

# The experiences of a nonclinical set of adolescents and young adults living with persistent pain: a qualitative metasynthesis

Liv Fegran (✉ [liv.fegran@uia.no](mailto:liv.fegran@uia.no))

Universitetet i Agder <https://orcid.org/0000-0001-5470-8686>

**Berit Johannessen**

Universitetet i Agder Fakultet for Helse og Idrettsvitenskap

**Mette S. Ludvigsen**

Regionshospitalet Randers

**Thomas Westergren**

Universitetet i Agder

**Magnhild Høie**

Universitetet i Agder

**Åshild Slettebø**

Universitetet i Agder

**Gudrun Rohde**

Universitetet i Agder

**Sølvi Helseth**

Universitetet i Agder

**Kristin Haraldstad**

Universitetet i Agder

---

## Research article

**Keywords:** Review, Metasynthesis, Nurses, Adolescents, Everyday pain, Pain, Young Adults

**Posted Date:** October 29th, 2019

**DOI:** <https://doi.org/10.21203/rs.2.16592/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

---

## Abstract

**Background** Around 15–30% of adolescents and young adults (AYAs) suffer from persistent or chronic pain. Strategies to manage pain in different populations have been well described; however, pain is an increasing problem among AYAs, and the use of over-the-counter medications is increasing. The aim of this study was to identify and synthesize evidence from qualitative primary studies on how AYAs in a nonclinical population experience living with persistent pain.

**Method** A qualitative metasynthesis guided by Sandelowski and Barroso's guidelines was used to synthesize the included studies. The electronic databases Medline, Embase, Cinahl, Psycinfo, Mednar, and ProQuest were searched for studies published in English or Nordic languages from January 2005 to April 2019. Inclusion criteria were adolescents aged 13–18 and young adults aged 19–24 with first-hand experience of living with persistent, recurrent, or episodic nonclinical pain in any body site. Pain associated with a medical diagnosis, malignant diseases, medical procedures or testing, or sport activities was excluded.

**Results** Of 2254 screened records, nine studies including 184 participants (127 female and 57 male aged 11–28 years) with pain from a nonclinical population were analyzed into metasummaries and a metasynthesis. In five of the nine studies, headache was the focused pain condition, while three of the studies did not specify the type of pain. All studies were conducted in a Western cultural context. The metasynthesis revealed that the participants' experiences were characterized by three themes: 1) juggling pain with everyday life; 2) exploring sources of information to manage pain; and 3) striving to find relief.

**Conclusion** These AYAs experienced a need to juggle dealing with pain with everyday life and explored information on how to manage pain from various sources. Their management of pain was influenced by family norms, and they described how they were striving to find relief from pain.

## Background

In recent years, it has been recognized that pain comprises a common and growing health problem among adolescents and young adults (AYAs). The prevalence varies in nonclinical populations; however, research has shown a trend toward a high and increasing prevalence of persistent or chronic pain, varying from 20 to 35% in different studies [1–6]. Such pain can lead to significant interference in daily functioning and daily life, and is associated with poor sleep, stress, impaired school/college functioning, and absenteeism [7, 8]. Studies also show that more girls than boys report pain; moreover, living with pain affects girls more negatively than boys. Further, pain problems can negatively influence a young person's quality of life and health [4, 9, 10]. Experiencing pain in adolescence is related to pain problems later in adulthood, and research indicates that pain problems might also have serious long-term consequences [11–13].

Pain is a subjective and individual experience and is often defined as “whatever the experiencing person says it is, existing whenever he says it does” [14]. This definition highlights that pain is a subjective concept, as well as the importance of accepting the person's perception and experience of pain. Pain is a complex phenomenon and can be a symptom of underlying problems reflecting several psychological, social, and physical factors [4, 15, 16]. Adolescence is a vulnerable period in life between childhood and adulthood, and can be challenging with respect to developmental tasks, independence from caregivers, social development, and peer relationships [17, 18]. However, this period of development also provides an opportunity for young people to develop positive health behaviors to improve their functioning and to prevent future pain-related problems [5, 19, 20].

Previous studies have given us knowledge of the prevalence of pain and its associated factors; however, pain among adolescents is still an understudied topic, especially in nonclinical populations. Few qualitative studies explore adolescents' personal experiences of living with pain, how they cope with it, and how it can influence their emotional and physical functioning. Research suggests that they use methods familiar to them to manage their pain [21, 22]. Differences in coping might be related to each adolescent's personality and coping style [23]. In qualitative studies of young people with chronic pain, different coping strategies were identified, and coping strategies were shown to be influenced by family, friends, and attitudes to pain [24, 25].

Some qualitative studies have shown that girls are more likely to talk to friends about pain problems than are boys, and more girls than boys use pain medication as a coping strategy [26]. Moreover, many parents were unaware of their adolescent's pain, and the adolescents did not speak to their parents about their pain experience [3, 9]. A Swedish study of adolescents and their use of over-

the-counter (OTC) medications revealed that OTC drug use was significantly influenced by parents and peers [27]. Studies from Norway have shown that adolescents have a high frequency of use of OTC medications and use them as a coping strategy [24, 25].

To be able to help adolescents to cope with pain and develop prevention strategies, it is important to improve our understanding of adolescents' experience with pain, and how they cope with the problem throughout adulthood.

## Aim

The aim of this study was to identify and synthesize evidence from qualitative primary studies on how AYAs in a nonclinical population experience living with persistent pain. A protocol describing the design of this study was published in the Joanna Briggs Institute Database of Systematic Reviews & Implementation Reports in 2014 [28].

## Design

The metasynthesis was guided by Sandelowski and Barroso's guidelines for synthesizing qualitative research from published qualitative primary research studies [29]. The metasynthesis process consisted of five steps: 1) formulating the purpose and rationale of the study; 2) searching for and retrieving relevant qualitative research reports; 3) critically appraising the included studies; 4) classifying the findings; and 5) synthesizing the findings.

