Published in final edited form as:

J Adv Nurs. 2020 October ; 76(10): 2637–2647. doi:10.1111/jan.14460.

“Tomorrow, I’ll Be Fine”: Impacts and coping mechanisms in adolescents and young adults with primary dysmenorrhoea

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Abstract

Aims: To understand the experiences of adolescents and young adults with primary dysmenorrhoea through the lens of structured frameworks extant in contemporary pain literature.

Design: Descriptive qualitative study.

Methods: Thirty-nine adolescents and young adults (ages 16–24 years) with primary dysmenorrhoea participated in semi-structured in-person interviews. Transcripts of the interviews were analysed using deductive thematic analysis from November 2018 to April 2019.

Results: Two overarching themes, each with subthemes, were identified. The first theme, primary dysmenorrhoea impacts the whole person, contained the following subthemes: biological, social, and psychological. The second theme, coping mechanisms of women with primary dysmenorrhoea, contained the following subthemes: primary, secondary, and passive coping.

Conclusion: Women experience several primary dysmenorrhoea-related impacts on their biological, social, and psychological functioning. Women employ a variety of coping mechanisms to manage their primary dysmenorrhoea pain.

Impact: This study emphasizes the significant effects of primary dysmenorrhoea on nearly every aspect of women’s lives and contributes to an understanding of the ways women cope with this pain. The findings of this study underscore the need for continued consideration of primary dysmenorrhoea as a debilitating pain process as well as the need for additional interventions to help women manage this condition.

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CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1111/jan.14460>.

Keywords

dysmenorrhoea; menstruation; nurses; nursing; pelvic pain

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1 | INTRODUCTION

Primary dysmenorrhoea (PD) is a common condition, estimated to affect between 45–95% of menstruating women (Iacovides, Avidon, & Baker, 2015). It refers to menstrual pain in the absence of identified underlying pathology, whereas secondary dysmenorrhoea refers to menstrual pain attributable to an underlying physical or medical condition, such as endometriosis or adenomyosis (Osayande & Mehulic, 2014). Despite its prevalence and despite the fact that its effects can be debilitating and severe, PD remains under-discussed and under-researched (Davis & Westhoff, 2001).

1.1 | Background

Research has shown that even in the face of severe interference such as absence from school and work, women often do not seek management options for their dysmenorrhoea symptoms (Proctor & Farquhar, 2006). Some studies suggest that the belief that menstrual pain is normal may be a deterrent (Chen, Shieh, Draucker, & Carpenter, 2017), and that the perception of menstruation as a taboo topic may also contribute to avoidance of symptom treatment (Burbeck & Willig, 2013). Qualitative research in the context of PD is, therefore, especially important in destigmatizing the experiences of girls and women who suffer from the condition, as it places an emphasis on participants' own words and responses. Qualitative studies have previously been used to explore general experiences (Chen, Draucker, & Carpenter, 2018) and self-care strategies (Wong, Ip, & Lam, 2016) of women with dysmenorrhoea. Analysis has also focused on management strategies and responses to general menstrual symptoms (Santer, Wyke, & Warner, 2007) as well as dysmenorrhoea symptoms more specifically (Aziato, Dedey, & Clegg-Lampsey, 2015). However, these studies focused on broad adult populations or on adolescents and young adults (AYA) in countries other than the Compared with. While qualitative researchers have considered the experiences and impacts of PD on women in countries such as China (Wong et al., 2016) and Ghana (Aziato et al., 2015), to our knowledge, there is a scarcity of qualitative research on the ways menstrual pain has an impact on and how AYA in the Compared with cope with their menstrual pain. As attitudes towards PD can vary by culture and context, an understanding of women's experiences in different parts of the world is essential to the development of nuanced insights into the condition.

Furthermore, PD is often not discussed within the frameworks that are used to examine other forms of pain. In particular, the biopsychosocial mode is typically used to examine pain processes in both paediatric and adult populations (Gatchel, Peng, Peters, Fuchs, & Turk, 2007). This model describes biological (e.g., hormonal and physical), psychological (e.g., anxiety and depression), and social (e.g., social support) factors that contribute to all painful experiences and acknowledges the ways such factors may interact with one another in patients with chronic pain. For example, research on rheumatoid arthritis (Covic, 2003), headaches (Shephard, MacGregor, & Zakrzewska, 2013), and other pain conditions

have made use of the biopsychosocial model to better understand such experiences. An understanding of the dysmenorrhoea experiences of AYA using a qualitative methodology and biopsychosocial lens may help de-stigmatize dysmenorrhoea by using women's own voices to place the condition with this larger body of pain research. In considering the ways PD impacts young women's lives within the same spheres as other, more commonly researched pain conditions, PD may start to achieve greater attention and validation among healthcare providers and communities.

