

How Menstruation is Experienced Today. An Online Survey on Italian Female at Birth Adolescents

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Abstract

Female puberty is marked by the arrival of menarche, which experience could alter the degree of psychological and physiological symptoms. Females who are unprepared for menstruation are more prone to experience menarche discomfort, and consequently, psychophysiological distress. The present study aims to investigate and collect data about menarche experiences, menstruation attitudes, and symptoms, and the association between emotions experienced during menarche and psychophysiological well-being in a sample of Italian adolescent females at birth. The survey was composed of socio-demographical data, a menstruation questionnaire, a general health questionnaire, and a psychophysiological questionnaire. The results supported the correlation between positive emotions toward menarche and psychophysiological well-being. Moreover, a report on menstrual experiences, attitudes, and symptoms was provided. Finally, the results relating the information obtained about menarche and the emotions experienced by participants highlight the potential need for qualitatively and quantitatively equivalent means of information for all females going through puberty, with this responsibility being left to the educational institution. Future research should focus on evaluating the specific information acquired by adolescents to create subject-specific psychoeducational programs, minimizing disparities among pubertal adolescents and fostering a better menarche experience.

Keywords: Menarche; Menstruation; Health; Well-Being; Adolescence

Introduction

In early adolescence, puberty is a developmental stage characterized by biological changes, particularly skeletal growth and sexual maturation [42]. Although these changes are rapid, they occur gradually over several years. Menarche, or the first menstruation, is widely regarded as the main indication of girls' pubertal transition. Menarche generally occurs between the ages of 11 and 15 (Bralić, *et al.* 2012), with an average age of 12.5 years [2,21]. Menarche (the first menstrual period) has piqued the interest of researchers from several disciplines since it is thought to be the essential pubertal development and a benchmark of physical maturity.

A girl's menarche is affected by a combination of variables. In turn, the menarche experience has a profound impact on multiple aspects of a girl's life. Teenage females might have conflicting sentiments regarding menarche, with research from diverse nations revealing a range of pleasant and unpleasant emotions. Some of the initial adverse reactions to menarche are worry and fear, feelings of strangeness and confusion, feelings of embarrassment, irritability, and feelings of shame and unease [13,23,27,28,48]. On the other hand, girls report specific positive reactions, such as feeling grownup and feminine, healthy, and mature [33,34,48]. Although cultural practices can significantly impact menarche's personal experience, it is mediated by a family environment in which the mother's reactions to their daughter's menarche are significant [50]. Teenage girls who were better prepared for menstruation also had a more positive attitude towards menstruation [26]. In addition to preparation, such as age during menarche, can impact the menarche experience. Those girls who have had menarche early report more unpleasant feelings, negative attitudes towards menstruation, and more severe menstrual and premenstrual distress [30]. Suppose girls can construct a positive interpretation of menarche; they may be more likely to develop positive attitudes towards menstruation, the female body in general, and the self. In contrast, negative meaning construction could lead to more negative attitudes towards menstruation, body, and self [7]. Existing research shows evidence of negative (e.g. menarche means suffering) and positive (e.g. menarche means maturity) connotation [6,19].

Studies indicate that the negative or positive approach to menstruation affects the perception and severity of physiological or psychological symptoms that emerge during this period in women (Kulakac, *et al.* 2008). The menstrual cycle consumes half of a woman's life. Some problems with the physical, behavioural, and emotional changes are caused by this process [41]. Moreover, addressing knowledge gaps impacts the menstrual experience: girls feel unprepared for this topic. They are more likely to experience menarche distress and experience more unpleasant menstrual symptoms than those who feel well prepared and have knowledge about it [32]. Gaps in knowledge can complicate preventing ineffective menstrual hygiene management (MHM) and thus safeguard adolescents' health as suboptimal MHM is associated with genital disorders, irritation, rashes during menstruation [17]. Poor MHM practices are also associated with an increased risk of reproductive and urinary tract infections and cervical cancer [12].

