

Puberty education for adolescent girls in school and adolescent girls in vulnerable situations

Dawser Zineddine

University Research Professor, ISEFC, UVT.

Imen Dhib

Secondary School Teacher, PhD Student in Didactics, ISEFC, University of Tunis.

Farah Massoudi

PhD Student, ISEFC, University of Tunis.

Sameh Hrairi

Lecturer, HDR, ISEFC, UVT, P2S Laboratory, Lyon University.

Published on: 6 March 2025



This work is licensed under a
Creative Commons Attribution-
NonCommercial 4.0
International License.

Abstract

Background: Puberty is not a problem to be solved; it is simply a time of accelerated physical growth and sexual development experienced by every human. But by facing this pivotal phase of life unprepared, learners are left confused and unsupported, which in turn affects the quality of their education.

Aim: In order to identify the educational need of our tunisian teenage girls in terms of knowledge, attitudes/representations and practices concerning puberty and menstruation.

Design: Our study population is made up of 3 different groups: teenage girls from a "College" school

environment, a group of teenage girls from an under privileged "School" environment in a situation of social vulnerability, and a group of teenagers in situation of physical vulnerability with motor disabilities. The implementation of a puberty education system was based on holistic approach research in our study.

Results: The research findings show a high level of comfort with pubertal and body development with girls in all 3 groups. All the adolescents in the study underwent significant improvement in their management of their menstrual hygiene on the use of sanitary napkins.

Significant attitudinal changes were observed among adolescent girls regarding gender roles and gender stereotypes in society. Increased communication with others was observed in all adolescent girls.

Conclusion: This project is designed to implement better programs and better policies, in order to give all learners, despite their differences, a better chance of realizing their full potential.

Keywords: Education, Puberty, Sexuality, Adolescents, Vulnerability, Social precariousness, Disability, School, Menstruation.

*** Introduction**

Present in the official texts of Earth Sciences and Life, health education aims to enable Tunisian learners to solve problems related to the biological functions of their bodies and to prevent themselves from diseases. It recommends that they should have an active lifestyle, cautious behaviours, and adopt favorable attitudes to preserve their health and their environment. (educational orientation law in Tunisia, 2002).

In Tunisia, questions related to sexuality arise strongly, stand out from the conservative culture that reigns and upset taboos as well as imposed religious limits. A comprehensive sex education

strategy in schools has therefore imposed itself on the Tunisian educational community to enable learners to understand their body and its biological functions, to build a fair idea of their sexuality and to adopt behaviours that promote a healthier life and reduced risks for children, adolescents and adults

Included in health education, sex education is one of the priority objectives of educational policy in Tunisia. The chapter "Human reproduction and health" is supposed to be a main gateway to sexuality education in the Tunisian school environment (Tunisian Ministry of National Education, 2004). In the post-revolution period, Tunisian society is undergoing changes: we are witnessing a rise in the number of single mothers as well as an early and clandestine sexual life (Tunisia: Situation of women, 2014) an index which confirms the urgency to put in place a new global strategy that would involve the entire educational community. "Orfi" marriages, which are on the increase especially at university, show the evolution of a situation and of practices which deserve to be analysed and studied. Often in the form of one-off campaigns on AIDS with a mainly hygienist approach (Takarinda et al., 2016 ; WHO, 2017).

Issues related to sexuality, still a taboo subject, are only rarely discussed between peers of the same gender, at a rather advanced age and almost never between peers of different sexes. The family and the parents in particular do not dare to approach this subject with their children. Teachers seem to be no exception to the rule with their students. Students need to understand the profound changes they are undergoing and to acquire the necessary skills to be able to face them. The lack of received knowledge about menstruation plays an important role in the experience of the first period among adolescents who have received little or no information, it can be associated with uncleanliness, dirt, shame and disgust (UNESCO, 2014).

While menstruation is a crucial sign of reproductive health, the message that often prevails is that it is a “problem” to be solved quietly, implying that it is unpleasant and shameful and should be hidden. This portrayal of female puberty reinforces negative attitudes surrounding menstruation and can have adverse psychological effects on girls.