Similarly, structured coping frameworks are often used in pain literature to elucidate important outcomes such as functioning and quality of life (Rotman et al., 2018). Such frameworks typically categorize coping mechanisms as primary, secondary, or passive. Primary coping mechanisms have been described as including "interactions with others and the environment" (Lioffi & Howard, 2016). Secondary coping mechanisms can include "regulation of aspects of the self (i.e., emotion, cognition, behavior...)" (Lioffi & Howard, 2016). Passive coping can refer to a category of mechanisms that may be maladaptive in pain management and functioning (Lioffi & Howard, 2016). Literature has described the ways both biopsychosocial and coping models may apply to an adolescent population (Figures 1 & 2) (Lioffi & Howard, 2016).

2 | THE STUDY

2.1 | Aims

This qualitative study aimed to draw on biopsychosocial and coping frameworks to contextualize experiences of AYA with PD.

2.2 | Design

This was a semi-structured interview study. The biopsychosocial framework was used to develop the interview guide, which included questions, such as "What bothers you the most about your pain?," "What do you usually do to cope with the pain?," "How have your periods affected your daily activities?," and "How have your periods affected your relationships?"

2.3 | Sample/participants

Participants were part of a larger study examining central pain processes in AYA ages 16–24 years with and without PD (Payne et al., 2019). Three hundred and fifty-three individuals were initially screened for participation. Nine potential participants were not interested in participating and 245 were excluded due to other exclusionary criteria (such as use of exogenous hormones within the past 3 months, irregular, long, or short cycle lengths, inconsistent pain ratings, and other factors). Ultimately, 39 participants with PD were enrolled and included in qualitative analysis.

Most participants for the larger study (89.1%) were recruited via mass emails sent to female university students. Other recruitment methods included posts on Craigslist, word of mouth referrals, and participants from previous studies. Eligibility was confirmed through telephone. A trained research coordinator asked potential participants whether they met any

of the following exclusion criteria: (1) acute illness or injury; (2) daily use of opioids at the time of study participation (participants who use other analgesics were included); (3) developmental delay, diagnosis of autism, or significant cognitive impairment; (4) use of hormonal contraceptives in the previous 3 months; and (5) irregular menstrual cycles (< 24 or > 32 days); or (6) currently pregnant. For the purposes of both the larger study as well as the subset of data used in this analysis, participants were categorized as having PD if they reported an average menstrual pain rating of “4” or higher on a 0–10 numeric rating scale (0 = none; 10 = worst pain possible); however, we attempted to recruit individuals who rated their menstrual pain as “6” or higher for the PD group. This NRS criterion has been used across other PD studies (Vincent et al., 2011). See Table 1 for participant demographic information.

2.4 | Ethical considerations

Written informed consent forms were completed by young adult participants and written assent and parental permission were completed by adolescent participants and a legal guardian. The study was approved by the UCLA Institutional Review Board. Each participant received up to \$250 for completion of the entire study.

2.5 | Data collection

Data collection took place through the use of semi-structured, one-on-one interviews conducted by a trained female research coordinator with 6 years of human subjects research experience, including qualitative data collection. All interviews were conducted in-person in a private room in the research suite of the University campus. Interviews varied in length, with a mean time of 16.9 min. The sample size was based on the number of participants needed for the broader study, but data saturation was achieved, with no new knowledge emerging after the first 30 interviews. Interviews were audio-recorded, transcribed verbatim, and checked for transcription accuracy by two authors between November 2018 - April 2019.

2.6 | Data analysis

Thematic analysis was conducted using NVivo 12 Pro (QSR International, Burlington, MA) and followed a template analysis framework (Brooks, McCluskey, Turley, & King, 2014). The template thematic analysis process involves a series of six phases including familiarization with the data through rereading the transcripts, preliminary coding of the data, the organization of emerging themes into clusters, the development of a coding template, the iterative modification of the coding template, and the finalization and application of the template to the entire dataset. A deductive approach to data analysis was taken, using the biopsychosocial framework to guide the emergence of patterns in the data.