## Search strategy

Our search strategy aimed to find both published and unpublished studies (Grey literature), and a four-step search strategy was developed by three of the authors (LF, KH, and MSL). The electronic databases Medline (OVID), Embase (OVID), Cinahl (OVID), Psycinfo (OVID) and Proquest were searched initially in February 2017 using Medical Subject Heading and index term combinations of the keywords *adolescents OR young adults AND pain AND qualitative studies*. Second, after identifying relevant keywords (Table 1), the search strategy was modified to fit each database in collaboration with a librarian, and the final search was conducted on April 12, 2019. Limiting age and language was the easy part; however, defining our search strategy concerning "pain" was challenging. Using the unspecific term "pain" produced an overwhelming number of hits. Therefore, in collaboration with the librarian we decided to narrow the search to more specific types of pain described in previous relevant studies. The database search strategy with its search blocks is presented in Table 1.

[Insert Table 1 here]

The third step was to search the reference lists of the included studies, and finally the publications citing the included studies were checked for eligibility through the "find citing articles" in OVID (Psycinfo, Nursing, Medline), ISI Web of Science, Scopus, Cinahl, and Google Scholar. The flow diagram (Figure 1) reflects all steps in the inclusion process.

[Insert Figure 1 here]

## Inclusion criteria

This review aimed to consider studies published in English, Norwegian, Swedish, or Danish describing a nonclinical population of adolescents (13–18 years) and young adults (19–24 years) with first-hand experiences of living with persistent pain *not* associated with cancer or similar life-threatening malignant diseases or clinical diagnosis, regardless of gender, ethnicity, or country of origin, and length of years in living with everyday pain.

## Exclusion criteria

During the screening process, many studies focusing on specific nonclinical pain conditions were identified. According to the aim of this study, we consequently added the following exclusion criteria: pain in connection with medical procedures, cerebral palsy, sport

activities, surgery, medication testing, treatment testing, and instrument validation. Many publications involved migraine headache; this was also considered a clinical diagnosis and was therefore excluded [30].

## Selecting and appraising studies for the metasynthesis

### Search outcome

Four of the authors (LF, MSL, GR, and KH) screened titles and abstracts and appraised relevant reports for inclusion according to the aim of the study and the inclusion/exclusion criteria. Any discrepancy between the researchers about whether a study should be included or not was discussed until consensus was reached. Of the 2254 records screened, nine were eligible for inclusion in the metasynthesis.

### Quality appraisal

The studies relevant for inclusion were independently critically appraised by two of the authors (LF and MSL) according to the Joanna Briggs Critical Appraisal Checklist for Interpretive and Critical Research [31]. Congruency between aims, methodology, data collection, and analysis methods was evaluated. Overall, the congruency between philosophical perspectives, methodologies, and methods used was strong. The exceptions were two studies with an unclear congruity between philosophical perspective and methodology [32, 33]. The most poorly addressed issue was the influence of the researcher on the research and vice versa, and five of the nine studies included did not address this issue [32, 34–37]. The results of the critical appraisal are presented in Table 2.

[Insert Table 2 here.]

### Analysis

In line with Sandelowski and Barroso's handbook, two approaches to qualitative research synthesis were used: qualitative metasummaries and qualitative metasyntheses [29]. Qualitative meta *summaries* are quantitative aggregations of qualitative findings from the included studies [29] presented in Tables 3. Qualitative meta *syntheses* are new interpretations of target findings from primary studies. The text from the results sections was considered the studies' target findings consisting of quotations from AYAs, or the primary researchers' interpretation of AYAs' own experiences. The authors' presentation of results from other studies, presentation of analytic procedures, or discussion of findings were considered as nontarget findings [29].

After extraction, the target findings were imported into the data management software program NVivo 11 for further analysis [38]. A phenomenological–hermeneutic analysis inspired by Lindseth and Norberg [39] was performed by three of the reviewers (LF, BJ, and KH). The text was initially read line-by-line to identify meaning units [40]. These were further condensed and abstracted to form main themes and subthemes. The authors discussed the analysis until consensus, and finally a comprehensive understanding of AYAs' experiences of living with persistent pain was described under three main themes.

### Results

The findings are presented as metasummaries supported by tables and figures, and as a metasynthesis presented under three themes.

### Metasummaries

In five of the nine studies [32–37, 41–43] headache was the focused pain condition, and one study [42] included participants with various pain conditions in addition to headache. In the remaining three studies type of pain was not described [32, 35, 41]. All the studies were conducted in a Western cultural context, with three in Canada [35, 37, 41] and six in Europe (UK, Denmark, and Sweden) [32, 33, 36, 42–44]. Eight of the studies had a specific focus on the pain management of AYAs, while one study focused only on their

experiences of living with pain [33]. There was a preponderance of female participants (127/184). Characteristics of the included studies are presented in Table 3.

[Insert Table 3 here]

## Metasynthesis

Qualitative metasyntheses offer novel interpretations of the target findings from primary studies [29]. The three main themes characterizing AYAs' experiences of living with everyday pain were: 1) juggling pain with everyday life; 2) exploring sources of information to manage everyday pain; and 3) striving to find relief. These and related subthemes will be elaborated in the following text.

### Main theme 1: Juggling pain with everyday life

Five of the included studies provided data for this main theme [33, 37, 41–43]. Living with pain strongly influenced the participants' daily lives regarding education, social life, and other activities [33, 37, 43]. Pain was expressed in many ways but was it a symptom of underlying illness and a token of weakness; or perhaps it reflected a stressful daily life [33].

