

# Adolescent girls' emotional reaction to menarche: the role of significant other

Sandra Nakić Radoš

Department of Psychology, Catholic University of Croatia, Ilica 242, 10 000 Zagreb, Croatia

**Summary:** Menarche is a key pubertal change for girls which is accompanied by different psychosocial changes, both pleasant and unpleasant, shaped by cultural and societal influences. This study aimed to examine: (1) the main source of information about menstruation before menarche among Croatian girls, (2) to whom girls confide about menarche and how they perceive the response of the significant other, (3) the role of preparedness and response of significant other for emotional reaction to menarche in adolescent girls.

Postmenarcheal girls ( $N = 246$ ) from primary and secondary schools from Croatia filled out the Expected/Experienced Emotions related to Menarche Scale measuring pleasant and unpleasant emotional reactions; Preparedness for the Menarche; Significant Other's Responses to Girl's Menarche Checklist measuring informational support and positive emotional responses; and a set of specific questions.

For most adolescent girls, the mother is both the main source of information (97.2%) and the first person to confide about the menarche (83.7%). Girls perceived the response of the significant other more as informational support (such as providing information on the use of sanitary products) than as positive emotional response. However, the positive emotional response of the significant other, together with higher levels of preparedness, predicted higher levels of girl's pleasant personal experience at menarche.

Psychoeducation should be focused both on girls and their mothers so they could know how to prepare their daughters timely and respond positively to this important event.

**Key words:** menarche, menstruation, preparedness, mother, puberty

## INTRODUCTION

Puberty is a developmental stage marked with biological changes, especially in skeletal growth and sexual maturation in early adolescence (Santrock, 2019). Although these changes are rapid, they occur gradually over several years. Menarche, or the first menstruation, is often taken as the major mark of pubertal changes in girls. However, menarche

typically occurs two years after other pubertal changes, such as budding breasts and pubic hair growth (Berk, 2012). Girls usually get menarche between 11 and 15 years (Bralić et al., 2012), with an average at 12.5 years (Berk, 2012; Keresteš, Brković & Kuterovac Jagodić, 2010).

Menarche, as an important biological event, is often followed by different psychosocial changes which are under major cultural

influences. For instance, in Brazil, girls after menarche get a special title of “mocinha” or “little lady” indicating the status of becoming a woman with special privileges among peers and family (do Amaral, Hardy & Hebling, 2011). Adolescent girls can experience mixed feelings toward menarche and studies from different countries show a variety of pleasant and unpleasant emotions. Some of the negative initial reactions to menarche are worry, feeling odd and confused among Mexican adolescent girls (Marván & Alcalá-Herrera, 2014; Marván, Morales & Corté-Iniestra, 2006), feelings of embarrassment, worry, and fear among Chinese girls (Tang, Yeung & Lee, 2003), feeling irritable and embarrassed among Taiwanese girls (Liu, Chen & Peng, 2012), or shame and discomfort among Brazilian girls (do Amaral et al., 2011). On the other hand, girls in China and Iran also report some positive reactions, such as feeling grown-up and feminine (Tang et al., 2003). Moreover, a recent study among Croatian adolescent girls showed that both pleasant and unpleasant emotions occur due to menarcheal experience. Also, pleasant reactions were expressed more, with the most prominent reactions of feeling natural, healthy, mature, and more adult (Nakić Radoš, Mužinić Bikić et al., 2017).

In a qualitative study with 50 adult women from 34 countries around the world, Uskul (2004) concluded that culture, religion, and social environment are all intertwined in shaping the personal experience of menarche. Although cultural practices may be quite influential, their effects on personal experience of menarche are mediated by a family environment where the mother and her reactions to the daughter's menarche are very important (Uskul, 2004). A longitudinal study showed the importance of mother's reactions in that higher maternal harshness at preschool age predicted earlier age at menarche, and had an indirect effect on riskier sexual behavior of

their daughters at 15 years through earlier age at menarche (Belsky, Steinberg, Hous, Halpern-Flesher & the NICHD Early Child Care Research Network, 2010). In most developed and developing countries, the mother is a major source of menstrual knowledge to a majority of adolescent girls (Ali & Rizvi, 2010; Liu et al., 2012; Marván & Molina-Abolnik, 2012). Most young and middle-aged women from Brazil reported that their source of menstrual knowledge were an older sister, mother or other older women who had experienced menarche (do Amaral et al., 2011).