2.7 | Validity and reliability/rigor

To ensure rigor in the analysis, multiple coders developed the codebook by first openly coding a randomly selected subset of six interview transcripts. Following this process, an additional three transcripts were analyzed using the preliminary codes to identify

discrepancies or codes requiring modification. Coding was reviewed and the codebook was modified until interrater reliability reached acceptable agreement (> 80% agreement on 95% of the codes) (McAlister et al., 2017). At this point, one author completed coding of the remaining transcripts. All authors reviewed and discussed the coded transcripts and collaboratively determined themes and subthemes for analysis.

3 | RESULTS

Two major themes emerged through analysis. The first, 'PD impacts the whole person', involved three subthemes: biological (physical functioning, daily functioning, and fatigue/sleep), psychological (body image, mood, and anxiety), and social (body image, mood, and anxiety). The second, 'coping mechanisms of women with PD', involved three subthemes: primary coping (medication, physical positioning, and heat application), secondary coping (acceptance and distraction), and passive coping (behavioural disengagement, selfisolation, and catastrophizing).

3.1 | Theme 1: PD impacts the whole person

3.1.1 | Subtheme: Biological (physical functioning, daily functioning, and fatigue/sleep)—Biological impacts of chronic pain have been conceptualized in the literature as interference with physical functioning, fatigue, and sleep (Liossi & Howard, 2016). Each of these domains was referenced by participants in the context of menstrual pain. Physical activity limitations were expressed by many through their reflections on exercise. Women described how period pain prevented them from engaging in their usual exercise routine, with some women reporting a complete cessation of exercise before and during their period, e.g., "I don't exercise at all on my period, or even before," (*ID 130*) and others describing accommodations to their routine:

I work out and when I'm on my period and it's like the first two or three days or the day before, I don't work out lower body at all because it's sore. The whole lower back area and the pelvic area is sore. (*ID 126*)

For others, physical activity limitations went beyond exercise, pervading their activities of daily life and interfering with their daily functioning:

In terms of work, I want to be limited to where I'm sitting down and not having to do physical activity because at my work- I work at the library- my hours are split up between being at the desk and up in the stacks, which means actually, not intense physical labor, but actually just walking and stepping up and down and stuff like that and those times I just want to be sitting at the desk rather than there. (*ID 149*)

Some described interference with physical capability as being so severe that it provoked physical absence from daily responsibilities, particularly school and work: "Usually the first day that I get it, if I'm at work I usually have to leave early because I just couldn't handle it" (*ID 128*); "I literally skipped school like once a month because I just couldn't bear the pain." (*ID 132*).

In terms of sleep and fatigue, the most commonly cited impact was the description of menstrual pain awakening women from sleep:

It'll wake me up in the middle of the night and I can't get back to sleep. It's so uncomfortable that I can't find a good position to get back to sleep and so I'm just lying there thinking about the pain so that's frustrating. (ID 127)

Some made references to increased sleep during menstruation ("I tend to sleep a lot earlier than when I'm not on my period" (ID 108)), but such disruptions were not as explicitly linked to menstrual pain as were the sleep awakenings. Women reported fatigue secondary to the sleep disruptions that was so severe it had an impact on their academic functioning: "I'm usually really tired. If I have regular class that day I probably won't go" (ID 128); "Sometimes if I get really tired it affects my focus on my schoolwork." (ID 159)

3.1.2 | Subtheme: Psychological (Body image, mood, and anxiety)—Consistent with the interconnected nature of the biopsychosocial framework, the biological intersected with the psychological realm through women's cognitions regarding the biological aspects of menstrual pain. Specifically, women's experiences of menstrual pain provoked thoughts about the pain of childbirth:

The only thing is sometimes I think, 'Oh my gosh. I wonder what it's going to feel like if I have a child and have contractions to give birth. How much more intense it is in comparison to this?' (ID 122)

A natural extension of such thoughts was the expression of broader psychological conceptions of body image. In other words, for some of the participants, the experience of menstrual pain produced a hyperawareness of their bodies and informed their views of themselves. For some, such views on body image were negative and self-blaming:

