MENSTRUAL EDUCATION, HEALTH AND PHYSICAL EDUCATION - A STUDY CONDUCTED WITH PORTUGUESE YOUNG GIRLS

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ABSTRACT

Portuguese young girls, who usually reach their menarche from the age of 12/13, are faced with biological and emotional factors that, compared to their male counterparts, create an inequality of opportunity for the practice of physical and sports activity (PSA) in the school curriculum, through Physical Education (PE), which for the World Health Organization is a practice that helps to develop physical abilities, to increase the general pleasure in physical and sporting practice, and has a real impact on counteracting a sedentary lifestyle. The physical state of the (pre)menstrual period, whose systemic effects include a state of inflammation that imposes several physical limitations, is still not widely addressed in the school context and is rarely considered for the practice of Physical Education, reflecting in the short and medium term on adolescents' health and well-being. This research aimed to understand factors perceived by a group of Portuguese female students regarding their (pre)menstrual mood, which interferes with their well-being, in the context of Sports and Physical Activity in Physical Education practice. It was a cross-sectional study using quantitative methodology, conducted with a sample of 461 Portuguese young female students, aged between 17 and 21. Data was collected during July 2024, using a questionnaire created in Google Forms, which complied with ethical procedures, including an informed consent form at the beginning, safeguarding voluntary participation, confidentiality and anonymity. The data were statistically analyzed using SPSS version 29. The results showed that for a large number of university student girls, the physical symptoms

of the (pre)menstrual state influence the practice of PSA at school. In this context, Physical Education does not create the best conditions to increase the general pleasure in physical activity, reducing the differences with their male colleagues and promoting active lifestyle habits, which are important for their health, in the short, medium and long term.

Keywords: physical education; adolescents; menstruation; health promotion and education.

RESUMEN

Educación menstrual, salud y educación física -Un estudio realizado con jóvenes portuguesas. Las jóvenes portuguesas, que suelen alcanzar la menarquia a partir de los 12/13 años, se enfrentan a factores biológicos y emocionales que, en comparación con sus homólogos masculinos, crean una desigualdad de oportunidades para la práctica de la actividad física y deportiva (AFE) en el plan de estudios escolar, a través de la Educación Física (EF), que para la Organización Mundial de la Salud es una práctica que ayuda a desarrollar las capacidades físicas, a aumentar el placer general en la práctica física y deportiva, y que tiene un impacto real en contrarrestar un estilo de vida sedentario. El estado físico del período (pre)menstrual, cuyos efectos sistémicos incluyen un estado de inflamación que impone varias limitaciones físicas, aún se aborda poco en el contexto escolar y rara vez se tiene en cuenta para la práctica de la Educación Física, lo que se refleja a corto y medio plazo en la salud y el bienestar de las adolescentes. El objetivo de esta investigación era comprender los factores percibidos por un grupo de estudiantes portuguesas en relación con su estado de ánimo (pre)menstrual, que interfieren en su bienestar, en el contexto de la práctica del deporte y la actividad física en la educación física. Se trató de un estudio transversal con metodología cuantitativa, realizado con una muestra de 461 jóvenes estudiantes portuguesas de entre 17 y 21 años. Los datos se recopilaron durante el mes de julio de 2024, mediante un cuestionario creado en Google Forms, que cumplió con los procedimientos éticos, incluyendo un término de consentimiento informado al inicio, salvaguardando la participación voluntaria, la confidencialidad y el anonimato. Los datos se analizaron estadísticamente utilizando el SPSS versión 29. Los resultados mostraron que, para un gran número de jóvenes estudiantes universitarias, los síntomas físicos del estado (pre)menstrual influyen en la práctica de la AFE en la escuela. En este contexto, la Educación Física no crea las mejores condiciones para aumentar el placer general por la actividad física, reducir las diferencias con sus compañeros varones y promover hábitos de vida activos, importantes para su salud a corto, medio y largo plazo.

Palabras clave: educación física; adolescentes; menstruación; promoción; educación para la Salud.

INTRODUCTION

The World Health Organization (WHO) presents Physical Education (PE) as a series of practices that help to develop physical fitness and attitudes and create positive lifestyle habits, helping to increase physical and sports activity in general and fighting a sedentary lifestyle (WHO, 2018). At school, children and adolescents not only have the chance to create positive lifestyle habits through the reinforcement of physical exercise, but they can also acquire knowledge and practice hygiene habits. Our previous research (Condessa & Anastácio, 2024) refers to adolescence period as a very relevant stage in the construction of body identity, with great importance for the happiness of young people, being a process that occurs from an early age, due to the various changes at a biological, psychological, cognitive and social level, and where education plays an increasingly relevant role, as it can interfere positively.