Furthermore, the vast majority of girls first inform their mothers about the experience of menarche (Özdemir, Nazik, & Pasinlioğlu, 2010; Rodriguez White, 2008; Tang et al., 2003). Mothers of Turkish adolescent girls respond by giving information about menstruation more often than showing reactions of happiness (Özdemir et al., 2010). Similar perceived motherly reactions were identified in a cross-cultural study by Chrisler and Zittel (1998). Girl's communication with the mother is important for one's experience of menarche. In a qualitative retrospective study in Brazil, young and middle-aged women reported being strongly influenced by their mothers' behavior and attitudes toward menstruation, either positively or negatively (do Amaral et al., 2011). However, in Croatian adolescents, the main source of information about menarche or reaction to confiding about menarche has not been examined so far, despite cultural variety regarding the menarcheal experience (do Amaral et al., 2011; Marván & Alcalá-Herrera, 2014; Tang et al., 2003) and more pleasant emotional experience at menarche in the Croatian sample (Nakić Radoš, Mužinić Bikić et al., 2017).

Adolescent Mexican girls who talked to their mothers about body function before menarche were better prepared for menarche. They knew what was going on when they got

menarche and they knew what to do. Moreover, girls who knew what was going on when they got menarche had less negative or secrecy attitudes toward menstruation. Adolescent girls who were prepared better for menstruation also had a more positive attitude toward menstruation (Marván & Molina-Abolnik, 2012). Except for preparedness, the menarcheal experience may be affected by other factors as well, such as age at menarche. Those girls who got menarche earlier report more unpleasant feelings, while girls who were late maturers tended to express more excitement and less unpleasant feelings (Marván & Alcalá-Herrera, 2014; Nakić Radoš, Jelić et al., 2017).

Summarizing the above, the menarcheal experience of adolescent girls is affected by different determinants which can be looked at within the framework of Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1992). This theory of human development postulates how child characteristics are related to his or her environment. Child characteristics include child's maturing biology, social skills, intellectual abilities and personality (which would include age at menarche, preparedness, attitudes toward menstruation etc.). The environment, on the other hand, is comprised of several layers, where more proximal layers have a stronger effect on the child. The first one is the *microsystem*, referring to the immediate surrounding, such as family, school etc. (which would include relationship and communication with mother). *Mesosystem* refers to the system of relationships between the child's microsystem. *Exosystem* refers to the larger social environment that the child does not interact directly with but can be affected by. Finally, the *macrosystem* is the outmost layer which includes culture and subculture in which the child lives (including cultural practices related to menarche and menstruation, menstrual myths and taboos).

Given the importance of the source of information and preparedness for menarche, and taking cross-cultural variety into account, the goal of this study was to focus on some of these factors in shaping the menarcheal experience among Croatian adolescent girls in an explorative and descriptive manner. Several questions were raised, where the main problems were (1) to examine who was the main source of information about menstruation for adolescent girls before menarche and how prepared they were for menstruation, (2) to whom girls confide about menarche and what is the perception of the significant other's response, and (3) to examine the role of preparedness and response of significant other for emotional reaction to menarche in adolescent girls. We expected the age at menarche, as the adolescent's biological characteristics, to be related to the emotional reactions. Next, we presumed preparedness to be associated with menarcheal emotional experience. Finally, we expected the reaction from the significant other, as part of the adolescent's microsystem, to be related to emotional reaction. Furthermore, we wanted to examine these associations by using a recently developed measure of emotional reactions to menarche which is the first to differentiate pleasant and unpleasant emotions (Nakić Radoš, Mužinić Bikić et al., 2017). Also, reactions from significant others have been so far examined with content analysis of women's stories about menarche (Chrisler & Zittel, 1998) or short sets of questions which were analyzed with descriptive statistics (percentages) (Marván & Molina Abolnik, 2012; Özdemir et al., 2011). Following from their work, we developed a comprehensive checklist which was able to differentiate instrumental support and positive emotional reaction of significant other when a girl would confide about menarche. This provided us with the possibility to examine these associations in a quantitative manner.