Sometimes when it's a really strong pain, I feel like something is wrong with me. I feel like maybe something... like I start thinking more negatively about myself and my body. (ID 116)

However, others expressed a positive body image in the sense that a hyperawareness of themselves and their bodies produced feelings of empowerment:

If I do something, I notice how my body responds to it. So it's, in a sense, empowering me because I'm aware of how eating well and working out and drinking a lot of fluids, I'm aware of that so I feel like I have control. I can feel that. (ID 138)

The psychological impact of dysmenorrhoea was also evidenced by changes in women's moods and anxiety that were associated with the pain. One participant described the experience of deepening anxiety in association with an episode of menstrual pain:

Sometimes like I start hyperventilating because of the pain because I feel like it's just going to get worse and worse, so it's usually accompanied by me having like a panic attack. (ID 135)

Some expressed apathy leading to disengagement with life tasks in relation to their menstrual pain: "I don't want to do things as much or I don't want to do simple things

like cook dinner or whatever.” (ID 127) Still others expressed their emotional reactions to their inability to function normally, including frustration: “I can’t do much while I’m on my period, because of the pain. I feel like that’s wasted days,” (ID 131) and sadness: “I can’t really go to school or get out of my bed. I kind of just lie in my bed and cry for a little bit until I can drink some medicine.” (ID 135).

3.1.3 | Subtheme: Social (Reclusiveness, intimacy, and parental interaction)

—A commonly described phenomenon was the relationship between mood changes and feelings of reclusiveness, a notable connection in considering the fundamental interconnectivity of the biopsychosocial model. Many participants expressed feeling reclusive or wanting to be alone during menstruation. For example, one participant explained that, “I would just say [the pain] can make me irritable sometimes and it can make me just want to be by myself. Kind of like a loner.” (ID 112) Others echoed this sentiment, stating, “I kind of just want to be alone and just kind of like wallow in my pain” (ID 135) and “sometimes, with cramps and the pain, I don’t even want to talk to people.” (ID 144) In such descriptions, it is clear that participants associate the psychological symptoms and the social implications of menstrual pain with one another.

In contrast with the desire for isolation, menstrual pain produced greater feelings of social connection and intimacy in some women. Participants explained: “I feel like I actually can be a little bit closer with some of my friends if they can be understanding of, ‘Hey, so I’m on my period. Please don’t do this or that’” (ID 146); “I’m friends with a lot of girls so we can all relate to one another when we have periods. If we’re having pain, it’s like a way to bond with each other” (ID 138); and “you know how there’s that myth where if you hang out with a lot of girls, your period becomes synced, so that happened, so we’re more understanding of each other... It just makes us closer.” (ID 160).

Although peer relationships were often at the forefront of women’s descriptions of the social implications of their period pain, parental influences were also relevant for these young women. Maternal anxiety in particular was discussed by many young women. For some, maternal anxiety related to pain severity: “My mom is always scared for me because I’ve been passing out since I was sixteen... She still freaks out a little bit, she makes sure I take my painkillers every time.” (ID 128) Other descriptions of maternal anxiety invoked the menstrual experiences of the mothers themselves: “She thinks [the pain] should be less strong. She tells me that at her age, she didn’t have that bad of a pain.” (ID 131) Another participant elaborated:

She said she would have bad pain too, where it would sometimes interfere with her life. But she said not to the point where mine is where the whole day I can’t get out of bed... that’s why she always says, ‘You need to go get checked out.’ (ID 149)

Alternatively, mothers appeared more likely to respond without anxiety and even with normalization and reassurance, when their personal experiences of menstrual pain mirrored or felt subjectively more severe than those of their daughters: “my mother, she thinks I’m pretty lucky I guess because I think she had a worse situation with her periods,” (ID 133) “my mom thinks it’s normal and she tells me about that hers was kind of like mine,” (ID 122) and “she has the same thing, so she’s sympathetic in a way.” (ID 137) Through these

responses, it is clear that mothers, whether through anxiety, or normalizing period pain, may direct young women's own conceptions of their menstrual pain.

3.2 | Theme 2: coping mechanisms of women with PD

Women described a variety of coping strategies to manage their pain, consistent with definitions of coping as described in the literature (primary coping mechanisms including “interactions with others and the environment,” secondary coping mechanisms that refer to “regulation of aspects of the self” and passive coping, which speaks to potentially maladaptive pain management coping mechanisms) (Lioffi & Howard, 2016).