The menstrual cycle can affect girls' personal life, even at school. Most reported problems are often exacerbated by menstrual stigma: girls may feel anxious and fearful of staining their clothing with blood or revealing odours or disclosing their menstrual status to others [44]. This stress, coupled with bothersome symptoms of dysmenorrhea or menstrual pain, can hinder girls' ability to focus on their studies and socialize with peers throughout the school day [44]. However, there is relatively little investigation into these issues [45]. Much of the existing knowledge about girls' menstrual experiences come from literature published during the 1980s-1990s [40]. Furthermore, a large body of recent research is based on data collected from adult women who have been asked to reflect on their adolescent experiences of menstruation and menarche [39] rather than directly from adolescents themselves.

This survey is built up based on the literature. Data on menstrual experiences among Italian female teenagers are presented in this study. The present study aims to explore and report (i) how menarche is experienced today, (ii) menstruation attitudes and symptoms, and (iii) the relationship between emotions experienced during menarche and psychological well-being, menstrual symptoms and psychophysiological symptoms. It is also essential to collect these data by refreshing the picture in a specific temporal and cultural context and collecting data on adolescents rather than relying on reconstructions of mature women. The urgency of studying these phenomena is due to the close link between the experience of menarche, menstruation, and psychological well-being.

Methods

Menarche information and emotional experience and the potential link to menstrual experiences (i.e. behaviours, menstrual symptoms, menstrual regularity, medications use, menstrual hygiene) were investigated using an online survey. Respondents were recruited through advertising the survey on social platforms. Informed consent was obtained for each participant at the beginning of the survey. The

Sigmund Freud University Ethics Committee granted ethics approval in line with the Declaration of Helsinki's ethical standards. Participants were briefed of the study design and data protection before filling in the questionnaire. The duration of the questionnaire was about 25 minutes. A pre-test with thirty participants allowed us to improve feasibility, intelligibility, and comprehensiveness.

A self-administered online survey was completed by participants, which contained sociodemographic information, questions concerning menstruation and well-being:

- (i) Socio-demographics: Demographic characteristics were collected, including age, area of provenience, caregiver 1: educational level, caregiver 2: educational level, actual BMI, and desired BMI.
- (ii) Menstruation questionnaire: The questionnaire was composed of several parts: part 1 consisted of questions about menarche experience: age of menarche, information about menstruation received before menarche, the institutions that delivered information, emotions experienced during menarche regarding it, and people whom participants provide information about their menarche (6 items); part 2 consisted of questions about menstruation attitudes and behaviours: discomfort experienced during menstruation, activities avoidance during menstruation (3 items); part 3 included questions on the use of hygiene disposal and pills assumptions (3 items); part 4 covered questions about menstrual symptoms on a scale from 1 (not at all) to 5 (very much) (17 items). The internal consistency (Cronbach's alpha) of part 4 in our sample is $\alpha = 0.819$.
- (iii) General health questionnaire [15] is a self-report questionnaire based on a 4-point Likert scale from 0 to 3. It was used to assess the general mental health status of participants. The internal consistency (Cronbach's alpha) in our sample is $\alpha = 0.681$.
- (iv) Psychophysiological questionnaire reduced form (QPF/R). The QPF/R is a 30-item self-report questionnaire assessing the severity of psychophysiological symptoms on a scale from 1 (not at all) to 4 (very much) (range from 30 to 120). The scale has adequate psychometric properties (Pancheri and Chiari, 1986). The internal consistency (Cronbach's alpha) in our sample is $\alpha = 0.882$.

A descriptive analysis has been performed and data were presented as means or percentages, with standard deviations (SD). One-way ANOVA was conducted to compare effect of emotions experienced during menarche on the psychological well-being, menstrual symptoms, and psychophysiological symptoms. Levene's test revealed that the variances of positive and negative emotions participants' of psychological well-being, menstrual symptoms, and psychophysiological symptoms were homogeneous. Statistical analyses were performed using SPSS Version 27 (SPSS Inc., Chicago, IL) to run descriptive and inferential statistics.

Results

A total of 1734 female adolescents responded to the entire survey (Mage = 17.77 years, SD = 1.18, range = 14 - 19). 2.03% of the participants (N. = 37) did not complete the first page, on which participants were informed on the content of the study as well as on the data processing and were asked to give written consent to the participations in the study. Only 2.96% (N. = 54) abandoned the questionnaire after the second page. The overall dropout rate was 4.99% (N. = 91), and the actual sample size, after excluding all invalid cases or dropouts, consisted of N. = 1734 data sets and were therefore included in the evaluation.