Education appeared to be demanding for AYAs and they were easily left behind and had to drop out of courses because of absence [37]. Pain related to stress was often connected to demanding situations in school such as examinations [43]. Participants also described how their teachers could be reluctant to accept the impact of headache on their school performance [41], as expressed by one adolescent: *"Teachers think that you just want to get out of class."* Despite struggling for acknowledgment of their own pain, AYAs expressed negative attitudes towards peers' doubts that their pain expressions were real: *"Well the real pain is pain that everyone would feel. But 'wussy' pain is something that one person would whine about and the other person would just sort of live with it."*

Some of the participants had lived with their pain condition for a long time and were reluctant to believe that they could get rid of it: *"I've had them since I was so little I don't think there is much I can do."* Despite enduring pain, some of the participants even belittled the idea that their pain problem was serious enough to get attention [41]: *"Haven't asked for help because headache is not serious, it's just a headache."*

Ahlqwist and Sällfors [42] noted that the participants described how pain-free moments had a great impact on their coping and could put them more in control of their lives:

*"I changed my way of thinking and I am now more open with myself as well as with others. My mood has improved, and I feel that I want so much more than I did before. I have more energy and I understand myself better, and thinking in a different way even helps me to face other types of problems."*

Their sleep quality and social life increased and they reached a turning point toward a more normalized life:

*"I got much better. And I think it was a real boost for me to feel that after the past twelve weeks I no longer had any pain. So, it was that easy. That was the end of it somehow. And since then I haven't had any more problems with it. I feel I'm on a good path."*

### Main theme 2: Exploring sources of information to manage everyday pain

Five of the included studies provided data for this main theme [32, 33, 36, 37, 42]. They revealed that AYAs living with enduring pain strived to gather information from different sources, hoping to find answers to their pain problems. AYAs' information-seeking behavior was influenced by the transition process from being a child to becoming an independent young adult; for some, their family's norms strongly influenced their perceptions of pain and pain management [33, 34]. The AYAs expressed a strong desire to be involved in their own pain management. They had a need to be informed about their pain condition and which relevant management strategies to use, in addition to social support [37]. The older the participants were, the more the family norms were substituted by perceptions of what was common, accepted, and expected by friends and peers [34, 41]. They seemed to position themselves by

attaining similar attitudes to the other group members: *"They just take a painkiller, of course, like me, right. If they have a headache, they just take a painkiller."*

The AYAs expressed a strong desire to receive information about pain management, and information from professionals helping to strengthen their independence [33, 37, 42]. Besides having adults who told them what to do, the AYAs also experienced that being involved in finding solutions to their pain problems made them feel valued. The school health service staff played an important role in taking their pain seriously and in supporting them:

*"But I think that's exactly what it was, a positive experience. That it was even available, that there was a place where you could go to see someone who was trained and could help you. And then to be able to agree on what the problem is and what to do about it. And even in some way, it wasn't just up to me, but like a joint effort. Yeah, and like someone who cared."*

Seeking information through the media and the Internet appeared to be a way for AYAs to learn more about their pain condition, to be able to make informed decisions, and to handle their pain problems independently. The Internet was used intensively for checking symptoms before talking to others about them [32, 36, 42]:

*"I think it varies in what condition it is... because, like say if it's something that you don't want anyone else to know about or something like that, then you'll go and try and sort it out yourself [by using the Internet] rather than tell someone."*

Information from the Internet was mainly used in addition to other information sources such as parents and professionals: *"Mainly I would use the Internet as a source of supplementary information on top of any info that I get from my mum."* AYAs also described how information on the Internet was experienced as unsuitable for their age or pain condition [32, 42]. Others talked about anxiety and worries when they found information describing worst-case scenarios, and not information suitable for their condition:

*"I just had a cold or something and then it was like, are you having trouble breathing? And obviously I was, yeah, I'm congested so I do. And then straight away it was phone an ambulance, phone an ambulance when... and so it's, it's not detailed enough... And they have the whole list of things. At the start it's just like 'you've got a common cold', and then at the end it's like 'you're having a heart attack woooooo, spooky."*

Comparing multiple Internet sources on the same subject was also used to validate information:

*"I would crosscheck any info which I would find with the info on other websites to see if it's true. Also, I would look to see if the sites had cited any sources of info, as this usually suggests reliability."*

The information on the Internet appeared to be less reliable than information from other sources, so the AYAs felt a need to validate it:

*"Because, like there are a lot of different things about, like on the Internet. Like some people just put like rubbish on the Internet but some people do actually like, like, know what they are talking about so it's like really what you click on."*

The severity and endurance of their pain problem seemed to determine whether they had to seek additional professional help:

*"I think, if it was a minor pain, you would just let it wear off, whereas if it were a major one you probably wouldn't look online, you'd go and see your doctor or book an appointment with your doctor."*

### **Main theme 3: Striving to find relief**

All of the nine included studies provided data for this main theme. AYAs' pain management was strongly influenced by their parents' or families' norms [32–35]. The younger the participants were, the more they followed the rules and guidelines provided by their parents [34]. The mothers were often in charge of the treatment of pain at home, and the use of OTC analgesics was common [35]:

*"But if it's, like, [paracetamol] and stuff like that, they've never been particularly against it. They've been really, like, 'if you feel unwell, better to take a couple of [paracetamol] than feel ill."*

After acquiring autonomy concerning the use of analgesics, some of the AYAs described how they deviated from the many expectations of others despite receiving approval.

AYAs' threshold to take medication varied greatly [43]. Those who had low tolerance for pain had a similar low threshold for choosing analgesics to cope with pain [43]. While some regarded pain as a normal part of everyday life, others strongly avoided pain by using analgesics to relieve it: *"So I'm pretty good at taking an [acetaminophen] or [ibuprofen] or something, if (.) I mean, if I just have the teeny tiniest bit of a headache, because I hate having a headache."* Hansen et al. focused on AYAs' motives for analgesic use, and noted that they were often grounded in a combination of performance and participation-related functions [43]:

*"And then just before, I thought, like, Oh no. This just cannot get spoiled... Now I'll take something and then I'll avoid getting a headache all day. If I just take five [acetaminophen] now, then nothing will come... It's just that if there was something I really wanted to do, then I was afraid there was something that would ruin it."*

Performance was connected to being concentrated during school hours and managing homework in the evening; to do so, many participants used analgesics to keep up with both their own goals and their families' expectations:

*"I haven't taken medicine all my life. I think it was two years ago [starting high school], or something like that, where one really started. I mean if I, for example, had a headache, then I couldn't concentrate on my homework. And seeing as that's important, so that I can keep up in school, then one almost has to."*

While many AYAs had increased their use of analgesics, others opposed this and demonstrated a different view:

*"... "You don't take [paracetamol] at all? ... No, I try to avoid it." And they were really surprised, because I guess it's something they do, that's normal. And because it's normal, we don't talk about it. It's something one expects everyone does once in a while. Umm. But then there's ones like me who don't do it so often."*