At the same time, the lack of legitimization of female sexuality may imply that girls who naturally

become aware of their awakening sexuality do not have real control over their bodies, which can cause self-doubt and anxiety. In doing so, girls and women are also locked into their traditional role as future mothers. Adding the dimension of “pleasure” to the education of girls in puberty allows a rebalancing and a normalization of the problem. This helps girls to feel and to be perceived as equals to men. Furthermore, it assists her to become more aware of their sexuality and its implications for their lives, beyond reproduction (Hennegan and Montgomery, 2016).

Education must therefore equip them with the knowledge, attitudes, values and skills that will enable them to lead healthy lives. The skills are intended to improve self-esteem and self-confidence, help young people resist peer pressure and encourage health-promoting behaviours. But they also have a social dimension, as they promote empathy, tolerance and understanding of gender diversity. Puberty education in school can help learners better understand themselves and deal with the changes they are going through, and therefore gain enough self-esteem to face the difficulties they face. Encounter daily in their dealings with teachers and with their peers at school (UNESCO,

2014; Crockett et al., 2019; Schmitt et al., 2022).

Teenagers are also becoming more aware of the myths and social taboos surrounding puberty, such as negative images of menstruation or the rejection of emotion, perceived as unmanly. A better understanding of puberty and the acquisition of life skills help young people to decide for themselves and to better resist the pressures exerted by their peers, their families and their communities and by the messages conveyed by media. Understanding how gender and sexual identity is formed during puberty can similarly encourage young people to develop self-confidence and foster respectful attitudes towards their peers in general and towards other young people who would be perceived as gender non-conforming, in particular. This can create a more positive perception of puberty (in relation to girls in particular) and change the roles and images of girls and boys in favor of greater gender equality and the empowerment of girls (Unalan, 2007; UNESCO, 2016).

*** Method**

*** Audience**

Our study population is made up of 3 different groups, teenage girls from a « College » school environment, a group of teenage girls

from an under privileged school environment in situation of social vulnerability, in particular precariousness and poverty, and a group of teenagers in situation of physical vulnerability with motor disabilities, all aged 10-13.

*** State of play, method and investigation tools**

To identify the educational need of our target audience in terms of knowledge, attitudes/representations and practices concerning puberty and menstruation, the qualitative method aimed at the collection and analysis of qualitative data was used.

The research approach is holistic (Nogol, 2020) because it must reconcile the 3 components of adolescent girls' behaviour: -

- 1- The cognitive component
- 2- The emotional component
- 3- The conative component

The holistic approach consists of taking into account the person as a whole rather than considering them in a fragmented way: Take into account their physical, mental, emotional, family, social, cultural and spiritual dimensions.

Indeed, the action composed of these psychological components summarizes the difficulty that populations encounter in linking the

knowledge received with the actual adoption of healthy behaviours.

*** Data collection tools**

The KAP (Knowledge, Attitudes, Practices) survey: (Clément, 2010; Médecins du monde, 2011).

The KAP survey focuses on the problem to be solved and the ways that can facilitate understanding and action on what stands in the way of reducing bad practices.

It intervenes with the aim of highlighting at least three conceptual categories: the level of complete knowledge, the reinforcing attitudes of the behaviour and the practical skills of the target population. Indeed, the appropriate practices or not of a population, are the result of correct or erroneous attitudes, resulting from the level of knowledge on the studied phenomenon.

The KAP survey was prepared and adapted to the Tunisian context. The data was collected from adolescent girls in the various establishments: Ibn Cina College in Oued Ellil, El Mhaffir Primary School in Kasserine and at the Kassab Institute of Orthopedics, Physical Medicine and Functional Rehabilitation Department for 3 days due to one day per location.

These days were used to conduct an awareness campaign and

a perception survey on puberty and menstruation in order to have a reference situation.

The KAP survey was administered in paper format for teenage girls from Ibn Cina college and « EL mhaffir » primary school in « Kasserine » And using the tablet application for teenage girls with disabilities to facilitate their task and avoid fatigue. Depending on the sensitivity of our subject relating to puberty and menstruation, we opted to use KAP surveys to collect attitudes, beliefs, social representations in relation to puberty since it is a taboo subject revealing the intimate sphere of these teenagers, which is often more accessible in an individual way

*** Sampling**

The survey lasted three days and concerned the three establishments: -

- 1- College Ibn Sina Oued Ellil: –15 girls from the 7th year
- 2- El Mhaffir primary school in Kasserine: – 10 girls from 6th year
- 3- Department of physical medicine and functional rehabilitation: 5 school girls

In addition, 30 girls were surveyed. Indeed, to integrate geographical diversity, the rural area was included in the sample.

