz, O., & Stark, T. (2021). Psychoanalytic Perspectives on Puberty and Adolescence: The Inner Worlds of Teenagers and their Parents. Physical Review B 104, no. 7 (2021): 075203.

Ramee, T., & Sadlier, N. (2020). Reproductive Toxicology: Impact of endocrine disruptors on neurons expressing GnRH or kisspeptin and pituitary gonadotropins. Reproduction, 162(5), F131-F145.

Santina, T., Wehbe, N., Ziade, F., & Nehme, M. (2020). Assessment of beliefs and practices relating to menstrual hygiene of adolescent girls in Lebanon. Int J Health Sci Res, 3(12), 75-88.

Santina, T., Wehbe, N., Ziade, F., & Nehme, M. (2020). Assessment of beliefs and practices relating to menstrual hygiene of adolescent girls in Lebanon. Int J Health Sci Res, 3(12), 75-88.

Shapu, R., Ismail, S., Ahmad, N., Lim, P., & Njodi, . A. (2020). Systematic review: Effect of health education intervention on improving knowledge, attitudes and practices of adolescents on malnutrition. Nutrients, 12(8).

Sundgot-Borgen, C. (2020). The Healthy Body Image intervention: A school-based, cluster-randomized controlled trial in high school students. Body Image, 29, 122-131

Susman,Negriff, S., Gordis, E. B., , E. J., Kim, K., Peckins, M. K., Schneiderman, J. U., & Mennen, F. E. (2020). The Young Adolescent Project: A longitudinal study of the effects of maltreatment on adolescent development. Development and psychopathology, 32(4), 1440-1459.

Vuralli, S., Mirghafourvand, M., Charandabi, S., Nabighadim, A., Seidi, S., & Rahmani, A. (2020). Knowledge and attitude about pubertal health and their socio-demographic predictors in Iranian adolescents. International journal of adolescent medicine and health, 28(4), 397-405.

Wahba, M., and Roudi-Fahimi, F. (2019). The Need for Reproductive Health Education in Schools in Egypt. 29 (1), Pp32-53.

Westen, D., Shedler, J., Durrett, C., Glass, S., & Martens, A. (2018). Personality diagnoses in adolescence: DSM-IV axis II diagnoses and an empirically derived alternative. American Journal of Psychiatry, 160(5), 952-966**.**

تأثير الدليل الارشادى على معلومات واتجاهات الفتيات المراهقات تجاة تطورات البلوغ

تهاني محمد عبدالعليم -أمل أحمد حسن عمران -رحاب سليمان عبدالعليم

يعد البلوغ مرحلة انتقالية من الطفوله الى النضـج حيث يحدث خلالها العديد من التغيرات الجسـدية من خلال التغيرات الهرمونية التى تفرزها الغدة النخامية وتبدأ مرحلة البلوغ عند الاناث فى ســـن مبكرة عند عشـــرة ســـنوات. تمر الفتاة أثناء مرحلة البلوغ بخبرة جديدة من نوعها قد يصـــاحبها حدوث بعض الاضـــطرابات النفسية.البلوغ مرحلة نمو طبيعية تحدث فى أعمار مختلفة تمر بها الفتاة فى سن مبكرة أو فى سن متأخرة. يتأثر حدوث التغيرات ببعض العوامل مثل الجينات وكتلة الجسم بالاضافة الى اسلوب التغذية المتبعة من قبل الفتاة فى مرحلة المراهقة من خلال الالتزام بالوجبات الغذائية السليمة التى تتضمن الأطعمة المفيدة والتى لا تلحق الضرر بالجسم لأنه فى حالة بناء وبالتالى حالة صحية أفضل وحدوث تطور طبيعى فى مرحلة البلوغ عند المراهقة.لذلك هدفت هذة الدراســة الي تقييم تأثير الدليل الأرشــادي علي معلومات واتجاهات الفتيات المراهقات تجاة تطورات البلوغ.أجريت الدراسـة في المدرسـة الثانوية الفنية للتمريض التابعة للمسـتشـفيات التعليمية بمدينة بنها.تم تطبيق الدراســة علي 100 طالبة.تم تصــميم دليل ارشــادي وتوزيعة علي الطالبات بعد تقييم احتياجاتهن. حيث كشــفت النتائج ان هناك تحســـن ملحوظ في معلومات واتجاهات الفتيات المراهقات بعد الدليل الا رشـــادي. ومن خلال النتائج تم التوصـــية بتطبيق هذة الدراســـة علي عينة أكبر من الفتيات المراهقات في أماكن مختلفة لكي نســتطيع تعميم النتائج واســـتخدام المعتقد الصـــحى القائم على الدليل لزيادة وعي الفتيات عن تطورات البلوغ .وأســـتخدام الدليل الأرشادي لزيادة وعي الفتيات المراهقات حول تطورات البلوغ.