Among participants 15,2% belong to the middle adolescence (14 - 16 years), while 84,8% belong to the late adolescence (17 - 19 years old). Participants' areas of provenience are North (53.3%), Center Italy (20.9%), and South Italy and Islands (25.8%). Participants real body mass index (BMI) (Mean = 21.85 years, SD = 3.74) and desired BMI (Mean = 20.05 years, SD = 2.13) are not show a marked difference. Gender identities reported by the participants were cisgender (85.1%), transgender binary (3.6%), and transgender non-binary (11.3%).

Most of the parents of the participants had a high school degree (caregivers 1 or mothers, 44,6% and caregivers 2 or fathers, 42,6%).

Menstrual experiences characteristics are reported in table 1. While, table 2 shows prevalence of menstrual symptoms among female adolescents. By correspondence analysis to investigate the homogeneity between information received concerning menarche and emotions experienced at menarche, it emerged that participants who received information (N = 1374) experienced positive emotions (N = 730) and negative emotions (N = 644). Whereas of those who did not receive information regarding menarche (N = 360) experienced positive emotions (N = 129) and negative emotions (N = 231).

	Total (N = 1734) N (%)	Total (N = 1734) M ± SD
GHQ-12		19,89 ± 4,58
Menarche age		11,91 ± 1,29
Information received about menarche		
Not Received	360 (20,8)	
Received	1374 (79,2)	
Information about menarche		
Mother	995 (57,4)	
Father	6 (0,3)	
Sister	153 (8,8)	
Brother	82 (4,7)	
Relatives	243 (14)	
Friends		
School	4 (0,2)	
Social Network and media	251 (14,5)	
Who you tell about menarche		
Mother	1340 (77,3)	
Father	196 (11,3)	
Sister		
Brother		
Relatives	9 (0,5)	
Friends	134 (7,7)	
Others		
No-one	55 (3,2)	
Emotion experience during menarche		
Positive	859 (49,5)	
Negative	875 (50,5)	
Contraceptive pills assumptions		
No	1200 (69,2)	
Contraceptive	275 (15,9%)	
Cycles regulator	16 (0,9%)	

Acne	43 (2,5)	
Hormonal disorders	48 (2,8)	
Menstrual pain	139 (8)	
Other	56 (3,23)	
Hygienic devices use		
External pads	1521 (87,7)	
Internal tampons	679 (39,2)	
Menstrual cups	127 (7,3)	
Menstrual pants	200 (11,5)	
Activity renunciation during menstruation		
Always	356 (20,5)	
Often	565 (32,6)	
Sometimes	421 (24,3)	
Rarely	296 (17,1)	
Never	96 (5,5)	
Kind of activities renunciation during menstruation		
Sport	372 (21,5)	
Relational	888 (51,2)	
School activities	95 (5,5)	
Trips and Tour	230 (13,3)	
Romantic-sexual activities	149 (8,6)	
Regularity of the menstrual cycle		
Yes	1193 (68,8)	
No	518 (29,9)	
Amenorrhoea	23 (1,33)	
Days menstrual cycle duration		
Less than 3	18 (1)	
3	92 (5,3)	
4	317 (18,3)	
5	581 (33,5)	
6	374 (21,6)	
7	342 (14)	
8	80 (4,6)	
More than 8	30 (1,7)	
Painkillers use		
Yes	1443 (83,22)	
No	291 (16,8)	

Table 1: Menstruation experiences characteristics, body listening and psychological well-being of participants (N = 1734).

Note: M = Mean; SD = Standard Deviation.

	Total (N = 1734) M ± SD
Menstrual symptoms	
Lower abdomen pain	3,84, ± 1,09
Craving for food	3,59 ± 1,25
Bloating	3,52 ± 1,23
Fatigue	3,11± 1,29
Acne	2,98 ± 1,26
Backache	2,77 ± 1,31
Breast pain	2,60 ± 1,20
Gastrointestinal symptoms	2,42 ± 1,32
Pelvic floor pain	2,41 ± 1,25
Headache	2,33 ± 1,22
Nausea	2,09 ± 1,24
Increased sweating	2,08 ± 1,27
Sleeping difficulties	2,07 ± 1,25
Confusion	2,04 ± 1,24
Legs pain	1,71 ± 1,11
Rectum pain	1,65 ± 1,06

Table 2: Menstrual symptoms of participants (N = 1734).