Situations with low levels of stress were reported to reduce pain: *"If one is healthy in daily life, if one is less stressed and stuff like that, then it makes it so that one has less of a need for medicine."* In addition to reducing pain, some participants also used analgesics to deal with social anxiety, or to reduce the pressure in stressful situations:

*"I'm very good at it when I don't feel well, because I am so stressed every day and so then it's two [acetaminophen] or painkillers or something else that goes down fast, because I'm busy."*

Even those who usually avoided taking pain medication regarded it as acceptable to do so to meet performance goals, and AYAs' expectations of being able to participate clearly influenced the use of analgesics [43]. At home, when they were in more relaxed surroundings, they often used alternative strategies to manage pain, such as taking a rest or going to sleep [43]. The availability of OTC medication influenced the use of analgesics: *"Because if you have a headache it's easier just to go to the Co-op and just go and buy paracetamol."*

Some of the participants talked about their friends' impulsive use of OTC medications:

*"Some people take too much medication. Some of my friends have (ibuprofen) and they just take it for everything. They don't wait and see if their headache goes away or wait and see if they're just overreacting or something. They just automatically take it."*

Others were aware of the side effects of OTC medications and adjusted their use accordingly: *"When I feel like I'm getting a headache, I just take something... so then it's not going to get worse... I read the label to know the amount and how often to take them."*

Despite expressing concern about taking OTC analgesics, the participants also acknowledged the importance of using such medications if necessary: *"I'd rather have no pain for a little bit, than have to NOT take painkillers and have pain all the time."*

In addition to analgesics, nonmedical interventions were described as helpful tools to reduce pain [33, 34, 37, 43]. Strategies providing AYAs with customizable and interactive coping tools, such as pain diaries, web-based information, or tools to enable them to discuss their pain with peers, supported their ability to get a sense of control [37, 42]. Trusting their body's ability to control pain rather than having the pain control their lives was described as increasing their self-efficacy [42]: *"I believe that my body can ... do*

*many things. And I prove it too, I get rid of that headache every time, without taking anything.* Pain diaries were seen as useful tools to keep track of their pain and of factors that might be influencing it. Pain diaries could also support them in setting goals for themselves and in tracking their progress concerning pain and the development of coping strategies. Nonmedical interventions could be an attitude developed by the AYAs themselves, or as a part of the inherited family practice. The most common nonmedical intervention for headache was to drink a lot of water, in addition to strategies such as sleeping, relaxing, getting fresh air, doing leisure activities, or taking vitamins [42, 43]. Older AYAs tended to employ strategies such as using distractions, massage, and exercise [37]. Younger AYAs trusted their mothers' recommendations, while older AYAs behaved more according to the more-or-less tacit norms within their peer group [34]. Alternative strategies to taking analgesics were discussed within their groups, and the participants reported how peers attempted to reduce their use of medication:

*"So it's often a debate. Because my friends are pretty observant about it. I've got a friend, T, who hates me for it. He can get so furious with me every time, 'Sit down and I'll make you some chamomile tea' ... And then I say, 'No, T, I don't believe it works.' And then he goes crazy, because his opinion, he's 100% sure that natural medicine, it does the job just as well."*

## Discussion

This metasynthesis including data from nine qualitative studies with 184 participating AYAs (127 female and 57 male) aims to give a voice to those who struggle with persistent pain.

## Juggling pain with everyday life

Our analyses revealed that living with persistent pain could be described as a juggling of pain with daily life activities, indicating how living with pain strongly influences all activities. Many of the AYAs experienced that persistent pain was belittled and was regarded as just an excuse to avoid certain situations. According to McCaffery's [45] definition, pain is "whatever the experiencing person says it is, existing whenever he says it does," and it could seem as if this understanding does not reflect nonclinical pain. The issue of not being believed could mirror the perception that today's young people may be regarded as less sturdy than previous generations [46, 47]. Research has revealed the increasing pressure on today's adolescents with greater stress physically, socially, and emotionally [48]. This factor could be used against AYAs with persistent pain so that their subjective experience is not acknowledged. But are they less sturdy, or has the level of stress on adolescents become overwhelming, overloading their capacity to cope with a stressing environment? Our understanding of pain appears to be strongly influenced by defining it through its visible appearance, which undermines the complexity of enduring pain in a nonclinical adolescent population. The AYAs in our study reported that they appreciated the contact with and support from their school/college health service staff, which shows that the school/college nurses acknowledged their pain, even if it did not present as a somatic problem. Ignorance of the pain experienced by AYAs could negatively influence their coping and increase their pain. School is a place where children and adolescents spend most of their time during the day, and teachers play an important role in their coping processes [49]. Some of the AYAs in our study experienced that they were not believed by their teachers and others when they had pain [33]. Teachers have been found to offer more support to an adolescent whose pain was related to a medical diagnosis than medically "unexplained" pain. Previous studies have also demonstrated that adolescents with pain experience problems because the pain is invisible, and therefore might be difficult for others to understand. Thus, AYAs might experience a lack of support and empathy because the pain is not visible and not related to a disease [50, 51]. Moreover, impaired education performance is problematic for AYAs with chronic pain, and studies have shown that dropout and absence from school among AYAs are increasing. A review of 53 studies demonstrated high rates of school absenteeism in children and adolescents with chronic pain [52].

## Exploring various sources of information to manage everyday pain

As adolescents develop into adulthood, they search for answers to how to manage pain on their own. But who should they look to and trust? Should they trust their parents from whom they are endeavoring to detach but who are their main source for support and information, or should they trust health-care professionals who deal with these kinds of issues, peers with various levels of knowledge but with whom they want to identify, or written or Internet-based sources? Because it is likely that they have experienced that there is no simple answer to their problems, they seem to explore information from various sources. A study from Australia

showed that young adolescents with pain experienced a lack of relevant and accessible information and resources tailored to their needs; most of them also had little knowledge about pain and how to cope with it and did not know who they could contact for help or information [50].

The lack of acknowledgement of pain in the everyday life of AYAs could lead to the need to explore pain issues on their own. Our findings revealed that family attitudes are one of the sources for managing pain, but such influence gradually weakens as AYAs mature.