3.2.1 | Subtheme: Primary Coping (Medication, physical positioning, and heat application)—The most commonly referenced means of coping was the use of medication. Responses emphasized the effectiveness of medication, explaining control over the pain occurs “only when I take pain medication” (*ID 178*) and “I can take medicine and that helps but if I don't then no [I don't have control of the pain.]” (*ID 125*) Many felt that medication allowed them to go about their daily activities:

My cramps would be very painful the first two days, to the point where I would have to be on Motrin the whole day. The first day I would take like three Motrins and then the second day I would have to do the same thing just so I could get through the day. (*ID 112*)

However, despite the endorsements of the effectiveness of medication in managing their pain, many participants also illuminated some of the limitations and challenges of relying on medication for pain relief. One commonly discussed consideration in the use of medication was timing its use for optimal effectiveness:

I do respond pretty well to ibuprofen. So in that sense, if I have painkillers nearby, I can control, or I can ease it a little. It's not immediate, so in that sense, if I have to wait like half an hour for it to kick in, then I'm out of control (*ID 141*);

Usually, if I know I'm going to be working, I'll take medication in advance so I don't have any problem getting out of the house and going. (*ID 127*);

With Ibuprofen and Midol medication, especially since I'm pretty regular with my cycle, I can plan in advance” (*ID 127*); “I always have to have a lookout when the bleeding starts because as soon as that starts, I have to take Aleve. Otherwise, if I take any later, then it's not super effective. (*ID 128*)

In addition to the timing and planning required for best medication relief, the young women also consistently mentioned worries about potential detrimental health impacts in association with frequent medication use. Participants explained that, “I know that the ibuprofen messes with your stomach lining and I hate taking it” (*ID 149*) and “I heard that's not good for your health or anything.” (*ID 101*) Similarly, some expressed a sentiment that medications are not “natural” and therefore may be harmful:

I don't like to take medications. I guess that's another effect overall, having to, needing to take medication in order for my day to be okay instead of doing more natural things which work but they don't work as fast. (*ID 126*)

Apart from medication, participants discussed several other primary coping strategies, such as modifications in physical positioning (“I try to lie on my stomach so my back isn’t as curved, or on my side and maybe just scrunch up so my spine is inverted instead of completely turned out” (ID 123)) and heat application (“I usually put a hot towel on my stomach” (ID 108); “I just wrap myself in a really hot blanket and just sit for a long time” (ID 126)). However, despite frequent endorsements of such strategies, most responded that medication demonstrated superior analgesic properties to all other primary coping mechanisms: “The only thing that works is taking some medication.” (ID 135).

3.2.2 | Subtheme: secondary coping (Acceptance and distraction)—Two secondary mechanisms that became evident through the participants’ responses were acceptance and distraction. Acceptance was expressed through statements such as, “I just let it happen and try to think that it is normal, so it’s just going to happen.” (ID 116) Others spoke of letting the pain pass, a cognitive process indicative of a sense of acceptance. For example, one participant explained, “I think that it will pass: ‘Okay, this will pass. It’s okay. Today, it’s here and it hurts, but tomorrow, I’ll be fine. I’ll be back to normal.’” (ID 130) Others explained, “I know that periods aren’t going to last forever. It’s a very short part of my day or of my week that the pain is affecting me, so I just let it come and then I let it go” (ID 138); “I know when it’s going to get worse and I know when it’s going to get better... I do know when it’s going to start and when it’s going to end. That’s my control [over the pain].” (ID 128).

Distraction is another commonly cited coping mechanism in pain literature and was referenced frequently by participants through descriptions of engaging in other activities, or in redirecting focus and attention away from pain: “try not to think about it, read a book... Watch TV, get your mind off of it” (ID 105); “I’ll just lay down and watch TV or just be on my phone. Something to get my mind off of my cramps” (ID 112); “I just try to think of other things, talk with other people about not relevant stuff. Pull your phone out and do something else. Just don’t have nothing to do.” (ID 146).