Note: M = Mean; SD = Standard Deviation.

The analyses of variance conducted, have shown (i) that the effect of emotions experienced during menarche on psychological well-being was significant, $F(1, 1732) = 6,17, p = 0.013$; (ii) that the effect of emotions experienced during menarche on menstrual symptoms was significant, $F(1, 1732) = 4,51, p = 0.034$; (iii) and that the effect of emotions experienced during menarche on psychophysiological symptoms was significant, $F(1, 1731) = 15,66, p < 0.001$. Descriptive analysis show that participants who have experienced positive emotions at menarche obtained lower score at GHQ (Mean = 19.61, SD = 4,61), lower score at the menstrual symptoms scale (Mean = 49,15, SD = 11,18), and lower score at the QPF\R (Mean = 40,71, SD 9,92). While participants who have experienced negative emotions at menarche obtained higher score at GHQ (Mean = 20,16, SD 4,54), menstrual symptoms scale (Mean = 51,42, SD = 12,56), QPF\R (Mean = 41,73, SD = 10,14).

Participants who have experienced positive emotions toward menarche show a better psychological well-being, less menstrual symptoms, and less psychosomatic symptoms.

Discussion

The present study added some evidence to menstruation experience in adolescence and the relationship between menarche emotional experience and psychophysiological well-being, which have not been previously described in Italy on an adolescent sample.

Most of the participants have received information about menarche before it occurs. Most of the adolescents who have received information about menarche received them from their mothers. This result is consistent with other reports, in which emerge that in the most

developed and developing countries, the mothers are significant sources of menstrual knowledge for most adolescent girls [1,23,26] and that probably means that most of the Italian families assigned the mother the role of sexual health informant to their daughters. In fact, consistent with the literature (Özdemir, *et al.* 2010), most of the participants also firstly reported menarche experience to their mothers. Few participants have received information from school, which is not considered a sexual health information institution. The family remains the first institution with an informative role. Previous studies have demonstrated that girls' communication with their mothers is essential to their experience of menarche. Teenage girls who talked to their mothers about body function before menarche were better prepared for menarche. They knew what was happening when they had menarche, and they knew what to do. Also, girls who knew what was going on when they had menarche had less negative or secretive attitudes towards menstruation [38,48]. However, mothers could give different kinds of information (e.g. connected to how they have lived their menarche), which leads to a disparity in the quality and quantity of information that could lead to different outputs. In fact, from our report, despite most participants having received information about menarche, almost half of them experience negative emotions towards menarche. Other studies also underlined that mothers could also be reluctant to discuss menstruation with their daughters before menarche because of embarrassment, lack of a role model for handling the discussion, or because they are uncomfortable with the idea that their daughters will soon be able to sexuality and reproduction [3,10,18].

Regarding emotions towards menarche, half of the participants have reported that they had experienced negative emotions. Negative attitudes regarding menstruation have been the subject of a lot of research. The use of euphemisms (for example, "that time of the month") typically hides the general terminology regarding menstruation, and the menstrual cycle is rarely explicitly mentioned [47]. Menstruation is often portrayed as an inherently negative aspect of life [11]; it is often referred to as "disgusting," and studies show that women associate their menstrual periods with negative emotions such as shame, guilt, and embarrassment [16]. Due to the ubiquity of opposing views on menstruation in the United States and much of the world, menstruation often elicits an immediate series of negative stories; it is constructed as evil, dirty, contaminating, coarse, and something to be avoided (Fahs, 2020). Females often refer to menstruation using negative emotions, such as shame, embarrassment, and disgust [5]; therefore, they learn to internalize the idea that their vaginas are dirty and that menstrual blood must be contained, hidden, and disinfected; these notions are fuelled by incessant messages in the media where menstrual negativity is normative and ubiquitous [49]. In the present study, half of the participants have reported positive emotions toward menarche, consistent with the few studies that reported emotions of proud, or excitement due to the symbolism of menarche as "sexual maturity of femininity stage" [8,9].