According to our findings, the Internet was one of the most intensively used sources for exploring pain and pain management, although the information accessed was not always deemed suitable to provide the answers needed [53], and AYAs sometimes found the information somewhat scary and inappropriate for their pain condition. These findings are in accordance with other studies that criticize information from the Internet as not being individualized [49]. They are also supported by the results of an online survey and web-based education program about pain and pain management among university students, which concluded that the users' background was crucial in developing education programs [54]. Another issue to consider is that much information posted on the Internet is not evidence-based; a study on pain and pain management revealed that few web-based applications were scientifically sound [55]. This could explain why information gleaned from the Internet is often experienced as unsuitable, incorrect, or exaggerated.

The same question concerning reliability of information could apply to peers, who could have various reasons for sharing their opinions. How should AYAs position themselves toward their peers? Our findings show that it is important to be both equal to them, as well as to be able to oppose them, as both positions might strongly contribute to identity formation. Suris et al. [56] note that peers play a crucial role when growing up and becoming independent; thus, peers could be of great support to AYAs with pain.

Health-care professionals seemed to be the people AYAs trusted the most, because they had knowledge about pain but could also balance this with their previous experience of helping AYAs manage pain. These findings are supported by Fegran et al. [57] who describe how health-care professionals play a crucial role for children with chronic conditions during the transition to adolescence and adult life.

## Striving to find relief

In the nine studies included, some of the AYAs expressed concerns about taking OTC analgesics, but they also acknowledged the importance of using medications if necessary. While some of them regarded pain as a normal part of everyday life, others used analgesics to relieve it. Pain management was strongly influenced by their parents' or families' norms. These findings are in accordance with other studies showing that adolescents' primary source of information for using OTC analgesics is their parents. A recent systematic review demonstrated the importance of parental influence, which appeared to be independent of country and culture. The review highlighted parents as being the most important source of information regarding the use of OTC analgesics [58]. Further, Skarstein et al. [24] and Hachette et al. [35] both emphasized how the mother's attitude toward using OTC analgesics influenced adolescent use.

The increasing use of OTC drugs is worrying because continuous use might prevent adolescents from learning healthier coping strategies and could also be the start of lifelong use of medication. Some of the participants in our review also used OTC analgesics because of stress and anxiety, or to reduce the pressure in stressful situations. Earlier studies have shown that high-frequency users of OTC drugs exhibit a lower ability to handle stress. Moreover, high use of OTC analgesics has been shown to cause medication-induced headaches [25].

## Conclusion

These AYAs experienced a juggling of pain with everyday life, and explored information to manage pain from health personnel, teachers, parents, peers, and the Internet. Their pain management strategies were influenced by family norms, and they were striving to find relief from pain.

## Abbreviations

AYA: adolescents and young adults; OCT: over the counter.

## Declarations

## Acknowledgments

Librarian Ellen Sejersted at the University of Agder assisted in the development of the search strategy.

## Authors' contributions

LF, MSL and KH designed the research project and developed the research plan. In collaboration with librarian Ellen Sejersted at the University of Agder, LF, MSL and KH were responsible for the literature search, and LF, MSL, BJ and KH were responsible for the analysis. The whole author team was involved in the screening and inclusion of studies, reviewed the manuscript and contributed to the revision of the paper. All authors read and approved the final version of the paper.

## Consent for publication

Not applicable

## Competing interests

The authors declare that they have no competing interests.

## Author details

<sup>1</sup>Faculty of Health and Sport Science, University of Agder, Kristiansand, Norway.

<sup>2</sup>Faculty of Nursing and Health Sciences, Nord University, Bodø, Norway

<sup>3</sup>Department of Clinical Medicine, Randers Regional Hospital, Aarhus University, Aarhus, Denmark

<sup>4</sup>Faculty of Health Sciences, Oslo Metropolitan University, Oslo, Norway

## References

- 1.Eccleston C, Morley SJ, Williams AC. Psychological approaches to chronic pain management: evidence and challenges. *Br J Anaesth.* 2013;111(1):59–63.
- 2.Gold JI, Yetwin AK, Mahrer NE, Carson MC, Griffin AT, Palmer SN, et al. Pediatric chronic pain and health-related quality of life. *J Pediatr Nurs.* 2009;24(2):141–50.
- 3.Haraldstad K, Sorum R, Eide H, Natvig GK, Helseth S. Pain in children and adolescents: prevalence, impact on daily life, and parents' perception, a school survey. *Scand J Caring Sci.* 2011;25(1):27–36.
- 4.Hoftun GB, Romundstad PR, Zwart JA, Rygg M. Chronic idiopathic pain in adolescence—high prevalence and disability: the young HUNT Study 2008. *Pain.* 2011;152(10):2259–66.
- 5.Konijnenberg AY, Uiterwaal CS, Kimpfen JL, van der Hoeven J, Buitelaar JK, de Graeff-Meeder ER. Children with unexplained chronic pain: substantial impairment in everyday life. *Arch Dis Child.* 2005;90(7):680–6.
- 6.Roth-Isigkeit A, Thyen U, Stoven H, Schwarzenberger J, Schmucker P. Pain among children and adolescents: restrictions in daily living and triggering factors. *Pediatrics.* 2005;115(2):e152–62.