One participant elaborated on this idea, explaining that the most effective way for her to manage her pain is as follows:

Usually just distract myself. Find your favorite show or something, just so you can take your mind off it. Because if you sit there and just think about it, it gets worse and worse. Watch TV or something like that. Don’t try to do something where you need to concentrate. (ID 137)

This response, however, hints at a different kind of coping. Although the participant described elements of distraction in terms similar to those of other participants, she also elaborated, suggesting that while “taking your mind off” the pain can be helpful, concentrating on another task may be detrimental. In other words, this participant appears to suggest that, in addition to distraction, she engages in a form of behavioural disengagement, a coping strategy consistent with passive coping.

3.2.3 | Subtheme: passive coping (Behavioural disengagement, self-isolation, and catastrophizing)—Along with behavioural disengagement, passive

coping mechanisms also include actions such as self-isolation and catastrophizing (Liossi & Howard, 2016). The behavioural disengagement that is evident in the response above emerged consistently throughout participant responses:

The pain was really bad. I could be in class and then I would have cramps and then... Oh my gosh, I couldn't even concentrate on the assignment or what was going on in class because I would just focus on my cramps. (*ID 112*)

Another woman explained, "I guess just that I'm thinking about it all the time when I'm in pain, that it's hard for me to focus on other things." (*ID 131*) Such illustrations of coping with pain speak to an act of removing oneself from active engagement and detaching passively from active concentration.

Catastrophizing, which includes ruminating on pain and an exaggerated negative mindset in response to pain (Liossi & Howard, 2016), is also evident in participants' responses. For example, women explained, "Once you get on the mentality that I'm stuck with this [pain]... I don't know," (*ID 146*) and,

I feel like I always have everything scheduled and I have things to do every single day and when this comes into play, I'm like, 'Oh my god, now I'm even more behind.' I feel even more stressed out than I already am and then I just feel really overwhelmed. (*ID 149*)

In responses such as these that demonstrate signs of passive coping, the women mention the consequences of such mechanisms. For example, the women who behaviourally disengage are unable to focus on schoolwork or other activities; the women who show thought processes consistent with catastrophizing feel overwhelmed and stressed. This kind of coping may, therefore, not only be detrimental to participants in their perceptions of their pain but it may also have a negative impact on many moments and functional aspects of daily life. For that reason, the distinction of passive coping as a separate entity from primary and secondary coping mechanisms in PD is essential.

4 | DISCUSSION

The findings of this study demonstrate that PD has an impacts on AYA women in the biological (physical functioning, daily functioning, and fatigue/sleep), psychological (body image, mood, and anxiety), and social (body image, mood, and anxiety) realms. The responses also indicate that women employ a variety of coping mechanisms, which can be categorized into primary, secondary, and passive coping. The findings suggest that PD has similar biopsychosocial impacts as other chronic pain conditions and similar coping strategies were described (Covic, 2003; Shephard, 2013). The use of the biopsychosocial model, as well as the structured coping frameworks, contextualizes women's experiences with PD in the wider pain literature, identifying PD as a significant and debilitating pain condition.

Sleep emerged as a major physical factor that had an impact on women. Quantitative research on sleep and PD has demonstrated that subjective and objective assessments of sleep are impaired in women with PD compared with those without PD (Keshavarzi et al.,

2018). Specifically, dysmenorrhoea pain is associated with decreased sleep quality, sleep efficiency, and REM sleep (Baker, 1999; Iacovides, 2009). In the broader pain literature, sleep disruptions have been associated with increased pain and decreased functioning (Evans et al., 2017). Women's responses were therefore consistent with quantitative evidence of the association between sleep disruptions and PD and emphasize the need for greater attention to sleep symptom management in the context of PD.

Consistent with quantitative research, women's descriptions emphasize that PD substantially affects their ability to engage in physical activities, including exercise and life tasks, such as work and school. One quantitative study reported a 40% decrease in physical activity when women were experiencing moderate-to-severe PD as compared with physical activity when not experiencing PD (Chantler, Mitchell, & Fuller, 2009). Despite these findings, however, it has also been shown that physical activity may be an effective means of treating women's PD (Matthewman, Lee, Kaur, & Daley, 2018). Consequently, women may benefit from the development of resources to aid in understanding how to continue physical activity despite PD.