The “KAP surveys” involved all the girls in the 3 establishments. They took place in the classrooms for the college of Ibn Sina and the primary school El Mhaffir and in the « Happy Room » a quiet room, adapted and equipped for teenagers with disabilities in Kassab.

*** Results**

*** Pre-test results**

Assessment of adolescent girls’ knowledge of puberty: -

1- Confusion between puberty as a biological stage between childhood and adolescence, a period of great physical and psychological changes for the body and the age of civil majority (18 years old) which is the age that an individual is legally considered as civilly capable and responsible and before this age, the individual is said to be a “minor”.

2- Confusion between the menstrual cycle and the days of menstruation

3- A minority of girls believes that at puberty, in girls as in boys, hairiness appears and that girls can also develop hair on the face (with in particular the thickening of the down at the level of the upperlip).

Assessment of attitudes and representations of adolescent girls on puberty: -

1- Menstruation is a « dirty thing », the kind of terms that menstruating women and girls are still called. If

these adjectives are no longer commonly used in public, they have nevertheless left a trace in the collective unconscious. Girls who have reached the age of puberty are particularly exposed to this malaise, being very often ill-informed and in full discovery of their sexual lives

2- They see the beginning of a life of constraints associated with a feeling of loss of freedom.

3- They see the end of childhood.

4- Some would prefer not to have them if they had the choice.

5- We therefore observe mainly negative thoughts, on the rules

6- We can observe that adolescent girls (from Ibn Sina de Oued Ellil) who have access to means of hygienic protection had a better image, as well as a better experience of current menstruation and first menstruation than adolescent girls who have difficulty in manage their periods following menstrual precariousness or a physical incapacity making them dependent on a third party.

7- If not properly managed, menstruation can interrupt a girl’s daily life. Lack of adequate facilities and materials, restrictions on girls’ movement during their periods, and feelings of shame or “uncleanliness”

8- The taboo around menstruation is rooted in gender inequality. Indeed, the cultural and religious traditions

surrounding menstruation often stem from discriminatory patriarchal norms regarding the lower status and role of girls in society.

9- The majority of girls (25 girls) describes menstrual blood as impure, dirty, this can be explained by received ideas. The idea conveyed by certain ancestral beliefs that menstrual blood is dirty and impure remains too often anchored in the collective spirit.

10- They can not speak freely but at the same time supported, the fact of listening, without judgment and in all confidentiality to their girlfriend, the girls feel supported in breaking taboos and in naming and talking about menstruation correctly, without resorting to euphemisms. Especially teenage girls who start menstruating are very anxious about talking to their teachers. It can be an embarrassing subject. Even in emergency situations (having your period in class, asking for a sanitary napkin, etc.) There are those who ask to go out « with a knowing look », they rather prefer to ask a friend for help to search help out and get sometips.

11- We can see that mothers were the main sources of information for young girls.

12- All the girls indicated that they are forbidden to go to the mosque or to practice religious activities during

their periods. This is without taking in to account the hygiene problems linked to this rejection of blood, all the girls do not bathe until the end of their periods. There is also a belief that washing during this period makes 'sterile' etc...

13- All adolescent girls think that you should not practice sport during your period. We can see that adolescent girls have a reductionist vision of women and girls. They have in mind the image that a girl or a boy should have an important role playing in society. These preconceived ideas that they have are hard to bear and freeze the roles of individuals. They offer a reductive view of the world and the possibilities it can offer.

Review of teenage practices on puberty: -

1- The majority of girls do not track their menstrual cycles, since they do not know the length of the menstrual cycle in the first place.

2- The teenagers of the El Mhaffir school change between 1 and 2 times a day, this is explained by the menstrual precariousness. The reason for this is the lack of material access, to hygienic protections in sufficient number to maintain good hygiene.