Thomas, Gallagher, and Thomas (2001) list three factors as being relevant to changes in motor skills: biological factors, involvement factors, and their interaction. In this sense, as a biological factor, we highlight those associated with growth and sexual maturation resulting from puberty, in particular those related to sexual maturity. Due to the amount of time young people spend at school, the school community must consider issues associated with the comprehensive development and sexual maturity of adolescents, particularly girls. However, in Portugal, girls face biological and emotional factors that do not favour regular and positive physical exercise, with an impact on their motor performance. According to Campos and colleagues (2021), several studies suggest that the practice

of physical activity is more related to the biological age than chronological age. Young people of the same age may present different stages of pubertal development, with different impacts on their physical activity levels and physical characteristics, as well as sexual maturation can probably be considered an essential factor in measuring the practice of physical activity at this specific stage and, consequently, the adolescents' level of performance.

As factors of involvement in school and particularly in the practice of Sports and Physical Activity at school, we will address the limitations that children and adolescents face at this stage and that, in consequence, discourage the practice of physical exercise. In fact, the physical and physiological state of the (pre)menstrual period, which girls face every month, reflects on their health and well-being, and is never considered for the practice of Physical Activity and Sports, being still very little discussed in the school context. Dhar, Mondal, and Bhattacharjee (2023) determined that both sedentary and vigorous physical activity may be a risk factor for increased menstrual discomfort. Young women often suffer from menstrual disorders, the most common being dysmenorrhea and premenstrual syndrome, whose systemic effect includes a state of inflammation, including several physical limitations, such as: fatigue, nausea, headaches, diarrhea, abdominal pain and cramps, headaches and, often, shortness of breath (Goldstuck, 2020). The combination of one or more harmful symptoms of menstrual patterns can have a greater impact on the daily lives of these young women and can be aggravated or alleviated by numerous factors, including the quality of physical activity.

According to the World Health Organization (WHO, 2006), adolescents should practice a minimum of 300 minutes of moderate to vigorous physical activity per week, with emphasis on aerobic exercises, muscle strengthening and flexibility. Campos and colleagues (2021) report that such recommendations contribute to the healthy growth and development of young people, as well as favouring and encouraging good lifestyle habits in adulthood, which enhances the prevention of chronic degenerative diseases. In this same way and as we mentioned previously (Condessa & Anastácio, 2024), for the Portuguese National Health System (NHS) physical activity is recommended in daily life to avoid a sedentary lifestyle and, also, to maintain personal hygiene, to avoid stress, to do things that give pleasure and well-being, and to look for the positive side of life.

PARTICIPANTS

The sample of our study consists of 461 Portuguese higher education students, from all over the country, more specifically adolescents aged between 17 and 21 years old. The average was 19.6 years, with a standard deviation of +1.4. In this group, 96.1% were undergraduate students and 3.9% were master's students. Regarding their mother's role model (which we consider important to keep them informed about the stages of puberty), we recorded that 29.3% had mothers with higher education or secondary school (35.4%). As factors contributing negatively to their lifestyle habits, we highlight that 14.1% were smokers. Our selection was random, made online by online collection, being a snowball respondent-driven sample type.

METHODOLOGY AND DATA COLLECTION TOOL

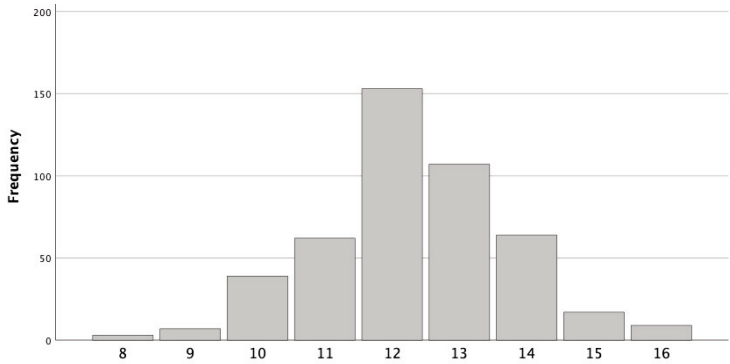
It was a cross-sectional descriptive and analytical study, following a quantitative methodology (Cohen, Manion & Morrison, 2017). For data collection, a questionnaire was carried out and validated, and was then applied as a survey method in Google Forms. The questionnaire included closed (Likert scale type) and open questions, being the first section related to socio-demographics or personal factors as independent variables associated with the dependent variables like menarche age, menstruation symptoms and physical activity. This data collection instrument and the corresponding research project were approved by the Ethics Committee of the Polytechnique Institute of Bragança in July 2024. It includes, just at the beginning, an informed signature term, guaranteeing voluntary participation, anonymity, and confidentiality. Data was registered in an Excel file, and for data preparation and analysis, we used the IBM Statistical Package for the Social Sciences (SPSS, 29.0 version). Descriptive analysis and central tendency measures like frequency (n), percentage (%), mean / average (x) and standard deviation (sd) were performed, as well as correlational analysis [Correlation Coefficient Bravais-Pearson

(r) at p≤.05], to establish the relation between menstruation, physical activity and adolescents' individual factors. The significance and confidence interval (CI) levels were fixed for p≤.05.