## METHODS

### Participants

The convenient sample included 246 postmenarcheal girls from primary and secondary schools. They were on average 15.1 years old ( $SD = 1.9$ , range: 11.0-18.7 years) and they started to menstruate on average at the age of 12.4 years ( $SD = 1.15$ ; range: 9.1 to 16.5 years). Of the sample, 47.2% was from primary school (5<sup>th</sup> to 8<sup>th</sup> grade; or 11 to 14 years), and 52.8% was from secondary school (1<sup>st</sup> to 4<sup>th</sup> grade; or 15 to 18 years). The sample was equally distributed among rural (44.3%) and urban areas (55.7%;  $\chi^2(1) = 3.19$ ,  $p = 0.074$ ). Mothers and fathers of the majority of the sample graduated from secondary school (73.6% and 72.0%, respectively).

Majority of the sample lived with both parents (91.1%), 6.5% lived with mother only ( $n = 6$ ), 1.2% lived with father only ( $n = 3$ , of which one participant reported that her mother died), and 1.2% ( $n = 3$ ) did not live with a parent, but with other members of the family. A minority of the sample was the only child (13.4%), and the majority lived with siblings (86.6%). Of the sample, 40.7% had an older sister. For detailed characteristics of the sample, please see elsewhere (Nakić Radoš, Jelić et al., 2017).

### Instruments

*Expected/Experienced Emotions related to Menarche Scale* (Emo-M; Nakić Radoš, Mužinić Bikić et al., 2017) measures pleasant and unpleasant emotions related to menarche. It can be applied both to premenarcheal (about what they expect) and postmenarcheal girls (about what they experienced), just by changing the instruction. Here, the latter form was used. Emo-M consists of 22 items where each item is rated on a 5-point scale (1 *not at all* to 5 *completely true for me*). Total score for

two subscales is calculated as a mean result of 11 items on Pleasant Emotions and 11 items on Unpleasant Emotions, resulting in a score from 1 to 5 where a higher score indicates a higher level of pleasant or unpleasant emotions, respectively. In the current sample, the internal consistency measured as Cronbach's  $\alpha$  was .91 and .86 for Pleasant and Unpleasant Emotions, respectively.

*Preparedness for the Menarche* (PM; Rodriguez-White, 2013) is a short 7-item scale that measures how prepared the girl feels she had been before she started to menstruate, including feelings and knowledge about menstruation and what to do when starting to menstruate. Each item is rated on a 5-point scale (1 *strongly disagree* to 5 *strongly agree*), resulting in the total score with a range from 7 to 35 where a higher score indicates a higher level of preparedness. In the previous study, Cronbach's  $\alpha$  was .72, and in the current study, it was .87.

*Significant Other's Response to Girl's Menarche Checklist* is designed for this study and comprises possible responses and behaviors by mother or any other close person after a girl confided about menarche. It consists of a general question *What was the response of the person to whom you had first told about menarche?* with 19 items on a checklist. Of that, eight were reported by Özdemir et al. (2011), three items were reported by Marván & Molina-Abolnik (2012), and eight other items were author-designed. Six items refer to positive response (i.e. happiness), five items relate to negative responses (e.g. *She did not know how to react.*) and eight items refer to information about hygiene during menstruation. The Principal Axis Factoring with orthogonal rotation (*Varimax normalized*) showed that 13 items loaded onto two factors. The first, *Informational Support* (11.6% of explained variance) was saturated with seven items on the purpose of menarche-

tion, hygiene during menstruation, physical and emotional changes during menstruation, and restrictions during menstruation. The second, *Positive Emotional Response* (10.3% of explained variance) was saturated with six items: *She/he felt happy. She/he congratulated me. She/he kissed me. She/he hugged me. She/he bought me a gift. She/he told me that I became grown up.* The remaining six items (including five negative responses) were not saturated by any factor and were reported by less than 5% of the participants. The two factors were in a low positive correlation ( $r = .27, p < .01$ ). The two-factor structure was further examined with Confirmatory Factor Analysis (CFA) ( $\chi^2(64) = 151.22, p < .0001, \chi^2/df = 2.36, RMSEA = .075, SRMR = .112, CFI = .919$ ). All indices, except for SRMS, were at an acceptable level.

The score was calculated as a mean result, where checked items were scored as 1, and non-checked items were scored as 0. Thus, the possible score range was from 0 to 1 for both Informational Support and Positive Emotional Response. Cronbach's  $\alpha$  was at the acceptable level for research purposes at .74 and .70 for Informational Support and Positive Emotional Response, respectively.