3- Teenage girls with disabilities change on average twice a day, this is due to functional disability, they are

dependent on their mothers to change their sanitary napkins.

4- The majority of girls when they change the pads (i.e. you replace a used pad with a new one) throws them in the trash without the wrapper so that the blood is visible.

5- The majority of girls would like to help a victim of violence but they fear the reaction of the bullies

6- The majority of girls agrees with the statement “girls suck at sports”

7- The majority of adolescent girls empowers the victim of sexual violence

Goals: In the light of the results presented, we have established a set of objectives:

They have different orders, depending on the extent of health education action implemented: behavioural change objectives, objectives for changing representations and attitudes and objectives for acquisition of knowledge by the population (Alves, 2023). (Table.1).

Table 1: Objectives set: General, Specific and Operational

General objectives	
<ul style="list-style-type: none"> • Promote physical, psychological and relational well-being in relation to the onset of puberty for teenage girls at Ibn Sina College in Oued Elil, teenage girls from the « El Mhaffir » primary school in Kasennine and teenage girls with motor disabilities in Department of Physical Medicine and Functional Rehabilitation, Kassab Institute of Orthopedics from 10-13 for 4 months. • Reinforce positive knowledge, attitudes and capacities regarding health and gender. • Change harmful norms around puberty menstruation to more positive ones. • Promote the empowerment of girls in situations of socio-economic and physical vulnerability 	
Specific objectives	Operational objectives
<p>Specific objective 1: To have knowledge about the human body, its development and its functions, more particularly in relation to sexuality, and to become aware of it.</p> <p>Specific objective 2: Encourage reflection on periods, their origin, premenstrual symptoms will acquire the necessary skills for the management of menstrual hygiene</p> <p>Specific objective 3: Encourage reflection on sexuality and norms and values in society and support the development of critical thinking.</p> <p>Specific objective 4: Support the ability to maintain egalitarian relationships and to develop relationships based on understanding and mutual respect for each other's needs and limits.</p>	<p>Operational objectives Allow the adolescent to:</p> <ul style="list-style-type: none"> □ Know the puberty transformations and their consequences. □ Recognize the signs of these changes in oneself and express one's feelings about them. □ Expressing concerns, fears, questions, disgust, pleasures. <p>Operational objectives</p> <ul style="list-style-type: none"> □ List the different local names used for the rules □ Explain where menstruation, the menstrual cycle, and menstrual blood/hormones come from □ Express the experience as well as the obstacles they face when they start having their periods □ Identify premenstrual symptoms □ Track your menstrual cycle □ Manage pain during menstruation □ Putting on and taking off a sanitary napkin □ Simulate situations of daily life in connection with the rules and open the debate on the different ways of acting. □ Deconstruct myths and social representations about menstruation <p>Operational objectives</p> <ul style="list-style-type: none"> □ Detect the influence of stereotypes, values and norms conveyed by society on their own expectations. □ Differentiate between reality and the images conveyed by society, identify unrealistic images. □ Identify sexual and reproductive rights <p>Operational objectives</p> <ul style="list-style-type: none"> □ Distinguish types of violence and abuse against girls / women □ Analyse situations of sexual violence against women □ Know your rights in case of violence and the laws that protect and know where and from whom to seek help

* Post test results

Assessment of the evolution of adolescent girls' knowledge of puberty and menstruation after the implementation of the puberty education project: -

1- The distinction between puberty as a biological stage between childhood and adolescence, a period of great physical and psychological changes for the body and the age of civil majority (18 years old) which is the age at which an individual is legally considered as civilly capable and responsible and before this age, the individual is said to be a “minor”.

2- Distinction between the duration of the menstrual cycle and the days of menstruation

3- The recognition that at puberty, in girls as in boys, hairiness appears and that girls can also develop hair on the face (with in particular the thickening of the down at the level of the upper lip).