7. Rabbitts JA, Holley AL, Groenewald CB, Palermo TM. Association between widespread pain scores and functional impairment and health-related quality of life in clinical samples of children. *J Pain*. 2016;17(6):678–84.
8. van Dijk A, McGrath PA, Pickett W, Van Den Kerkhof EG. Pain and self-reported health in Canadian children. *Pain Res Manage*. 2008;13(5):407–11.
9. Haraldstad K, Christophersen KA, Helseth S. Health-related quality of life and pain in children and adolescents: a school survey. *BMC Pediatr*. 2017;17(1):174.
10. Hoie M, Haraldstad K, Rohde G, Fegran L, Westergren T, Helseth S, et al. How school nurses experience and understand everyday pain among adolescents. *BMC Nurs*. 2017;16:53.
11. Brattberg G. Do pain problems in young school children persist into early adulthood? A 13-year follow-up. *Eur J Pain*. 2004;8(3):187–99.
12. Perquin CW, Hunfeld JA, Hazebroek-Kampschreur AA, van Suijlekom-Smit LW, Passchier J, Koes BW, et al. The natural course of chronic benign pain in childhood and adolescence: a two-year population-based follow-up study. *Eur J Pain*. 2003;7(6):551–9.
13. Petersen S, Brulin C, Bergstrom E. Recurrent pain symptoms in young schoolchildren are often multiple. *Pain*. 2006;121(1–2):145–50.
14. McCaffery M, Beebe, A. Making the best of inadequate analgesics. *Nursing*. 1994;24(12):32C–32D.
15. Hoftun GB, Romundstad PR, Rygg M. Factors associated with adolescent chronic non-specific pain, chronic multisite pain, and chronic pain with high disability: the Young-HUNT Study 2008. *J Pain*. 2012;13(9):874–83.
16. Heathcote LC, Lau JY, Mueller SC, Eccleston C, Fox E, Bosmans M, Vervoort T: Child attention to pain and pain tolerance are dependent upon anxiety and attention control: an eye-tracking study. *Eur J Pain*. 2017;21(2):250–63.
17. Meldrum ML, Tsao JC, Zeltzer LK. “I can’t be what I want to be”: children’s narratives of chronic pain experiences and treatment outcomes. *Pain Med*. 2009;10(6):1018–34.
18. Merlijn VP, Hunfeld JA, van der Wouden JC, Hazebroek-Kampschreur AA, Koes BW, Passchier J. Psychosocial factors associated with chronic pain in adolescents. *Pain*. 2003;101(1–2):33–43.
19. Rathleff MS, Roos EM, Olesen JL, Rasmussen S. High prevalence of daily and multi-site pain—a cross-sectional population-based study among 3000 Danish adolescents. *BMC Pediatr*. 2013;13:191.
20. Tsao JC, Meldrum M, Kim SC, Zeltzer LK. Anxiety sensitivity and health-related quality of life in children with chronic pain. *J Pain*. 2007;8(10):814–23.
21. Inledon E, O’Connor M, Giallo R, Chalkiadis GA, Palermo TM. Child and family antecedents of pain during the transition to adolescence: a longitudinal population-based study. *J Pain*. 2016;17(11):1174–82.
22. Lioffi C, Noble G, Franck LS. How parents make sense of their young children’s expressions of everyday pain: a qualitative analysis. *Eur J Pain*. 2012;16(8):1166–75.
23. Reid K, Simmonds M, Verrier M, Dick B. Supporting teens with chronic pain to obtain high school credits: Chronic Pain 35 in Alberta. *Children*. 2016;3(4):31.
24. Skarstein S, Lagerlov P, Kvarme LG, Helseth S. High use of over-the-counter analgesic; possible warnings of reduced quality of life in adolescents - a qualitative study. *BMC Nurs*. 2016;15:16.
25. Skarstein S, Rosvold EO, Helseth S, Kvarme LG, Holager T, Smastuen MC, et al. High-frequency use of over-the-counter analgesics among adolescents: reflections of an emerging difficult life, a cross-sectional study. *Scand J Caring Sci*. 2014;28(1):49–56.

26. Hatchette JE, McGrath PJ, Murray M, Finley GA. The role of peer communication in the socialization of adolescents' pain experiences: a qualitative investigation. *BMC Pediatr.* 2008;8:2.
27. Holmstrom IK, Bastholm-Rahmner P, Bernsten C, Roing M, Bjorkman I. Swedish teenagers and over-the-counter analgesics - responsible, casual or careless use. *Res Social Adm Pharm.* 2014;10(2):408-18.
28. Fegran L, Spliid Ludvigsen M, Haraldstad K. Adolescents and young adults' experiences of living with everyday pain: a systematic review protocol of qualitative evidence. *JBI Database System Rev Implement Rep.* 2014;12(8):116-26.
29. Sandelowski M, Barroso J. *Handbook for synthesizing qualitative research.* New York: Springer; 2007.
30. Walter SM. The experience of adolescents living with headache. *Holist Nurs Pract.* 2017;31(5):280-9.
31. Joanna Briggs Institute. Critical appraisal tools. 2019. The University of Adelaide. <http://joannabriggs.org/research/critical-appraisal-tools.html>. Accessed 1. September 2019.
32. Henderson EM, Keogh E, Eccleston C. Why go online when you have pain? A qualitative analysis of teenagers' use of the Internet for pain management advice. *Child Care Health Dev.* 2014;40(4):572-9.
33. Kernick D, Reinhold D, Stone C. A qualitative study of headache in school children. *Br J School Nurs.* 2011;6(7):337-41.
34. Hansen DL, Hansen EH, Holstein BE. Young women's use of medicines: autonomy and positioning in relation to family and peer norms. *Health.* 2009;13(4):467-85.
35. Hatchette JE, McGrath PJ, Murray M, Allen Finley G. Maternal influences in adolescents' pain self-management: a qualitative investigation. *Vulnerable Child Youth Stud.* 2006;1(2):159-69.
36. Henderson EM, Eccleston C. An online adolescent message board discussion about the internet: use for pain. *J Child Health Care.* 2015;19(3):412-8.
37. Huguet A, Stinson J, Mackay B, Watters C, Tougas M, White M, et al. Bringing psychosocial support to headache sufferers using information and communication technology: lessons learned from asking potential users what they want. *Pain Res Manage.* 2014;19(1):e1-e8.
38. QSR International. NVIVO. 2019. QSR International. [http://www.qsrinternational.com/products\\_nvivo.aspx](http://www.qsrinternational.com/products_nvivo.aspx). Accessed 13 Sept 2019.
39. Lindseth A, Norberg A. A phenomenological hermeneutical method for researching lived experience. *Scand J Caring Sci.* 2004;18(2):145-53.
40. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurs Educ Today.* 2004;24(2):105-12.
41. Hatchette JE, McGrath PJ, Murray M, Finley GA. The role of peer communication in the socialization of adolescents' pain experiences: a qualitative investigation. *BMC Pediatr.* 2008;8:2.
42. Ahlqwist A, Sällfors C. Experiences of low back pain in adolescents in relation to physiotherapy intervention. *Int J Qual Stud Health Well-being.* 2012;7(1):15471.
43. Hansen DL, Hansen EH, Holstein BE. Using analgesics as tools: young women's treatment for headache. *Qual Health Res.* 2008;18(2):234-43.
44. Hansen DL, Holstein BE, Hansen EH. "I'd rather not take it, but...": young women's perceptions of medicines. *Qual Health Res.* 2009;19(6):829-39.
45. McCaffery M. *Nursing practice theories related to cognition, bodily pain, and man-environment interactions.* Los Angeles: UCLA Student's Store; 1968.