RESULTS

Based on socio-demographic characterization, our results revealed that the majority of these adolescents had their menarche before the age of fourteen (80.5%), having appeared between 12 and 14 years, presenting an average age of 12.3 years (12.3±1.4). Instead of 12 being the mode age, we can observe girls having menarche at 10, 9 and even 8 years old.

Fig. 1. Age of menarche



On the other hand, we can see in Table 1, that when we seek to know the (pre)menstrual symptoms, we find a variety of answers among the pre-defined categories (first column). These girls feel the symptoms most during their menstrual period (with 9.3% more affirmative responses for the two highest categories and a higher average value), with 29.3% reporting feeling generalized tiredness and 12.6% even having difficulty performing physical and motor activities that are required of them. As we can see, these symptoms are also observed in the phase preceding menstruation (25.2% feel tired, but it is bearable, and 7.4% feel it intensely), resulting in at least one week of discomfort.

Thus, approximately 57.1% presented mild or surmountable symptoms and 7.4% presented more pronounced symptoms in the premenstrual phase. These percentages increase to 65.1% and 12.6%, respectively, during the menstrual period. On the other hand, we observed that no significant relationship was found between the age of the first menstruation and (pre)menstrual symptoms.

Table 1. Physical symptoms associated with the menstrual period in our young girls.

	A few days before I feel generalized physical fatigue		**During my period I feel generalized physical fatigue**	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
I never feel	164	35,6	103	22,3
I feel slightly	147	31,9	165	35,8
I feel it, but it's bearable.	116	25,2	135	29,3
I feel it strongly and it makes my activities difficult.	34	7,4	58	12,6
Total	461	100,0	461	100,0
Average (X) ± Standard Deviation (SD)	2,04±0,950		2,32±0,958	

Regarding the question "Physical symptoms during my period prevent me from doing physical activity/sports", in table 2 we present the girls' responses about the limiting factors of pre-menstrual and menstrual physical symptoms that condition physical/sports practice and/or the lack of motivation for it, with higher average values for the menstrual period. Although for 55.3% of women physical symptoms during their period prevent them from doing physical activity/sports, it is the lack of motivation that has an even greater impact (+18%). Not only are physical factors limiting, but also psychological ones.

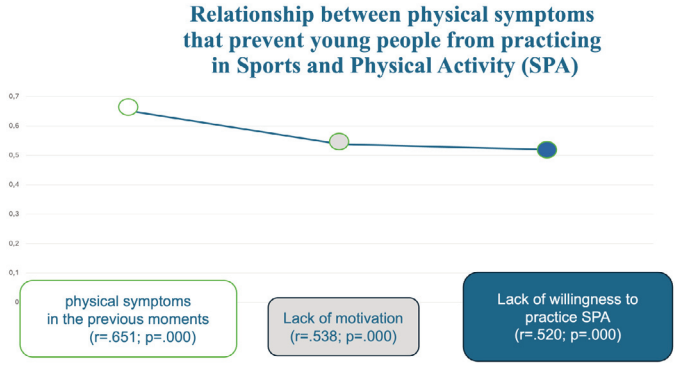
Although a high number of these adolescents (68.6%) mentioned that during their menstrual period, they do not feel comfortable engaging in physical activity or sports, some (31.4%) disagree with this statement. However, few students tend to increase their physical/sports activity to reduce the physical symptoms (28.1%) or emotional symptoms (18.4%) associated with their period. Also, some girls (17.3%) say that they tend to do more physical activity to improve their cognitive and intellectual symptoms associated with the menstrual period.

Table 2. Limiting factors associated with symptoms of the menstrual period.

	Physical symptoms in the days before menstrual period		**Physical symptoms during my menstrual period**	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Totally false	77	16,7	44	9,5
False	219	47,5	162	35,1
True	124	26,9	186	40,3
Totally true	41	8,9	69	15,0
Total	461	100,0	461	100,0
X ± SD	2,28±0,846		2,61±0,855	

Searching for the relationship between physical (pre)menstrual symptoms and the factors that prevented them from practising Sports and Physical Activity, through the Bravais-Pearson correlation coefficient (r), we determined some strong relationships that we present below (Figure 2).