Assessment of the evolution of attitudes and representations of adolescent girls on puberty after the implementation of the puberty education project: -

1- We can observe that all the teenagers have understood that menstruation is a natural phenomenon, no participant thinks that menstruation is a dirty thing, we notice an evolution of representations around menstrual blood after our intervention: menstrual blood is neither dirty, not impure! Certainly, its composition differs from that of the blood of our arteries, but the idea that the blood of the periods would be dirty is indeed a received idea which results from myths and secular superstitions, However, 4 participants (1 of Ibn Sina, 1 from the El Mhaffir School, and 2 from the Kassaab Institute of Orthopedics) still think that menstruation is something to be ashamed of. This can be explained by the censorship and silence that have led to this culture of silence and shame around puberty and menstruation. Religious prohibitions, the idea of being impure

or even the false beliefs surrounding the phenomenon have long led to a fear of this blood, which is however the only one that is not the result of violent actions. Negative representations have decreased greatly thanks to our intervention which aims to destigmatize the rules

To identify the feelings experienced by the adolescent girl during her period, after our intervention, the list of adjectives was proposed to describe the mood of adolescent girls when they have their period, it was possible to tick several answers. The most recurring sentiment was "Normal". We therefore mainly observe an evolution of the thoughts of adolescent girls into positive thoughts, about menstruation.

We can observe a remarkable evolution of the representations of the teenagers of the El Mhaffir school around the rules, who now have access to means of hygienic protection that they make all alone in an autonomous way thanks to the session of manufacture of the towels cotton washable. They have a better image, as well as a better experience of the current rules

We also note a clear evolution in the representations of adolescent girls with disabilities concerning menstruation, following our

intervention which focused on the importance of autonomy in the management of menstrual hygiene and if they are not Properly managed, menstruation can disrupt a girl's daily life. The lack of adequate facilities and materials, restrictions on girls' movement during their periods, and feelings of shame or "uncleanliness"

All the participants describe after the implementation of the puberty education project, the menstrual blood as normal, and as "a sign of health". All the participants consider menstruation as a condition of good health. Indispensable to a healthy body, it is also essential to femininity.

After the puberty education project is in place, by bringing up the subject of menstruation with a close friend, the majority of girls feel supported and can talk freely about menstruation and puberty with friends listening, non-judgmental and confidential to her girlfriend, girls feel supported in breaking taboos and naming and talking about menstruation correctly, without resorting to euphemisms. And the more they discuss and share their experiences, the more they will understand that the rules are not weird or gross.

The majority of teenage girl's reports being supported when talking

about periods with a female family member

We notice that the feeling of embarrassment and shame persists in some participants when they talk about menstruation with a female member of the family. Talking to your parents about periods and other intimate topics remains embarrassing, especially when you are not used to discussing such topics at home. Destigmatizing talk about menstruation with parents or members of the family depends on the change of representations and attitudes of the parents also around the rules! Paradoxically, mothers seem convinced that girls speak much more freely about this subject than they do at their age. They show themselves convinced that the word around the rules has been released and that the taboo has been lifted, even if they too seek to avoid the subject as much as possible with their daughter. For parents, the onset of menstruation is associated with fertility and the future sexuality of their child, all topics of conversation that are often sources of embarrassment within families. Hence the need for an intervention that targets the change of parents' representations around the rules!

After the implementation of the puberty education project, there is

a change in the number of adolescent girls who have started to ask their teachers for advice about menstruation. Participants are now aware of their rights to information! And sex education.

But the embarrassment and feeling of discomfort talking about menstruation with her teacher persists for some participants.

After the implementation of the puberty education project, we can see here that mothers are no longer the main sources of information for young girls. Girls are also informed by an older sister or a friend.

After the implementation of our puberty education project: The majority of girls indicated that they are prohibited from going to mosques or practicing religious activities during their periods: These observations suggest that, despite the evolution of discourses on the conception of women's bodies, Cultural, social and religious representations involve negotiations with the norms and symbolic configurations that exist in our society.

This is explained by the image of women's bodies in religions: The women's body is a taboo, a place of the incarnation of evil. The many myths studied for centuries by our fathers who make women feel guilty

are supports for the imaginary, although we will talk about bad interpretations of holy texts. However, the evolution of mores allowed by freedom of conscience is not the only savior of female honor. The debate today is not the abandonment of one's faith, but what can be the place and the image of women within the social body and the different religious communities?