In terms of sanitary disposal, pills, and contraceptives, the sample reported high use of external tampons, average use of internal tampons, while hygienic devices such as menstrual cups and pads remained low within the sample. This may be due to the low diffusion of such devices in the market. In addition, most adolescent girls take pain-relieving pills to alleviate the menstrual cycle symptoms. Since the participants were given basic knowledge on menstrual hygiene management, proper usage of various hygiene devices depends on the occasion in the current sample. The diffusion of MHM information is fundamental for preventing reproductive and urinary tract infections and to experience less menarche distress and unpleasant menstrual symptoms [12,32]. Despite most adolescents having regular menstruation, lower abdominal discomfort, food craving, bloating, and fatigue have been reported as symptoms most frequently experienced. In previous studies on adolescents sample the symptoms more frequently reported during menstruation were lower abdominal pain, back pain, fatigue, and nervousness [35,37].

Despite the widespread use of pain relievers and external and internal sanitation, most participants reported skipping certain activities during menstruation. They avoid social activities, sports, and trips. This phenomenon could contribute to a lower level of psychological well-being. Negative attitudes toward menarche and menstruation, consistent with previous findings, could reduce the range of behaviours and activities carried out during menstruation due to the menstrual stigma, which exacerbates the anxiety and fear of staining female's clothes with blood or revealing odours, or simply their menstrual status to others [29,44]. Contrary to earlier findings, a pre-

ponderance of avoidance of relational, sporting, and recreational activities (e.g. outings and trips) emerged in the present study. Sexual activities and school activities, on the other hand, were identified as avoided activities, contrary to prior findings [29,44]. This conclusion can also be explained in the light of the historical period during which the data was collected (during the covid-19 pandemic) when people had few opportunities to attend a school or meet other young people or engage in romantic relationships. Instead, small groups could engage in sports or other related activities out [4].

Menstrual positivity is conspicuously lacking in education and general society. Nonetheless, recent reports have exhibited correlations between women's increasing positive attitudes towards menarche and menstruation and other positive sentiments toward their body and positive health outcomes [9,22]. These findings were verified in the current study; in fact, people who had positive emotions toward menarche showed higher psychological well-being, psychophysiological symptoms, and menstrual symptoms. When the arrival of menstruation is perceived as disgusting and shameful and generates negative emotions and behaviours, it is possible that adolescents, from an embodiment perspective related to menstruation [36], embody a negative perception of their menstrual body, thus amplifying the unpleasant perception of bodily sensations and limiting their overall well-being during menstruation, and beyond. In addition, in our society, complaining about menstruation and accompanying symptoms is frowned upon due to the perception of menstrual moaning as resistance to menstrual concealment. Many girls are forced to cope with their symptoms alone, without being able to deal constructively with others and improving their attitudes towards their bodies [31].

Advertisements for menstrual products frequently portray girls and women as filthy and impure during menstruation while framing their non-menstrual bodies as clean and menstrual bodies as clean [14]. The aversion of female adults' menstrual bodies is like their dread of body hair, fat, and ageing (Fahs, 2020). People quickly learn to see their menstrual periods as embarrassing, obscure and undignified [5]. Girls who have negative attitudes towards menstruation tend to report greater body shame [43]. Participants often have limited knowledge about menstruation, and menstrual education presents them with conflicting instructions, namely that menstruation is normal and a sign of health, but that it should be disguised simultaneously [46].

The principal limit of the present study is the cross-sectional design, which limits longitudinal considerations about the evolution of attitudes towards menstruation during growth. Secondly, since the survey was conducted online, it is challenging to generalize results to those young adolescents who do not have access to social media and/or the internet. Moreover, the quality and quantity of information received about menarche have not been considered. In future studies, it will be essential to consider it to better investigate the relationship existing between information received and emotions experienced towards menarche to elaborate specific educational protocol on female sexual health.

Conclusion

The findings of this study reveal that most adolescents have received information on menarche. However, half of them have experienced negative emotions towards menarche. Most of the participants were initially briefed by their mothers and had reported menarche experiences to their mothers. This finding might lead us to believe that the source of information at home, by mothers, can cause a discrepancy in the information received, resulting in a different outcome regarding emotions experienced during menarche. Since the link between positive emotions experienced during menarche, psychological well-being, and symptoms experienced, it is essential to implement psychoeducational protocols on menstruation in schools to ensure that everyone receives an equal level and quality of information, ensuring that most adolescent girls can experience positive emotions at menarche.

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