In the psychological domain, research has suggested that adolescent girls with dysmenorrhoea have an increased risk of depression and anxiety (Balik et al., 2014). The young women in this study elucidated some of the ways PD had an impact on their emotions and psychological states, allowing for a deeper understanding of the ways psychological functioning and the experience of PD may interact, such as anxiety in relation to episodes of pain or depressive symptoms in response to daily activity interference.

Additionally, women's responses in this study hinted at a conceptual association between psychological and social functioning. Research has shown that, in addition to depression and anxiety being associated with menstrual pain, disruption of social networks can moderate the relationship between emotional symptoms and menstrual pain (Alonsoe and Coe, 2001). Such findings imply that when women have stable social support, they may be less vulnerable to the negative emotional and physical manifestations of PD. For example, social isolation is a noted phenomenon in other chronic medical conditions, including painful disorders such as endometriosis, and may lessen physical and activity conditioning (Mellado et al., 2016). The interconnectivity of psychological impacts, social withdrawal, and physical inactivity may be central to pain propagation and interference in PD.

Another example of the importance of social factors is the role of maternal responses, including maternal anxiety, in women's understandings of their own menstrual pain. Recent quantitative research has explored the ways parental psychological processes and behaviours may have an impact on pain functioning in children (Timmers, Simons, Hernandez, McCracken, & Wallace, 2019). For example, parents who report low confidence in their child's ability to cope with pain are more likely to engage in over-protective and monitoring behaviour which are associated with poor child outcomes (Jaaniste et al., 2016). A substantial body of research also documents the role of maternal anxiety and associated solicitous responses, in children's heightened experiences of pain (Evans et al., 2016). How parents may have an impact on pain in adult offspring is less well understood, although it is possible that similar mechanisms of transmission, including modelling and

reinforcement, exist in these adult relationships. Maternal modelling of unhealthy fearful and catastrophizing responses to pain (e.g., “freaks out”) were expressed by AYA in our study and indicate that young adult women are aware of and possibly influenced by parental responses to their pain. Future analyses should continue to explore the ways parental anxiety may influence young women’s experiences of PD and potentially provide the basis for learning about how to cope with PD.

The coping strategies described here are consistent with previous qualitative findings related to coping mechanisms and PD, demonstrating widespread reliance on medication (Burbeck, 2013; Santer, 2008). Previous qualitative findings also emphasize the medication-related concerns endorsed by participants in this study, with women and girls referencing worries about medication side effects and reliance on “unnatural” coping tools (Burbeck, 2013; Wong, 2016). The present study contributes greater detail about such concerns, with the women also discussing timing considerations and planning required for most effective medication usage, as well as alternative pain management strategies such as heat application. Although its effectiveness has been documented, research has also found that a substantial amount of women do not receive pain relief from non-steroidal anti-inflammatory drugs (NSAIDs) and thus may experience particular challenges in finding effective coping mechanisms to manage their PD (Oladosu, 2018; Sanctis, 2015). Coupled with the many concerns expressed by participants with regards to their medication use, it is clear that further consideration must be given to the limitations and benefits of medication in the management of PD.

The secondary coping mechanisms we identified in the data include acceptance and distraction. Previous qualitative literature describes participant responses that may be congruent with these secondary mechanisms. For example, studies describe participants’ feelings that “everyone gets” menstrual symptoms and that their menstrual pain is tolerable and, therefore, does not warrant seeking management options (Chen, 2017; Santer, 2007). However, to our knowledge, there are no previous studies that analyse such responses within a structured pain framework that differentiates primary, secondary, and passive coping strategies. Such distinctions can have significant implications and can better contextualize the pain processes of PD in the broader pain literature. For instance, research has found that coping mechanisms that are consistent with secondary control coping endorsed by participants in this study (acceptance and distraction) correlate with increased levels of functioning, whereas coping mechanisms that are consistent with the passive coping domain (identified here as withdrawal, catastrophizing, and behavioural disengagement) correlate with higher levels of perceived pain severity (Craner, 2017; Payne et al., 2016). Future PD research should further differentiate maladaptive and adaptive ways of coping with menstrual pain to inform coping interventions.