These representations around menstruation, menstrual blood and the body of women in the holy texts are embodied in the collective spirit. On the other hand, we note an evolution of representations concerning taking a shower during menstruation. The majority of girls don't see the point of waiting until the end of their period to take a shower

The majority of adolescent girls no longer see the point of not practicing sport during their period, they have become aware that the prohibition to practice a sporting activity during their period is only a socially constructed myth, they have even realized the benefits of sports activity during menstruation.

After the implementation of the puberty education project, the majority of adolescent girls do not think that the restrictions are justified.

They have understood that these restrictions are a tradition (all

family members comply with them and so do they) and that the legacy of old beliefs is still visible in the media which continue to convey a certain number of their subject (smell, stain, feminine weakness).

The participants developed a critical spirit with regard to these negative attitudes, often developing in them the shame of talking about their difficulties to those around them.

All teenage girls think it will take them time but they are sure they can overcome it one day, it shows- Social norms and stigma generated by stereotypes related to menstruation which can lead to discrimination and have serious repercussions on the dignity of menstruating people and on their rights to equality, health, education, security, access to work and to participate in cultural, religious and public life without discrimination, which explains the desire of adolescent girls to be able to overcome these restrictions, but they are also aware that it will take time so it will be difficult to bring about this change since these beliefs are embodied in the collective mind.

There is an evolution in the representations of girls around gender norms and social gender roles.

The image that a girl or a boy should have, the role they should play in society, the stereotypes around masculinity and femininity begin to destabilize to give way to a place of equity in roles gender social.

These stereotypes lead to inequalities between men and women. The evolution of the representations of the participants concerning the reductionist vision of women makes it possible to question the norms of society which are already internalized without realizing it.

Gender stereotypes constitute a serious obstacle to the achievement of true equality between women and men and promote discrimination based on gender. These are preconceived ideas that arbitrarily assign women and men roles determined and limited by their sex and we managed to change our standards to more positive ones

After the implementation of the puberty education project, the participants are aware of the existence of its stereotypes and they can distinguish them, these feminine stereotypes are deeply rooted with regard to women. They are used to justify and maintain the historic domination of men over women as well as the sexist behaviors that prevent women from progressing.

This is why the total deconstruction of its stereotypes is a difficult mission.

*** Assessment of the evolution of adolescent practices on puberty**

After the implementation of the puberty education project, the majority of adolescent girls try to remember dates without following their menstrual cycles, since they know the duration of the menstrual cycle, the days of menstruation.

We note an evolution in the frequency of changing sanitary napkins for the 3 groups: The teenagers of the El Mhaffir school now change between 2 and 3 times a day, this is explained by their autonomy to make their own cotton sanitary napkins which are reusable this has made it possible to reduce menstrual precariousness and the lack of access, due to a lack of material means, to sanitary protection in sufficient numbers to have decent hygiene

Teenage girls with disabilities change on average 3 times a day, following the improvement of their autonomy in the management of menstrual hygiene, they are independent to change their sanitary pads and do their personal care

All adolescent girls wrap the towel and throw the towel in a trash bin using the skills learned in the

program on menstrual hygiene management.

The majority of teenage girls will step in to stop the bullies and help the victim regain their confidence and explain to everyone that pimples and weight gain are normal during puberty. This thanks to their awareness of the forms of violence and the skills developed around supporting the victim and how to react to a situation of harassment.

All teenage girls no longer agree with the statement “girls suck at sports” they are aware of the existence of gender stereotypes and that the field of physical activity and sport is indeed a field where stereotypes are present and so are gender inequalities. Indeed, the participants became aware that consciously or unconsciously, the individual is socialized, little by little, to the symbolic domination of boys. It presents itself as a set of tacit rules, which apply to everyone, as a set of shared beliefs, and that “naturalized” differences in performance are one of the classic mechanisms of discrimination that is observed each time one of the two sexes engages in an activity that does not conform to their sex. Girls are considered incapable of excelling in masculine activities and, as soon as they engage

in this type of activity, they are judged negatively.

We notice that adolescent girls no longer think that the victim is responsible for wearing inappropriate clothing and empower the victim of sexual violence: Victim blaming, they do not attribute the fault to the victim.

