



Observational study

Chronic disruptive pain in emerging adults with and without chronic health conditions and the moderating role of psychiatric disorders: Evidence from a population-based cross-sectional survey in Canada



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HIGHLIGHTS

- In emerging adults, chronic conditions are associated with chronic disruptive pain.
- Alcohol and drug abuse/dependence disorder moderate this association.
- Integration of services to manage disruptive pain among emerging adults is required.

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ABSTRACT

Background and aims: There has been a growth in the proportion of emerging adults vulnerable to pain-related sequelae of chronic health conditions (CHCs). Given the paucity of research during this important developmental period, this study investigated the association between CHCs and chronic disruptive pain among emerging adults and the extent to which psychiatric disorders moderate this association.

Methods: Data come from the 2012 Canadian Community Health Survey – Mental Health (CCHS-MH). This cross-sectional survey included 5987 participants that were 15–30 years of age and self-reported their CHCs ($n=2460$, 41%) and the extent to which pain impacted daily functioning using items from the Health Utilities Index Mark 3 (HUI 3). Group comparisons between respondents with CHCs and healthy controls were made using chi-square tests. Odds ratios (OR) and 95% confidence intervals (CI) were computed from ordinal logistic regression models adjusting for sociodemographic covariates. Product-term interactions between CHCs and psychiatric disorders were included in the models to explore moderating effects. All analyses were weighted to maintain representativeness of the study sample to the Canadian population.

Results: The mean age of participants was 23.5 (SE 0.1) years and 48% were female. Compared to healthy controls, a greater proportion of participants with CHCs reported having chronic pain (20.3% vs. 4.5%, $p < 0.001$). Among those with chronic pain, respondents with CHCs reported a greater number of activities prevented because of chronic disruptive pain ($\chi^2 = 222.28$, $p < 0.001$). Similarly, in logistic regression models, participants with CHCs had greater odds of reporting chronic disruptive pain (OR = 4.94, 95% CI = 4.08–5.99). Alcohol ($\beta = -0.66$; $p = 0.025$) and drug abuse/dependence disorders ($\beta = -1.24$; $p = 0.012$) were found to moderate the association between CHCs and chronic disruptive pain. Specifically, the probability of chronic disruptive pain was higher for emerging adults without CHCs and with alcohol or drug disorders; however, among participants with CHCs, probability was higher for those without these disorders.

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Conclusions: There is a robust association between CHCs and chronic disruptive pain. The moderating effects suggest that alcohol or drug disorders are especially harmful for emerging adults without CHCs and contribute to higher levels of chronic disruptive pain; however, among those with CHCs, alcohol and illicit drugs may be used as a numbing agent to blunt chronic disruptive pain.

Implications: Findings from this study have implications for the integration and coordination of services to design strategies aimed at managing chronic disruptive pain and preventing pain-related disabilities later in life. Within the health system, healthcare providers should engage in dialogues about mental health and substance use regularly with emerging adults, be proactive in screening for psychiatric disorders, and continue to monitor the impact of pain on daily functioning. Given the age range of emerging adults, there is tremendous opportunity for clinicians to work cooperatively with colleagues in the education system to support emerging adults with and without CHCs. Overall, clinicians, researchers, educators, and those in social services should continue to be mindful of the complex interrelationships between physical and mental health and chronic disruptive pain and work cooperatively to optimize health outcomes and prevent pain-related disabilities among emerging adults.