46. Høie M, Haraldstad K, Rohde G, Fegran L, Westergren T, Helseth S, et al. How school nurses experience and understand everyday pain among adolescents. *BMC Nurs.* 2017;16(1):53.
47. Rohde G-E, Westergren T, Haraldstad K, Johannessen BAT, Høie M, Helseth S, et al. Teachers' experiences of adolescents' pain in everyday life: a qualitative study. *BMJ Open.* 2015;5(9):7.
48. Giota J, Gustafsson J-E. Perceived demands of schooling, stress and mental health: changes from grade 6 to grade 9 as a function of gender and cognitive ability. *Stress Health.* 2017;33(3):253–66.
49. Castarlenas E, de la Vega R, Tomé-Pires C, Solé E, Racine M, Jensen MP, et al. Student expectations of peer and teacher reactions to students with chronic pain: implications for improving pain-related functioning. *Clin J Pain.* 2015;31(11):992–7.
50. Slater H, Jordan JE, Chua J, Schütze R, Wark JD, Briggs AM. Young people's experiences of persistent musculoskeletal pain, needs, gaps and perceptions about the role of digital technologies to support their co-care: a qualitative study. *BMJ Open.* 2016;6(12):e014007.
51. Sørensen K, Christiansen B. Adolescents' experience of complex persistent pain. *Scand. J Pain.* 2017;15(1):106–12.
52. Gorodzinsky AY, Hainsworth KR, Weisman SJ. School functioning and chronic pain: a review of methods and measures. *J Pediatr Psychol.* 2011;36(9):991–1002.
53. Fisher E, Law E, Palermo TM, Eccleston C. Psychological therapies (remotely delivered) for the management of chronic and recurrent pain in children and adolescents. *Cochrane Database Syst Rev.* 2015;(3):CD011118.
54. Tse MMY, Tang A, Budnick A, Ng SSM, Yeung SSY. Pain and pain management among university students: online survey and web-based education. *Cyberpsychol Behav Soc Netw.* 2017;20(5):305–13.
55. Hundert AS, Huguet A, McGrath PJ, Stinson JN, Wheaton M. Commercially available mobile phone headache diary apps: a systematic review. *JMIR Mhealth Uhealth* 2014;16(8):e36.
56. Suris J-C, Michaud P-A, Viner R. The adolescent with a chronic condition. Part I: developmental issues. *Arch Dis Child.* 2004;89(10):938–42.
57. Fegran L, Hall E, Aagaard H, Uhrenfeldt L, Ludvigsen MS. Adolescents' and young adults' transition experiences when transferring from paediatric to adult care: A qualitative metasynthesis. *Int J Nurs Stud* 2014; 51(1):123–135.
58. Skarstein S, Lagerløv P, Helseth S, Leegaard M. How do parents influence their adolescents' use of over-the-counter analgesics: a review of the current literature. *J Clin Nurs.* 2019;28(9–10):1451–64.

## Tables

**Table 1** Identified keywords used in the systematic literature search

Population	Phenomenon of Interest	Context
adolescent* OR teenager* OR young adult* OR young people* OR young person* OR youngster* OR youth*	abdominal pain* OR back pain* OR backache* OR face pain* OR facial pain* OR headache* OR jaw pain* OR limb pain* OR low back pain* OR musculoskeletal pain* OR myofascial pain* OR neck pain* OR shoulder pain* OR tension headache* OR widespread pain* OR chronic pain* OR persistent pain* OR recurrent pain* OR everyday pain*	experience* OR comprehension* OR attitude* OR emotion* OR view* OR experience* OR opinion* OR perception* OR belie* OR feeling* OR know* OR understand* OR adaptation*

**Table 2** Critical appraisal of the included studies

Criteria	Ahlqwist and Sällfors [42]	Hansen et al. [43]	Hansen et al. [44]	Hatchette et al. [35]	Hatchette et al. [41]	Henderson and Eccleston [36]	Henderson et al. [32]	Huguet et al. [37]	Kernick et al. [33]	Number/total
Y = Yes N = No U = Unclear NA = Not applicable										
Congruity between philosophical perspective and research methodology?	Y	Y	Y	Y	Y	Y	U	Y	U	7/9
Congruity between research methodology and research question or objectives?	Y	Y	Y	Y	Y	Y	Y	Y	Y	9/9
Congruity between the research methodology and the methods used to collect data?	Y	Y	Y	Y	Y	Y	Y	Y	Y	9/9
Congruity between the research methodology and the representation and analysis of data?	Y	Y	Y	Y	Y	Y	Y	Y	Y	9/9
Congruity between the research methodology and the interpretation of results?	Y	Y	Y	Y	Y	U	Y	Y	Y	8/9
Researcher located culturally or theoretically?	Y	Y	Y	Y	Y	N	Y	Y	Y	8/9
Influence of the researcher on the research, and vice versa, addressed?	Y	Y	N	N	Y	N	N	N	Y	4/9
Participants,	Y	Y	Y	Y	Y	Y	Y	Y	Y	9/9

and their voices, represented adequately?										
Ethical according to current criteria or, for recent studies, is there evidence of ethical approval by an appropriate body?	Y	Y	Y	Y	Y	Y	Y	Y	Y	9/9
Conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	Y	Y	y	Y	y	y	y	Y	Y	9/9