In addition to this, in order to capture the initial experience of menarche, a set of questions was designed for this study. The following questions were administered: 1. *From whom had you heard about menstruation before menarche?* The check-list was provided with the possibility to check out as many options as the girl wanted with the following options: *mother, sister, friend, cousin, grandmother, teacher, doctor, someone else* (as an open-ended option), or *I had never heard about menstruation before I got the menarche.* 2. *Have you told anyone when you got the menarche?* with yes-no answer format. 3. *When did you tell that person that you got the menarche?* with four-option answers: *the*

*same day when I got the menarche / the same week / within the month / after the next menstruation.* 4. *To whom have you first told that you got the menarche?* with an open-ended answer.

Demographic data sheet comprised questions on age, school, class, parental education, place of living (rural/urban), and living arrangement (household members). Also, questions on menstruation starting and age at menarche (in exact years and months) were also included.

## Statistical analysis

Descriptive statistics (percentages, mean, standard deviation) were used to describe the source of information about menstruation, preparedness for menarche, and the person to whom girls confide about menarche. *T*-test and  $\chi^2$ -test were used to examine differences in respect to some demographic variables. The Principal Axis Factoring with orthogonal rotation (Varimax normalized) was used to examine the factor structure of the *Significant Other's Response to Girl's Menarche* checklist, which was further examined by Confirmatory Factor Analysis (CFA). Interpretation of fit indices were interpreted as reported by Hu & Bentler (1999). Finally, hierarchical regression analysis was performed to examine the role of preparedness and response of significant other for emotional reaction to menarche in adolescent girls. The CFA was performed using MPlus version 8.2, while all other analyses were performed using SPSS Statistics 21.0 for Windows.

## Procedure

The school council and headmaster of each school approved the study. Ethical principles of the Helsinki declaration were followed, and ethical principles for research with minors were applied. Informed consent forms

were distributed to the participants and the parents before entering the study. The study was part of a larger research on different aspects of menstruation during adolescence. The research was conducted by the school psychologist and boys were asked to leave the classroom during the study.

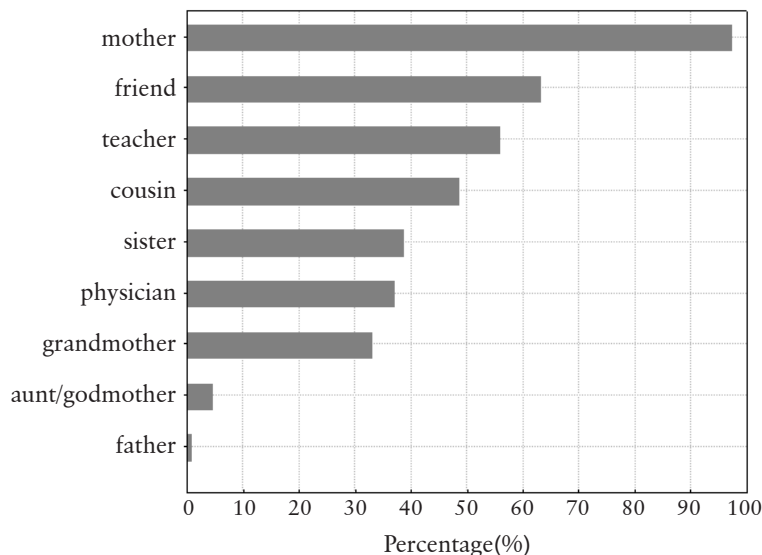
## RESULTS

### Source of information about menstruation and preparedness for menarche

In respect to the source of information about menstruation *before* menarche, the majority of adolescent girls reported their mother as the source of information (97.2%), followed by a friend (63.0%), and teacher (55.7%). All sources can be seen in Figure 1.