Fig. 2: Relationships between physical symptoms that prevent young girls from practicing in Sports and Physical Education (SPA)



We found a strong relationship between the physical symptoms that prevented these young women from practising sports and physical activity (SPA) during their menstrual period and the physical symptoms in the moments before the arrival of this phase (r=0.651; p=0.000). On the other hand, the relationship between their agreement with lack of motivation (r=0.538; p=0.000) and the lack of willingness to practice Sports and Physical Activity (r=0.520; p=0.000) was another point of great interest. Therefore, these adolescents strongly agreed with these items (73.5% and 68.8%).

Most of the participants stated that they did not miss physical exercise (73.5%), although they did not reveal that they increased the amount of exercise to reduce physical and emotional symptoms associated with the phase of the (pre)menstrual period.

Then, to subsequently request positive contributions in the context of school physical activity practice, in terms of suitability for menstrual hygiene and what desires for better conditions, we collected the perceptions of these girls about the hygiene contexts existing in the involvement of Physical Education at their school(s)/University(ies) as shown in Table 3 and what they would like to see in their contexts (Table 4).

Table 3. Sanitary facilities at school or university available in terms of suitability for menstrual hygiene

	Menstrual hygiene products in physical education changing rooms		**Physical education changing rooms with showers**	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Not at all suitable, non-existent	359	77,9	198	43,0
Somewhat suitable	34	7,4	38	8,2
Suitable	28	6,1	123	26,7
Very suitable	40	8,7	102	22,1
Total	461	100,0	461	100,0
X ± SD	1,45±0,92		2,27±1,23	

Table 4. Conditions and Improvements desired at the School/University for menstrual hygiene

	Physical education changing rooms with menstrual hygiene products		**Physical education changing rooms with more privacy**	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Totally disagree	24	5,2	24	5,2
Disagree	25	5,4	29	6,3
Agree	69	15,0	75	16,3
Totally agree	343	74,4	333	72,2
Total	461	100,0	461	100,0
X ± SD	3,59±0,815		3,56±0,829	

DISCUSSION

Our sample evidences a large age spectrum of menarche, being the majority until fourteen. We identified cases of girls having menarche at 8 and 9 years old, which requires special attention, namely, concerned with menstrual education since the beginning of primary school, in order to reduce the discomfort and to promote hygiene, physical health and psychological and emotional well-being. This is in line with the key concepts to be approached in the domain of sexuality education (UNESCO, 2018).

The results obtained in the present study allowed us to infer that for a large number of university girls, the physical symptoms of the (pre)menstrual state condition the practice of Sports and Physical Activity at school. This is in line with the cross-sectional study presented by Finne et al. (2011), which determined some relationship between early maturation and less physical activity in female adolescents, for whom physical inactivity was more associated with those who had irregular menstrual periods.

We know that the context of Physical Education does not create the best conditions to increase the general pleasure of girls in physical activity, reducing their differences comparatively to their male colleagues and promoting active lifestyle habits, which are important for their health, in the short, medium, and long term. In this perspective, a study of Riddoch et al. (2001), with European students aged between 9 and 15 years, confirmed significant gender and age differences in physical activity, with differences demonstrated consistently across all four countries included. More recently, Campos et al. (2021) reported that the association between the stage of sexual maturation and the level of physical activity in adolescents requires further research. New knowledge in the area is important to enable professionals involved in adolescent health to act effectively in combating physical inactivity.

Regarding Physical Education conditions for practising Sports and Physical Activity, the girls of our sample shared their perceptions and proposals for improvement. They considered important for the school community to have more knowledge about the menstrual period and its impact on their health and well-being, as well as about changing rooms, which must comply with the legislation of ordinance 454/2023, being another aspect that needs to be improved, reinforcing the provision of adequate hygiene materials and greater privacy. We know that there is a law that approves the general technical and operational requirements for public sports facilities, as well as international guidelines about menstrual health as a public health issue (The Lancet Regional Health – Americas, 2022), but there is still much to be done, either in terms of structures or concerning access to menstrual hygiene products, stigma and exclusion.

This study presents some limitations, namely those associated to the snowball sampling process and those linked to questionnaire use. The study will benefit from in-depth interviews, which we are planning to a next step.

CONCLUSION

Given that menstrual health is a public health issue with implications in physical, psychological and social domains, this topic deserves special attention for menstrual education since primary school, which is reinforced by the observed phenomenon of 8-year-old girls having their menarche. The practice of Physical Activity and Sports tends to reduce during the menstrual period, which can compromise the reduction of uncomfortable symptoms. Instead of being an issue of physical health, it is equally a question of mental health. Thus, good efforts are needed to promote the health and well-being of adolescent girls in higher education and early.

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