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1. Introduction

It is well-established that chronic health conditions (CHCs), defined as those expected to last at least 6 months and result in at least one of the following sequelae: functional limitations, dependencies to overcome limitations, and health care above usual care for individuals of a similar age (e.g., asthma, diabetes, haemophilia) [1], and chronic pain are highly comorbid [2–9]. For instance, a Canadian study demonstrated that chronic non-cancer pain was significantly associated with certain medical conditions such as epilepsy, chronic obstructive pulmonary disease (COPD), and thyroid disease [6]. Likewise, Lunardi et al. reported the significant increase in the prevalence of chronic pain among patients with asthma as compared to patients without asthma [5]. Although there has been considerable research on the association between CHCs and chronic pain, there is a paucity of research that specifically examines this association in emerging adulthood, a critical developmental period that refers to individuals between the ages of 15 and 30 years [10–12]. The small number of studies that have studied the association between CHCs and chronic pain in young adults have produced similar results [13,14]. However, these existing studies do not encompass the full spectrum of emerging adulthood, are usually limited to a single CHC, and do not include validated assessment tools to measure chronic pain or its impact on functioning.

Among emerging adults with CHCs, chronic pain is of particular concern because: (1) The incidence rate of CHCs among emerging adults is increasing [15] and due to advances in health care, the number of children with CHCs that survive into adulthood is also increasing [16]; (2) Among emerging adults, chronic pain, especially chronic disruptive pain that limits usual activities such as personal care, work and family roles, and leisure and social pursuits, is associated with decreased quality of life, fatigue and disrupted sleep quality, psychological distress, poor peer and family relations, and school and work absenteeism [17,18]; (3) The lifetime prevalence of psychiatric disorders is significantly higher for emerging adults with CHCs compared to their healthy peers [19]; and (4) Emerging adulthood represents a unique developmental period due to the considerable physical, emotional, and social changes that occur during this period [11,10]. Moreover, this critical period involves a transition from the paediatric to the adult health care system and, as compared to children, emerging adults are expected to assume a greater responsibility for managing their chronic pain. As such, chronic pain, especially chronic disruptive pain, limits productivity and achievements, presents unique challenges for individuals navigating this dynamic developmental period, and holds potential adverse long-term consequences for the afflicted individual, their family, and society [12,17,20]. Understanding the interrelationship among CHCs, psychiatric disorder,

and chronic pain is critical for developing strategies to facilitate the prevention and reduction of chronic pain, and prevent future pain-related disabilities in this population [17].

Consequently, given the growth of emerging adults as a large section of the population vulnerable to pain-related sequelae of CHCs and the dearth of research in this population, we investigated: (1) The association between having a CHC and chronic disruptive pain; and (2) The potential moderating effects of psychiatric disorders on this relationship. We hypothesized that individuals with CHCs would report more chronic disruptive pain compared to healthy controls; and, that psychiatric disorders would moderate this association such that individuals with comorbid CHCs and psychiatric disorder would report the greatest levels of chronic disruptive pain.

2. Methods

2.1. Data and sample

Data were obtained from the 2012 Canadian Community Health Survey – Mental Health (CCHS-MH). The CCHS-MH, conducted by Statistics Canada, is a cross-sectional survey that employed a multi-stage stratified cluster sampling design to interview a nationally representative sample of Canadians (≥ 15 years of age) residing in the Canadian provinces [21]. A three-stage sampling design was used to select the sample of respondents. First, clusters or geographical areas within the ten provinces were selected. Second, households (i.e., an individual or a group of related or unrelated individuals residing in the same collective or private dwelling) within the sampled clusters were chosen. Third, one respondent per selected household was randomly selected. Responses were obtained from 25,113 individuals. Canadians residing in the territories, persons living on reserves and other Aboriginal settlements, full-time members of the Canadian Forces, and the institutionalized population were excluded. Overall, the excluded population comprised 3% of the target population [21].

Data were collected directly from the selected survey respondents by decentralized field interviewers using computer-assisted personal interviewing. The majority of the interviews (87%) were conducted in-person and the remainder by telephone. For the CCHS-MH, the household-level response rate was 80%, the person-level response rate was 86%, and the combined (household and person) response rate was 69% [21]. For this study, the sample was restricted to participants aged 15–30 years ($n = 5987$). Respondents were made aware that participation in the CCHS-MH is voluntary and that confidentiality and privacy were guaranteed by Statistics Canada. Analyses were approved by the Hamilton Integrated Research Ethics Board.

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