**Table 3** Characteristics of the included studies

Author	Focus	Country	Type of pain	Recruitment	Sample and age	Design/method	Data collection /analysis
Ahlqwist and Sällfors [42]	Management of pain in daily life	Sweden	Low back pain	Previous participation in a physiotherapy intervention	six males, eight females Age 12–18 y	Grounded theory	Focus group interviews/ classical grounded theory analysis
Hansen et al. [43]	Use of medication	Denmark	Stress-related headache	Public high school	21 females Age 16–20 y	Phenomenology	Semi-structured individual interview/ phenomenological analysis
Hansen et al. [44]	Norms for medicine use	Denmark	Headache or menstrual pain	Public high school	20 females Age 16–20 y	A qualitative approach inspired by phenomenology	Semi-structured individual interviews/ phenomenological analysis
Henderson and Eccleston [36]	Pain coping and associated Internet use	UK	Throat, abdomen, and head pain	Self-selected users of online health information in the last 6 months	five females three males Age 12–17 y	Not described	5 online researcher-led discussions/ Thematic analysis
Henderson et al. [32]	Teenagers' use of the Internet for pain management	UK	Not available	Two schools: self-selected frequent Internet users but infrequent users of the Internet to seek out health or pain information	17 females nine males	Not described	Semi-structured focus groups/ Thematic analysis
Kernick et al. [33]	Experience of students with troublesome headache	UK	Headache	A large state secondary school	10 females 10 males Age 11–13 y	Consensual qualitative research	Semi-structured interviews/ Thematic analysis
Hatchette et al. [35]	Maternal influences in adolescents' pain management	Canada	No exclusion variables	Junior high school	10 males (mean 13.6 y) 10 females (mean 13.4 y)	Grounded theory	Semi-structured individual interview/ Constant comparative analysis
Hatchette et al. [41]	The role of peer communication in socialization of pain experiences	Canada	No exclusion variables	Junior high school	11 males age 12–15 y 13 females Age 12–15 y	Grounded theory	Focus group interviews/ Constant comparative analysis

Huguet et al. [37]	Psychosocial support to headache sufferers using information and communication technology	Canada	Headache	Recruited through posters, brochures, online advertisements, letters, and word of mouth.	19 females 6 males Age 14–28 y (divided into three age groups)	A participatory design cycle	Two iterative cycles of three focus groups using a thematic survey guide/ Simple content analysis
Summary				School: 6 Other: 3	F: 127 M: 57 Total 184	GT: 3 Phenom: 2 Other: 2 NA: 2	Individual: 4 Focus group: 4 Online open discussion: 1

## Figures

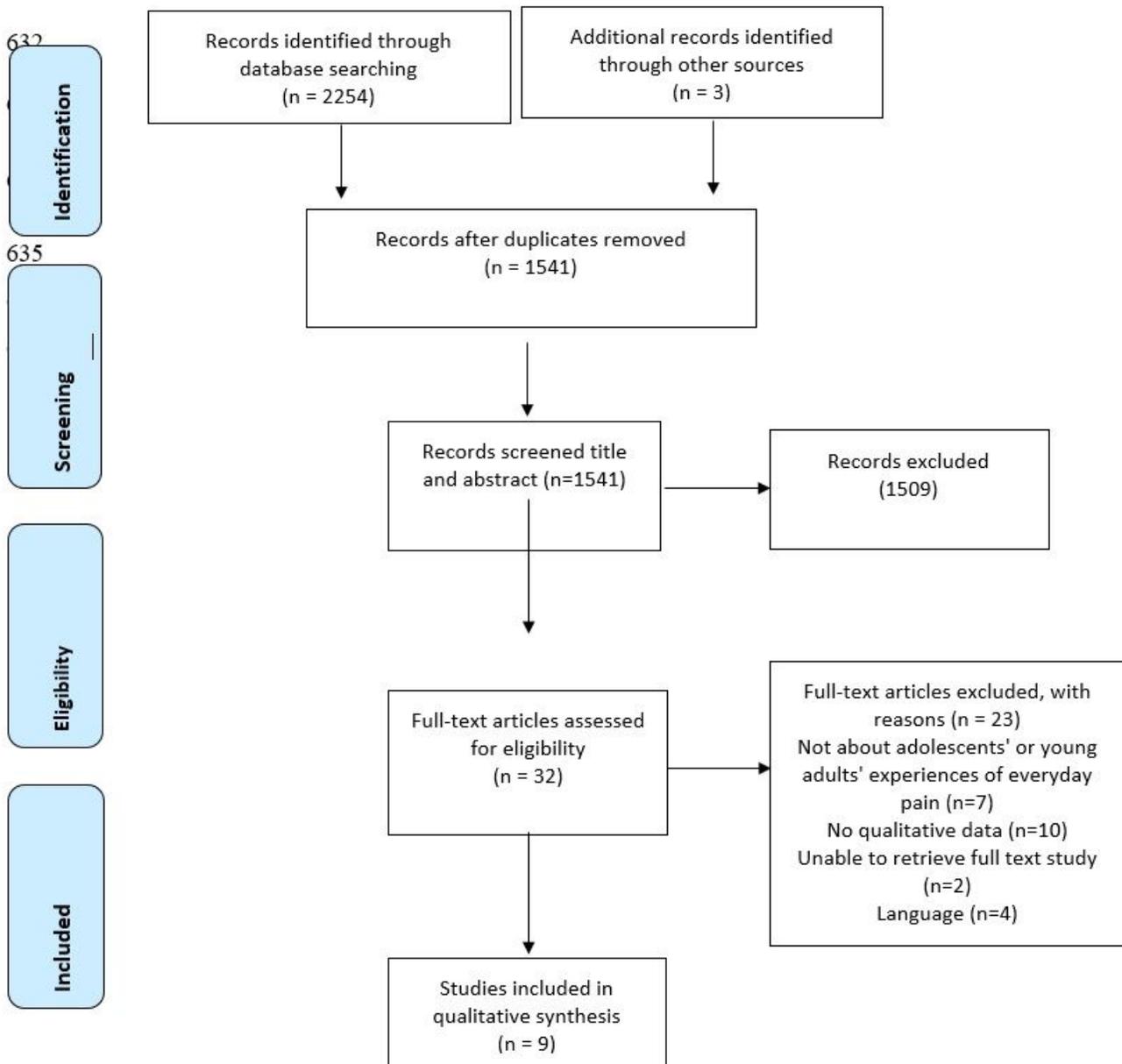


Figure 1

The inclusion process – PRISMA flow diagram