Participants are now aware that slut shaming influences representations and behavioral attributions towards individuals, particularly around issues related to sexuality; thus, this discourse can intervene to explain, or even justify the sexual assault that would have been provoked by the sexualized behaviors of the victim

The participants do not agree that the victim appears guilty of having derogated, in one way or another, from the gender role attributed to her and has therefore provoked or at least precipitated the rape. Change of representation around “the victimization of the victim” seems to the ways how they will react to this situation; moreover, the majority choose to support the victim and try to contact the school administration to prevent him from acting.

In what follows we will present an assessment of the main results

following the implementation of a puberty education system: -

1- Ease with pubertal and body development: Comfort with pubertal development was relatively high, with girls in all 3 groups saying they were proud of the changes they experienced during the second wave. Body satisfaction was also relatively high, with respondents in all 3 groups reporting being satisfied with their bodies. Girls with disabilities participating in the intervention became more satisfied with their bodies. The intervention had significant effects on their knowledge of where to get information about menstrual periods.

2- Menstrual hygiene management: All the adolescents in the study showed a significant improvement in their management of their menstrual hygiene on the use of sanitary napkins (putting them on and taking them off). The most significant changes have been observed in girls with disabilities who were totally dependent on their mothers for the management of their menstrual hygiene, now they are more autonomous with regard to the putting on and taking off of sanitary napkins, the management pain and monitoring their menstrual cycles.

Underprivileged school girls participating in the intervention were

more likely to be out of school in the period of menstruation, now having acquired skills in proper donning and doffing of sanitary napkins and ability to independently manufacture their own washable sanitary napkins, etc... they are more confident going to school on their period

3- Equality of girls and boys: Significant attitudinal changes were observed among adolescent girls regarding gender roles and gender stereotypes in society. Adolescent girls from disadvantaged backgrounds and adolescent girls with disabilities were twice as likely to agree with statements that boys are superior to girls and girls should take care of the children, household chores and that girls should be gentle and quiet, “all girls like pink” etc.... After the intervention they are more likely to approve of equal sharing of chores, gender equality, reduction of gender stereotypes. However, for adolescent girls with disabilities, no change was observed in the stereotypical traits and roles of men and women, for example the perception of the tenacity of the male sex and the vulnerability of the female sex, and the roles in which a woman must take care of her family and home, and a man must be the breadwinner. Similarly, no change was seen with respect to the sexual double standard,

whereby boys are socially rewarded for their romantic and sexual action, while girls are penalized.

4- Healthy relationships and violence: All adolescent girls showed increased communication with someone (assumed to be a peer or supportive adult)

Teenage girls can distinguish between types of violence and they know how to act in case of violence whether it is teasing / bullying / discrimination / verbal / physical abuse

*** Conclusion**

Our puberty education project discussed different ways for the education sector to tackle the issue of puberty education. We were interested, in particular, in aspects such as bodily, psychological and social changes, normalization of menstruation, menstrual justice, menstrual hygiene, myths and taboos regarding menstruation, gender stereotypes conveyed by society, violence against girls and women, peer education.

The approach advocated in this project is based on teaching and learning based on skills to promote health, on a safe physical and psychosocial environment and on links with health services.

This project was developed to fill a gap in focusing on both

individual and social learning, because puberty is not just a private issue, it is also a social issue (Vijayakuma, 2024).

The intention of this project was solely for girls, but puberty affects both boys and girls, and worrying about one without caring about the other would reduce the effectiveness of any program. We recommend the involvement of boys in mixed puberty education sessions. Involving boys is essential for several reasons. First, they too experience drastic psychological and cognitive as well as physical changes that can leave them perplexed. Second, the attitudes of boys have a direct impact on the experience of girls. Third, knowledge gained in the classroom can positively influence future health behaviours, such as the use of sexual and reproductive health (SRH) services. This is particularly important as attendance at SRH services is not solely dependent on women. When it comes to schools, the annoyance, discomfort and embarrassment experienced by girls during puberty, and especially during menstruation, is caused in part by boys' behaviour and community norms. This, coupled with the low percentage of female teachers in secondary schools in some countries, suggests that more attention needs to

be paid to the education of boys and male teachers at puberty, in general, and later in life.

Menstruation, in particular, so that school environments are less stigmatizing for girls.

