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Original article

Incidence and Course of Adolescent Deliberate Self-Harm in Victoria, Australia, and Washington State

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A B S T R A C T

Purpose: There have been few longitudinal studies of deliberate self-harm (DSH) in adolescents. This cross-national longitudinal study outlines risk and protective factors for DSH incidence and persistence.
Methods: Seventh and ninth grade students (average ages 13 and 15 years) were recruited as state-representative cohorts, surveyed, and then followed up 12 months later (N = 3,876), using the same methods in Washington State and Victoria, Australia. The retention rate was 99% in both states at follow-up. A range of risk and protective factors for DSH were examined using multivariate analyses.
Results: The prevalence of DSH in the past year was 1.53% in Grade 7 and .91% in Grade 9 for males and 4.12% and 1.34% for Grade 7 and Grade 9 females, respectively, with similar rates across states. In multivariate analyses, incident DSH was lower in Washington State (odds ratio [OR] = .67; 95% confidence interval [CI] = .45–1.00) relative to Victoria 12 months later. Risk factors for incident DSH included being female (OR = 1.93; CI = 1.35–2.76), high depressive symptoms (OR = 3.52; CI = 2.37–5.21), antisocial behavior (OR = 2.42; CI = 1.46–4.00), and lifetime (OR = 1.85; CI = 1.11–3.08) and past month (OR = 2.70; CI = 1.57–4.64) alcohol use relative to never using alcohol.
Conclusions: Much self-harm in adolescents resolves over the course of 12 months. Young people who self-harm have high rates of other health risk behaviors associated with family and peer risks that may all be targets for preventive intervention.

IMPLICATIONS AND CONTRIBUTIONS

Adolescent deliberate self-harm clusters with depressive symptoms, alcohol use, and antisocial behaviors. Adolescents displaying these symptoms and behaviors might also be targeted for interventions to reduce DSH. Those who self-harm in the context of associated mental health problems are at high risk for persistence, suggesting greater suicide risk.

The World Health Organization has defined deliberate self-harm (DSH) as a behavior that is intended to cause self-harm but without suicide intent and having a nonfatal outcome [1]. DSH, however, is a predictor of completed suicide [2–5], with around a quarter of those completing suicide having previously

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engaged in DSH [3]. Adolescents who deliberately harm themselves are of clinical concern not only because they are at-risk for later suicide and disabilities resulting from DSH-associated injuries [6] but also because they experience other health risks at higher prevalence, including mental health and substance use problems [7].

DSH peaks in prevalence around the midteens before rapidly declining by young adulthood [8]. In a community sample of Australian adolescents aged 15 years, the 12-month prevalence for DSH was 5.1%, with prevalence higher for females [4]. Hawton and James [3] found similar results. Even greater prevalence of 12%–13% have been reported in population-based studies of American youth of a similar age, with higher prevalence again for females [9].

Given the rapid rise and decline in DSH during the early teens to midteens, gaining an understanding of the risk and protective factors for both the incidence and persistence of the behavior can help advance prevention and intervention efforts. Risk factors increase the probability of engaging in DSH, whereas protective factors decrease mediate or moderate the effect of risk factors [10,11]. To date, most studies examining adolescent DSH have been cross-sectional. Among the most consistently identified correlates of DSH are mental health problems (e.g., depression and anxiety [3,5,9,12–14]). Others include antisocial behavior [5,12], alcohol consumption [15], and low emotional control (e.g., inability to relax when feeling tense, or control one's temper) [3,5,9,12]. Social contexts including peer group, family, school, and community [10] have also been linked with DSH [9,14,16]. Evans et al. [9], for example, showed that family conflict is linked with DSH, particularly for females.

The present study examines a broad range of risk and protective factors for DSH incidence and presents exploratory analyses for persistence around the peak age for incidence and prevalence of self-harm. Participants were drawn from state-representative samples of adolescents in seventh and ninth grades (average ages 13 and 15 years, respectively) participating in the International Youth Development Study (IYDS) in Victoria, Australia, and Washington State in the United States. The IYDS is a unique cross-national study designed to overcome methodological inconsistencies in data collection that commonly bias cross-national studies of DSH [17]. Two research questions were examined: (1) Are there state differences in levels of incident and persistent DSH? and (2) To what extent do established risk factors increase incident and persistent DSH?

Methods

Participants

Participants were seventh and ninth grade students enrolled in the IYDS, a longitudinal study exploring the development of healthy and problematic behaviors in 3,876 students from Victoria, Australia, and Washington State, United States. In the years that the study was designed and the sample recruited, the Victorian and Washington State populations were similar in terms of population size, urbanicity, having higher than national levels of educational participation, and in having low proportions of residents living in poverty [18].

Students were first surveyed in 2002 (T1) and resurveyed 1-year later in 2003 (T2). The IYDS utilized standardized methodologies (sample recruitment, survey content, and survey administration) in each state. A two-stage cluster-sampling approach was used in 2002: (1) public and private schools with Grades 7 and 9 were randomly selected for recruitment into the study using a probability proportionate to grade-level size sampling procedure [19] and (2) one class at the appropriate grade level was randomly selected within each school [18].

Written parental consent was obtained for all participating students before T1. Students also provided their assent to participate on the day of the survey. Of all eligible students across the two grade levels, 75% and 74% participated at T1 in Washington State and Victoria, respectively. The retention rate was 99% or above in both states at T2. Survey construction, student recruitment processes, and rates of student participation have been described elsewhere [18].

The data analyzed in the present article comprised 3,876 students with complete data on the variables under study, with 1,947 seventh-grade students (984 Victoria) and 1,929 ninth-grade students (973 Victoria). Almost 51% of students were female. The mean age of Washington State students (14.1 years in Grade 7, 15.1 years in Grade 9) was significantly higher than that of Victorian students (13.9 years in Grade 7, and 14.9 years in Grade 9) in both cohorts. The Victorian State sample in Grade 7 was comprised mainly of students identifying as Australian (91%), and the Washington State sample had a majority identifying as white (65%).

Procedures

Ethics approval. The University of Washington Human Subjects Review Committee and the Royal Children's Hospital Ethics in Human Research Committee provided approval for this study. Permission from relevant school district authorities and principals was obtained in each state.

Survey administration. A single survey administration protocol was used by trained survey staff at both sites. Surveys were administered to class groupings within schools and took approximately 50–60 minutes to complete. The self-report pen and paper survey was voluntary and completed by participants without any interaction or collaboration with peers. The survey included instructions on how to answer the questions (e.g., place a clear "X" inside the box) and further assurances of confidentiality. These instructions and assurances were presented before survey administration by survey staff. Trained school personnel conducted surveys for students absent on the day of the survey, and a small percentage of surveys were completed by mail or by telephone.

Instruments

The IYDS survey was adapted from the Communities That Care self-report youth survey [11,20,21]. Similar versions of the survey are available elsewhere [22]. This survey includes measures of risk and protective factors for youth that previous research has shown to be valid and reliable when administered to students in sixth to 12th grade in the United States [11,20,21] and in Victoria [23]. The descriptive statistics and example items for all measures are listed in Table 1.

Deliberate self-harm. DSH was measured by asking students, "In the past year, have you ever deliberately hurt yourself or done anything that you knew might have harmed you or even killed you?" [4]. Response options were dichotomous, "Yes" and "No."