

Observational study

## The association between adolescent and parental use of non-prescription analgesics for headache and other somatic pain – A cross-sectional study



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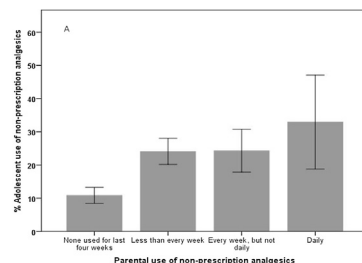
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### HIGHLIGHTS

- Headache was the main pain driving non-prescription analgesics use among adolescents.
- 34% of adolescents with headache used non-prescription analgesics versus 19% with other pain.
- Adjusting for pain, parental use of non-prescription analgesics predicted adolescent use.
- This parent–adolescent association was strongest for those least afflicted by pain.
- Parental prescription analgesics use did not predict adolescent use of non-prescriptives.

### GRAPHICAL ABSTRACT



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### ABSTRACT

**Background and purpose:** Over the last years, concern has been expressed about adolescents' possible liberal attitude towards – and use of – non-prescription analgesics. A high consumption of analgesics is unfortunate as it may lead to various harmful effects and worsening of headache. In order to address this challenge, it is necessary to achieve a more extensive knowledge about adolescent consumption. The main aim of this study was to examine the association between adolescent and parental use of non-prescription analgesics, taking into account headache as well as other somatic pain. The effects of parental prescription analgesics use was a secondary aim.

**Methods:** The study is based on data from two cross-sectional health studies conducted in 2005 and 2012 in Norway, including 646 adolescents and an accompanying parent. By using sample weights, the final weighted sample used in the analysis was 1326. Data was collected through postal questionnaires to parents and adolescents as well as parental telephone interviews.

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Questionnaires included questions on different pain locations and the pain for each location was graded according to how troubling the pain was. Medication data on prescription and non-prescription analgesics was from telephone interviews and was quantified based on the pattern over the past 4 weeks. Multivariate logistic regression models and complex samples analyses were used.

**Results:** 20% of adolescents were reported as using non-prescription analgesics during the previous 4 weeks. Girls were more often reported to use non-prescription analgesics than boys. Headache and all other somatic pain locations except back pain were reported more frequently among girls while boys more frequently reported back pain. There was a clear association between the use of non-prescription analgesics and headache with 34% of adolescents with headache using non-prescription analgesics versus 19% of adolescents with other somatic pain and 14% of adolescents not reporting pain. Among adolescents reporting headache, 9% were reported to use non-prescription analgesics daily or almost daily versus 3% and 2% among those reporting other somatic pain and reporting no pain respectively. In addition, parental use of non-prescription analgesics was a strong independent predictor of adolescent use (adjusted OR 1.69 for boys, 1.54 for girls). This relationship increased when the adolescents were less bothered by headache themselves.

**Conclusion:** Headache is the dominant medication-driving pain for non-prescription analgesics among adolescents but parental medication use of non-prescription analgesics also strongly influences adolescent use.

**Implications:** There is a need for health services to improve information to parents and adolescents about risks associated with use of analgesics and also to work on prophylactic strategies focusing on adolescents. Parents should be made aware that their medicine use strongly influences that of their children.

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## 1. Introduction

Pain is common among adolescents [1,2], the most prevalent types of pain in these groups being headache, abdominal pain, leg pain, back pain [2,3], and menstrual pain [3]. An international survey of pain among adolescents showed monthly prevalence to be 54% for headache, 50% for stomach ache and 37% for backache [1]. Headache is also the third most important cause of disability worldwide [4], and Krogh and colleagues [5] found that headache reduces daily activity among adolescents by nine days per year on average.

Several studies show that adolescents have a high consumption of non-prescription analgesics, such as paracetamol and non-steroid anti-inflammatory drugs (NSAIDs) [6,7]. Non-prescription analgesics are suitable for reducing light to moderate pain, and are considered relatively safe. However, the use of these medicines is not without risk and excessive use may lead to adverse effects, toxicity and in some cases even death [8–10].

Analgesics are used by adolescents most commonly to reduce headache [6,11,12], and in many countries there seems to have been an increasing trend of using medicine for headache among adolescents from 1986 to 2010 [7]. However, it is also seen that some adolescents use non-prescription analgesics for other purposes, such as reducing nervousness or improving sleep [13,14]. Studies indicate that liberal attitudes towards use of non-prescription analgesics among adolescents are quite common [13,15], and that adolescents lack knowledge about potential risks and side-effects [16]. A systematic review of self-medication among adolescents showed that the prevalence for use of non-prescription analgesics in general ranged from about 40–95% with differences depending on condition addressed, gender and recall times [6]. Norwegian youth were among those with the highest prevalence of non-prescription analgesics use in this review [17].

Medicine use in adolescents has been associated with availability and accessibility to medicine at home, and with parental influence [13,16,18]. Adolescents report receiving information about non-prescription analgesics mainly through their parents and state that parents influence their consumption [13,16]. However, information about the relationship between adolescent and parental analgesics use is sparse, and there is a need for greater insight. This is important in a public health

context as use of analgesics for headache in early life predicts use of analgesics for headache in adulthood [19], and using non-prescription analgesics may prevent the adolescents from learning other, more beneficial ways of coping with challenges in life [20].

It has previously, in studies of mother–child dyads, been suggested that pain-related behaviour, including medication use patterns, of mothers may influence medication use of children and adolescents [21,22]. Furthermore, a large Scandinavian study shows that parental headache and general symptom load may influence the analgesics use pattern of their children regardless of the children's own pain [23]. However, this study did not examine, or control for, the association between parental medication use and that of their children.

The purpose of this study was, in a large, representative population, to examine whether there exists an association between adolescent and parental use of non-prescription analgesics, while controlling for other possible factors which may affect the adolescent use such as reported pain, gender, and education level of the parents. A secondary objective was to examine whether parental use also of prescribed analgesics affected adolescent use of non-prescription analgesics.

## 2. Material and methods

### 2.1. Design, participants and procedure

This study is based on data from a cross-sectional health survey; “Norway Living Conditions Survey” conducted by Statistics Norway (SSB) in 2005 and 2012. For both years, a sample of 10 000 adults was randomly drawn from the SSB demographic/population register. Data from the adolescents (age 13–15) were collected by contacting children of the adult participants [24,25]. In 2005, SSBs two-stage selection scheme was used when drawing the sample. This year, the whole country was divided into 109 geographical strata from which the participants were drawn [24]. In 2012, the selection was drawn from the whole country with a representative distribution of gender, age (16 years or older), and region [25]. Direct data as answered by the adolescents themselves, were collected through a postal questionnaire. Additional information concerning the adolescents was collected from the parents through the interview. Only the adolescents with a parent who had answered

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