Postmenarcheal girls reported being moderately prepared for menstruation be-

fore they got the menarche ( $M = 27.7$ ,  $SD = 6.32$ , range 7-35). However, the full possible range was obtained showing that, at least, some girls were not prepared at all. This was tested further, and the participants were divided as those weakly prepared (in the 1st quartile by the scores,  $n = 53$ ) and prepared moderately and above ( $n = 193$ ) and were then compared in the age at menarche. *T-test* showed that unprepared girls got menarche at an average age of 11.81 ( $SD = 1.16$ ), while prepared girls got menarche at the age of 12.59 ( $SD = 1.06$ ), which was significantly different and was on average eight months sooner ( $t(244) = -4.53$ ,  $p < .0001$ ). Furthermore, we tested whether unprepared girls differed from the prepared girls in the source of information (mothers vs others). However, this was not significant ( $\chi^2(1) = 1.47$ ,  $p = .2258$ ). Also, unprepared girls did not differ from prepared girls in the place of living ( $\chi^2(1) = 0.02$ ,  $p = .8799$ ) or maternal education ( $\chi^2(2) = 0.22$ ,  $p = .8951$ ).



**Figure 1.** The main source of the information about the menstruation for adolescent girls before the menarche (Respondents may report more than one answer).

**Table 1.** The frequency of significant other's response when the girl confided them about the menarche ( $N = 246$ )

Significant other's responses	n (%)
<b>Informational Support</b>	
She/he gave me the information about the use of menstruation pads or tampons during menstruation.	201 (81.7)
She/he gave me the information about the bathing while menstruating.	182 (74.0)
She/he described what is the purpose of menstruation.	135 (54.9)
She/he told me about the bodily changes during the menstruation.	118 (48.0)
She/he told me how girls feel while menstruating.	110 (44.7)
She/he told me about restrictions girls have during menstruation.	96 (39.0)
She/he told me what girls feel in the body while menstruating.	93 (37.8)
<b>Positive Emotional Response</b>	
She/he told me that I became grown up.	134 (54.5)
She/he felt happy.	126 (48.8)
She/he hugged me.	112 (45.5)
She/he kissed me.	72 (29.3)
She/he congratulated me.	58 (23.6)
She/he bought me a gift.	11 (4.5)

*Note:* Respondents may report more than one answer.

### Confiding about menarche to the significant other

Almost all girls (98.0%) reported that they had told somebody about their menarche. For the majority of them, this happened the same day as they got the menarche (92.7%), and the minority told somebody the same week (5.3%). The remaining girls confided about menarche within a month (1.0%) or after the subsequent menstruation (1.0%). In respect of the question about to whom did the girls first confide about menarche, the majority first informed their mothers (83.7%), followed by their sister (7.7%), grandmother (3.3%), friend (2.4%), father (1.2%), or others (1.7%, such as cousin, aunt...).

When the significant other response to confiding about menarche is taken into account, it was shown that, on average, girls described the response more as informational

support ( $M = 0.54$ ,  $SD = 0.29$ ) than a positive emotional one ( $M = 0.35$ ,  $SD = 0.28$ ;  $t(245) = -8.82$ ,  $p < .0001$ ). Of the *informational support*, the most prominent responses were "providing information about the use of menstruation pads or tampons during menstruation" (81.7%) and "providing the information about bathing while menstruating" (74.0%). Of the *positive emotional response*, the most prominent responses were telling a girl that she became an adult (54.5%) and feeling happy (48.8%). The frequency of other responses is presented in Table 1.

### The role of preparedness and response of significant other for an emotional reaction to menarche

Higher levels of preparedness for menarche were related to higher levels of pleas-

**Table 2.** The regression analysis with an emotional reaction to menarche as a criterion in postmenarcheal girls ( $N = 246$ )

Predictors	Pleasant emotions			Unpleasant emotions		
	$\beta$	$B$	$SE (B)$	$\beta$	$B$	$SE (B)$
<i>Step 1</i>						
(Constant)		1.77	0.71		4.49	0.64
Age at menarche	.11	0.10	0.06	-.20**	-0.15	0.05
		$R^2 = .012$ $F (1, 244) = 2.86$			$R^2 = .038$ $F (1, 244) = 9.18^{**}$	
<i>Step 2</i>						
(Constant)		1.58	0.69		4.60	0.63
Age at menarche	.01	0.01	0.06	-.07	-0.05	0.05
Preparedness for menarche	.25**	0.04	0.01	-.37**	-0.05	0.01
Informational support	-.04	-0.14	0.22	.05	0.17	0.20
Positive emotional response	.26**	0.94	0.23	.01	0.04	0.20
		$\Delta R^2 = .135^{**}$ $R^2 = .147$ $F (4, 241) = 9.83^{**}$			$\Delta R^2 = .122^{**}$ $R^2 = .160$ $F (4, 241) = 10.84^{**}$	