Future research should also give additional consideration to the ways cultural and environmental context may contribute to impacts and coping mechanisms associated with PD. Qualitative research focusing on PD management and experiences of women in countries outside of the Compared with has illuminated both similarities and differences between such research and the emerging themes in our data. For example, a qualitative study focusing on high school and university students in Ghana found that participants also cited

medication as a commonly used form of pain management (Aziato et al., 2015). However, a study considering PD management strategies used by adolescents in China found that most participants did not report the use of medication in pain management, with many citing concerns about side effects, a concern stated by many participants in this study as well (Wong et al., 2016). Additional research into cultural attitudes towards medication may better elucidate complex and layered thinking about the effectiveness and individualized role that medication might play in the management of PD.

Cultural context is also significant in considering the attitudes of healthcare providers and the ways such attitudes may interact with women's own perspectives on PD. In the qualitative data focusing on young women in Ghana, an emerging theme focused on negative attitudes towards PD management on the part of healthcare professionals (Aziato et al., 2015). While our study considers broad social impacts of PD and more specifically focuses on parental-child messaging and interactions surrounding PD experiences, our data do not allow for a deeper understanding of the ways adolescents in the USA may view provider attitudes towards PD pain and management. Further research in this area would contribute to important gains in knowledge regarding cultural context and provider attitudes and, in turn, the impacts of such attitudes on patients.

4.1 | Limitations

The present study has several limitations. Through the process of thematic analysis, the biases of the analysts were innately introduced into the process. Specifically, the primary coders consisted of a medical student, a researcher psychologist, and a paediatric pain researcher, all of whom brought their individual perspectives and backgrounds to the thematic analysis process. To address this analytic limitation, the authors made use of a reflexivity journal to name, acknowledge, and address the unavoidable biases. Furthermore, this study was limited by the use of a deductive template analysis approach. Although such methods allow for the application of structured impact and coping frameworks to participants' descriptions of PD, a deductive approach limits the emergence of themes to the predetermined frameworks and does not represent women's whole experiences. The interview questions and analysis were driven by the biopsychosocial structure and primary and secondary coping mechanisms, possibly excluding impacts and management strategies.

Despite these limitations, this study has significant strengths including its focus on the AYA population, its emphasis on participant experiences through qualitative analysis, and its use of frameworks commonly employed in pain literature. The inclusion of multiple authors in the development of the codebook used for analysis, as well as ongoing discussion involving multiple team members throughout the coding process, ensured rigorous and thorough analysis. Although qualitative findings in chronic pelvic pain and dysmenorrhoea have previously been documented, key factors such as descriptions of participants, interview descriptions and durations, and study methods have been inconsistently reported (Mellado et al., 2019). This study aimed to provide comprehensive and adequate descriptions of all such domains to ensure rigorous and replicable qualitative methodology.

5 | CONCLUSION

Based on women's qualitative experiences of PD, we conclude that women experience several impacts on their biological, social, and psychological functioning that are consistent with the experiences of chronic pain conditions. Almost every aspect of women's lives appears to be adversely affected. Interconnections between biological, social, and psychological aspects of functioning were noted (e.g., between mood changes and women's engagement in social activities) and are consistent with the holistic nature of the biopsychosocial framework. We also conclude that women employ a variety of coping mechanisms to manage their PD which can be categorized into primary, secondary, and passive categories. While some such mechanisms appear to be effective for this population, this study illuminates areas where additional resources may be beneficial and examines the possible widespread use of less effective pain coping strategies, including catastrophizing and behavioural disengagement. The findings also emphasize that the biopsychosocial impacts on women are variable and broad and that individualized assessment is necessary for effective management.

Acknowledgments

Funding information

This study was supported by National Institutes of Health NICHD grant K23HD077042 (PI: Laura A. Payne) and NCATS University of California Los Angeles Clinical and Translational Science Institute grant KL2TR000122 (PI: Laura A. Payne).

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FIGURE 1.

Conceptual model of the biopsychosocial framework as applied in the current study with samples in each factor

FIGURE 2. Conceptual model of coping framework with examples from the current study. ^aQuotations from Liossi & Howard, 2016

TABLE 1

Demographic information for study participants

Measure	Mean (SD)
Age (y)	21.09 (2.12)
Age at menarche	11.87 (1.24)
Average menstrual pain (NRS rating)	7.07 (1.65)
Measure	N (% of group)
Race	
White	20 (51.3)
African American	5 (12.8)
Asian	14 (35.9)
Ethnicity	
Not Hispanic/Latino	24 (61.5)
Hispanic/Latino	15 (38.5)

Abbreviations: NRS, numeric rating scale.