Puberty education are central issues for the education sector. This project is designed to implement better programs and better policies, in order to give all learners despite their differences a better chance of realizing their full potential.

*** Declaration of conflicting interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

*** Funding**

The authors received no financial support for the research, authorship, and/or publication of this article.

*** References**

- Alves, R.-F. (2023). The relationship between health-related knowledge and attitudes and health risk behaviours among Portuguese university students. *Glob Health Promot*, 16;31(1):36–44. doi: 10.1177/17579759231195561
- Canada: Immigration and Refugee Board of Canada

- (2014). Tunisia: Situation of women who have had a child out of wedlock, including their treatment by family members and society; state protection and available services (2011-November 2014), 9 December 2014, TUN104988.FE, available at: <https://www.refworld.org/docid/549ab8b94.html> [accessed 22 May 2023]
- Clément, P. (2010). Conceptions, représentations sociales et modèle KVP. *Skholê*, 16, 55-70
- Educational orientation law in Tunisia. (2002). National Education Ministry, n°2002-80 du 23 Juillet de 2002.
- Crockett, L.-J., Deardoff, J., Johnsen, M.-M., Irwin, C., Peterson, A.-C. (2019). Puberty Education in a Global Context: Knowledge Gaps, Opportunities, and Implications for Policy. *Journal of Research on Adolescence* 29(1):177-195 DOI:10.1111/jora.12452
- Hennegan J., Montgomery P. (2016). Do menstrual hygiene management interventions improve education and psychosocial outcomes for women and girls in low and middle income countries ? A systematic review. *PloS ONE*, 11(2), e0146985.
- Médecins du Monde. (2011). The KAP Survey Model (Knowledge, Attitudes, and Practices).
- Contact Institution <http://www.medecinsdumonde.org/Outils/Nous-contacter>
- Pathway Component Caring Capacity & Practices. Health Care.
- Nogol., A. (2020). The influence of a holistic education on adolescents' self efficacy A Dissertation Presented to the Faculty of the of California State Polytechnic University of Pomona In Partial Fulfilment Of the Requirements for the Degree of Doctor of Education In Educational Leadership
- Schmitt, M.-L., Gruer, C., Hagstrom., Adenu-Mensah, N.-E., Nowara, A., Keeley, K., Sommer, M. (2022). "It always gets pushed aside:" Qualitative perspectives on puberty and menstruation education in U.S.A. schools. *Front Reprod Health.* 21;4:1018217. doi: 10.3389/frph.2022.1018217
- Takarinda, K.-C., Harries, A.-D., Mutasa-Apollo, T. (2016).

- Critical considerations for adopting the HIV ‘treat all’ approach in Zimbabwe: is the nation poised?. *Public Health Action*. 11;6(1):3–7. doi: 10.5588/pha.15.0072
- Unalan, P.-C., Akman, M., Çifçili, S., Uzuner A., Wagner V. (2007). “Knowledge and perceptions of young adolescents’ about pubertal changes.” *Turkish Journal of Public Health*; 5(2):57-63. :https://www.researchgate.net/publication/232062787_Knowledge_and_perceptions_of_young_adolescents%27_about_pubertal_changes_Unalan_PC_Akman_M_Cifcili_S_Uzuner_A_Wagner_V_Turkish_Journal_of_Public_Health_2007_5_257-63 [accessed Feb 28 2022].
- UNESCO.(2014). Good policy and practice in health education booklet . 9puberty education &menstrual hygiene management. Published in 2014 by the United Nations Educational, Scientific and Cultural Organization7, place de Fontenoy, 75352 Paris 07 SP, France© UNESCO 2014ISBN 978-92-3-100011-9
- UNESCO.(2016). Puberty education and menstrual hygiene management.
- Vijayakumar N., Youssef G., Bereznicki H , Dehestani N., Silk TJ., Whittle S.(2024). The Social Determinants of Emotional and Behavioral Problems in Adolescents Experiencing Early Puberty. *Journal of Adolescent Health*, Volume 74, Issue 4, April 2024, Pages 629-631
- World Health Organization. (2017). Defined eosinophilic disorders: update on diagnosis, risk stratification, and management.