Note: \* $p < .05$ ; \*\* $p < .01$

ant emotions ( $r = .29, p < .0001$ ) and lower levels of unpleasant emotions at menarche ( $r = -.39, p < .0001$ ). Emotional support from the significant other was related to higher levels of pleasant emotions ( $r = .29, p < .0001$ ), but not to unpleasant emotions ( $r = -.04, p = .5710$ ). On the other hand, informational support was not related neither to pleasant ( $r = .04, p = .5480$ ) nor unpleasant emotions ( $r = .03, p = .6790$ ). None of the demographic variables, including maternal education, were related to emotional reaction, except that lower age at menarche was related to unpleasant emotions ( $r = -.20, p = .0030$ ) and, thus, was controlled for in the first step of the hierarchical regression analysis.

Next, two hierarchical regression analyses were conducted with pleasant and unpleasant emotions as criterion variables, age at menarche was controlled for in the first step of the analysis, and preparedness for menarche,

instrumental support and positive emotional response of the significant other were entered in the second step (Table 2). Pleasant emotions could be predicted by higher levels of positive emotional support from the significant other and preparedness for menarche. On the other hand, unpleasant emotion could be predicted by a lower level of preparedness and lower age at menarche. Although these models are significant, only 15-16% of both pleasant and unpleasant emotions variance could be predicted by this set of predictors.

## DISCUSSION

Menarche is a biological mark of puberty but is also a life-changing experience which is taking place within a psychosocial, cultural, and religious context. The experience of menarche is very important for the later experi-



ence of menstruation, self-perception of own body and even reproductive choices later in life. The previous studies showed that negative menarcheal experience and not feeling prepared for the menarche were related to more negative menstrual attitudes and more mood changes during the premenstrual period among college women (McPherson & Korfine, 2004). Furthermore, a study of college women by Schooler, Ward, Merriwether & Caruthers (2005) found that menstrual shame was related to body shame, which was in turn related to sexual risk-taking, while Moloney (2010) relates menstrual shame with body perception and fear of body processes and fear of childbirth. These findings together highlight the importance of menarcheal and menstrual experience for body perception and reproductive choices later in life. Therefore, it is important to examine the factors related to menarcheal experience. In the current study, we aimed at examining the initial emotional reaction at menarche in relation to the source of information about menstruation, preparedness, and the response of significant other when the girl confided about menarche. The main findings show that for most adolescent girls, the mother is both the source of information (97.2%) and the first person to confide about the menarche (83.7%). Mother or significant other provided the girl with more informational support than with positive emotional response. However, exactly the positive emotional response of the significant other, together with a higher level of preparedness, predicted higher levels of girl's pleasant personal experience at menarche. These findings are further discussed.

The vast majority of adolescent girls talk with their mothers about menstruation before menarche. However, they also get information about menstruation from their friends, teachers, cousins, sisters, physicians, and grandmothers. This result is in line with studies

from other countries, such as Mexico (Marván & Molina-Abolnik, 2012), Pakistan (Ali & Rizvi, 2010), and Taiwan (Liu et al., 2012), that also show the mother as the major source of menstrual knowledge. However, among Indian girls, it was established that the source of information about menstruation was in interaction with the place of living. Namely, urban girls indicated mother as a major source, while girls from rural parts indicated teacher as a major source of menstrual knowledge (Deo & Ghattargi, 2005). The exception is Indian girls from very low socio-economic status whose major source of menstrual knowledge were friends (50%) and mass media (25%) (Bhattacharjee, Ray, Biswas & Chakraborty, 2013). Also, it is interesting to note the effect of source of information on menstrual experience. More specifically, Pakistan college students who reported their mother as the source of information, as opposed to sisters, friends and the media, expressed more positive experiences and attitudes toward menstruation (Aflaq & Jami, 2012).

That menarche is a prominent life event for girls is shown by the data that most girls (92.7%) tell someone about menarche the same day as it happens, and the majority confide about this to their mother first (83.7%). The latter finding is in line with previous studies from other countries (Özdemir et al., 2010; Rodriguez White, 2008; Tang et al., 2003). There are probably many reasons why adolescent girls feel the urge to confide about menarche immediately. First of all, as previously described, girls experience mixed feelings when faced with menarche, some of which may be pleasant, like feeling grown up, but may be quite unpleasant, like embarrassment, worry, fear and shame (do Amaral et al., 2011; Liu et al., 2012; Marván & Alcaláa-Herrera, 2014; Marván et al., 2006; Tang et al., 2003). It may be difficult to resolve all these ambivalent emotions, and therefore, a young girl may

seek emotional support. On the other hand, as blood is usually a sign of injury, for girls who are unfamiliar with menstrual bleeding, this may be very intimidating. Also, facing menstrual bleeding requires additional knowledge about hygiene during menstruation, and girls may turn to their mothers for help and some instrumental support, as well.

Turkish study showed that mothers typically react with providing information about menstruation, which the authors explain as “duty”, much more often than showing reactions of happiness (Özdemir et al., 2010). In the current study, the new measure was developed and applied, which can differentiate two factors of reaction of significant other: instrumental support and positive emotional reaction. By this quantitative approach, we established that informational support was far more prevalent than the positive emotional response from the significant other, usually the mother, similar as in the Turkish study. The most common response by significant other was giving information about the use of hygienic menstrual products. This is in line with a previous study showing that Taiwanese girls mostly focused on the technical aspect of the use of hygienic products when asked to report knowledge about menstruation (Liu et al., 2012). However, understanding and knowledge of menstruation can vary in different cultural groups (Orringer & Gahagan, 2010), and should be therefore examined thoroughly in different countries and settings.

In the current study, postmenarcheal girls were moderately prepared for menstruation, but what raises concern was that, at least, some participants had not been prepared at all. These girls on average got menarche eight months before the prepared girls. This is concerning because a longitudinal study on developmental trajectories showed that early maturers showed more internalizing and externalizing problems, at least in the Caucasian

group of adolescent girls (DeRose, Shiyko, Foster & Brooks-Gunn, 2011). Furthermore, we also showed that preparedness predicted both a higher level of pleasant emotions and lower level of unpleasant emotions at menarche. Although significant others typically responded with informational support instead with positive emotions, as previously described, it was actually a positive emotional response from a significant other that predicted pleasant emotional reaction among girls. In other words, girls whose mothers or another close person that they confided about menarche responded with more positive reactions, like happiness and hugging the girl, experienced menarche as a more positive event. It is difficult to relate this finding with previous studies given that they did not take into account both preparedness and response from the significant other in a similar analysis. However, Belsky et al. (2010) found that maternal harshness at preschool age predicted younger age at menarche, which was in turn related to more risky sexual behavior in adolescence. Also, previous studies show the importance of preparedness and mother's reactions and her menstrual attitudes for the menarcheal experience (do Amaral et al., 2011; Marván & Molina-Abolnik, 2012; Uskul, 2004).

It remains to explore why mothers show more instrumental support than emotional support. It could be that they perceived it as a duty, similarly reported for Turkish mothers (Özdemir et al., 2011). Also, instrumental support may be easier to provide in this case, because mothers regularly use hygienic products for menstruation themselves and it is something that needs to be addressed immediately. On the other hand, in our Western culture there is still ongoing secrecy and taboo around menstruation (Marván & Alcaláa-Herrera, 2014; Morse, Kieren & Bottorff, 1993; Rodriguez White, 2013), and some mothers may find it difficult to talk about the emotional as-

pect of it so they rather focus on the technical aspect. Also, mothers may have an unpleasant experience of their own menarche, as shown in the study with Turkish mothers (Özdemir et al., 2011), so the daughter's menarche may trigger their own unpleasant memories of menarche. Furthermore, as menarche is an evident mark of puberty and an important milestone between childhood and adolescence, the awareness of their daughters reaching sexual maturity and transition to adulthood may be distressing for some mothers. However, these possible reasons should be explored in future studies where qualitative methods would be very useful. Also, the mother-daughter relationship, as well as the father-daughter relationship, should be examined in greater depth to see which relational processes play a major role for the menarcheal experience.

Several limitations of the study should be addressed. First, this was a retrospective study, so cause-effect relationships could not be drawn. Prospective studies could be useful, such as applied by Koff & Rierdan (1996), where preparedness, initial expectations, and menstrual attitudes should be measured before menarche, while the menarcheal experience should be measured soon after menarche. Preferably the latter measure should not be more than two years after menarche, given that this is a period when even early matured girls adapt to menstruation and lose the negative and secrecy attitudes (Marván & Alcaláa-Herrera, 2014; Nakić Radoš, Jelić et al., 2017). Furthermore, given the retrospective nature of the study, recollection of the menarcheal experience does not necessarily reflect the experience and may be changed over time due to later menstrual experiences and other influences. However, cognitive theories on memory suggest that recollection of emotional events is usually more accurate than for neutral events (Talmi, 2013), and a qualitative study with young and middle-aged women of age up to

51 showed that women had very vivid memories of the menarche, with lots of specific details (do Amaral et al., 2011). Furthermore, in this study, we examined only other people as a source of information about menstruation, so future studies could examine the use of mass media, especially Internet and social networks. Also, in this study, a narrow set of possible predictors was included and explained only a small part of the variance of emotional reactions to menarche. This could be expanded in future studies by including menstrual attitudes and expectations measured before menarche, as well as family relations, especially mother-daughter relationship in more depth. Also, future studies would benefit from examining mothers' own menstrual attitudes and premenstrual symptoms to see how they affect their daughters. Nevertheless, this is the first study in Croatian girls to examine the relationship between preparedness, reaction from (mostly) the mother and the emotional experience of adolescents. Also, we provided a new measure of perception of reaction of the significant other when the girl confided about menarche, which encompasses different types of reactions and can be used in more complex statistical analyses.

In conclusion, this study showed that the mother is both a major source of information about menstruation and a first person to confide about menarche. Although mothers or significant others respond with more informational support about menstruation, it is their positive emotional response that predicts the pleasant emotional experience of menarche among adolescent girls. Given the importance of preparedness for menarche, psychoeducation for both daughters and their mothers should be organized. Education for mothers could help them to react positively to this important event in their daughters' lives and promote timely preparation for the upcoming menstruation. Fathers should be educated, as

well, so they could be a reliable source of information and support for their daughters. As the results showed that unpreparedness and unpleasant emotions were related to lower age at menarche, psychoeducation should be applied at a younger age.

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Correspondence: Sandra Nakić Radoš,  
Department of Psychology, Catholic University of Croatia  
Ilica 242, 10 000 Zagreb, Croatia  
snrados@unicath.hr  
ORCID: 0000-0002-8330-8427

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## Emocionalna reakcija djevojaka na menarhu: uloga značajne druge osobe

**Sažetak:** Menarha je ključna promjena za djevojke u pubertetu, koja je praćena različitim psihosocijalnim promjenama, kako ugodnim tako i neugodnim, koje oblikuju kulturalni i socijalni utjecaji. Cilj ovog istraživanja bio je ispitati: (1) tko je glavni izvor informacija o menstruaciji prije menarhe djevojkama u Hrvatskoj, (2) kome se djevojke povjeravaju o menarhi i kako doživljavaju reakciju značajne druge osobe te (3) ulogu pripremljenosti i reakcije značajne druge osobe u emocionalnoj reakciji na menarhu kod adolescentica.

Postmenarhalne djevojke (N = 246) iz osnovnih i srednjih škola u Hrvatskoj ispunile su: Upitnik očekivanih/doživljenih emocionalnih reakcija na menarhu, Skalu pripremljenosti za menarhu, Listu za označavanje reakcije značajne druge osobe na menarhu, te niz specifičnih pitanja.

Za većinu adolescentica majka je i glavni izvor informacija (97,2%) i prva osoba kojoj se povjere o menarhi (83,7%). Djevojke doživljavaju reakciju značajne druge osobe više kao informacijsku podršku (kao što je pružanje informacija o uporabi higijenskih potrepština) nego kao pozitivnu emocionalnu reakciju. Međutim, pozitivna emocionalna reakcija značajne druge osobe, zajedno s višom razinom pripremljenosti, značajno predviđa višu razinu ugodnog osobnog doživljaja djevojke na menarhu.

Psihoedukacija bi trebala biti usmjerena i na djevojke i na njihove majke kako bi naučile kako na vrijeme pripremiti svoje kćeri i reagirati pozitivno na taj važan događaj.

**Ključne riječi:** menarha, menstruacija, pripremljenost, pubertet, majka