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A potential increase in adolescent nonsuicidal self-injury during covid-19: A comparison of data from three different time points during 2011 – 2021

Maria Zetterqvist [a,b,*], Linda S Jonsson [c], Åsa Landberg [c,d], Carl Göran Svedin [c]

[a] Department of Child and Adolescent Psychiatry in Linköping, Region Östergötland, Sweden
[b] Department of Biomedical and Clinical Sciences, Center for Social and Affective Neuroscience, Linköping university, Linköping, Sweden
[c] Department of Social Sciences, Ersta Sköndal Bräcke University College, Stockholm, Sweden
[d] Children's Welfare Foundation, Stockholm, Sweden

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ABSTRACT

Life-time prevalence of nonsuicidal self-injury (NSSI) has consistently been found to be around 17% in community samples of adolescents. Concerns of threats to mental health in adolescents during covid-19 have been raised. Life-time prevalence of NSSI in high school students in Sweden was compared using the same item to assess NSSI at three different time points. Results showed very similar prevalence of NSSI in 2011 and 2014 (17.2 % vs. 17.7 %), and an increase to 27.6 % during the pandemic of 2020-2021. Our findings imply a need to highlight the potential psychosocial consequences of covid-19 for young people.

1. Introduction

After the most acute medical consequences of the pandemic have been addressed, the psychosocial consequences of covid-19 are now beginning to be highlighted world-wide (Fegert et al., 2020), since risk factors that threaten mental health in children and adolescents are increasing as a consequence of societal restrictions and isolation (Pieh et al., 2021). One expression of distress among young people is nonsuicidal self-injury (NSSI), which is defined as the deliberate destruction of body tissue without suicidal intent (Nock, 2010), and is performed to deal with distressing emotions and thoughts. In representative community samples of adolescents, NSSI rates have consistently found to be around 17 % (Monto et al., 2018, Swannell et al., 2014). Concerns for the impact of covid-19 on NSSI in young people have been raised (Hasking et al., 2021, Plener, 2021). There is some preliminary support for an increase in self-harm based on hospital records (McIntyre et al., 2020, Ougrin et al., 2021) and medical claim lines for adolescents (Health White Paper, 2021) during the pandemic, while Hawton and colleagues did not find an increase of self-harm in adults in emergency units during the three months following the first lockdown in the UK (Hawton et al., 2021). These studies did not separate suicidal behavior from NSSI, however, and there is currently a lack of knowledge of the impact of covid-19 specifically on the prevalence of self-injury without suicidal intent in adolescents (Plener, 2021). Since a majority of NSSI cases do not come to the attention of medical services, data are needed from community samples during the pandemic. Here we present the first study to investigate a possible increase in rates of NSSI during the pandemic, using large community samples.

2. Materials and Methods

Data was collected in classrooms (paper and pencil) and online in representative samples of Swedish high schools. Students enrolled in Swedish high schools are typically 16-18 years old. Data from 3,060 adolescents in their first year of high school was collected in 2011 (sample I). Data from 2014 ($N = 5,743$; sample II) and 2020-2021 ($N = 3,258$; sample III) were collected from the third year of high school in Sweden. All three samples were compared with national statistics and assessed as representative (Fredlund et al., 2018, Svedin et al., 2021, Zetterqvist et al., 2013). Life-time prevalence of NSSI was assessed in all three data collections with the same question from the self-report version of the Self-Injurious Thoughts and Behaviors Interview (SITBI) *"Have you ever actually engaged in non-suicidal self-injury (NSSI; that is, purposely hurt yourself without wanting to die, for example by cutting or burning)?"* (Nock et al., 2007). The NSSI item was presented together with other measures of sexual experiences, abuse, and adverse life events, for example, that were not included in the present study. The measures in 2014 and 2020-2021 were very similar, both in length and

* corresponding author:
E-mail address: maria.zetterqvist@liu.se (M. Zetterqvist).

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content. Due to the pandemic the data collection of 2020-2021 was interrupted, extended and changed to an online version. This resulted in three waves of data for 2020-2021 with data collected during the spring of 2020 (n = 1,195), the autumn of 2020 (n = 737), and the spring of 2021 (n = 1,350). Twenty-four participants had missing data on the NSSI item and were excluded. Self-reported symptoms of depression and anxiety were assessed using subscales from The Trauma Symptoms Checklist for Children (Briere, 1996).

3. Results

Results from sample I (2011) and II (2014) were very similar, showing a life-time prevalence of NSSI of 17.2 % and 17.7%, respectively. See Table 1. Also, sex differences were similar with 26.4 % vs. 24.7 % of girls and 8.0 % vs 8.8 % of boys reporting life-time prevalence of NSSI. Results from sample III (2020-2021) showed a NSSI life-time prevalence of 27.6 % with 36.3 % of girls and 16.0 % of boys confirming NSSI. Also, the rates of NSSI in adolescents with non-binary identity increased from 28.3 % in 2014 to 69.2 % in 2020-2021. Cross-tabulation with chi-square analyses showed that differences in NSSI between sample II and III were statistically significant ($p < .001$) for the whole sample, and for girls, boys and non-binary, respectively. The NSSI prevalence also increased during the collection of data from sample III from the spring of 2020 to the spring of 2021 (24.4 %, 27.0 % and 30.6 %, respectively). Independent samples t-test showed that adolescents in sample III were significantly older (M = 18.19, SD = .61 vs. M 17.96, SD = .63) than in sample II ($p < .001$).

Furthermore, symptoms of depression (M = 6.73, SD = 5.45 vs. M = 5.17, SD = 4.56) and anxiety (M = 5.74, SD = 4.68 vs. M = 4.71, SD = 4.01) were significantly higher ($p < .001$) in the 2020-2021 sample compared to 2014.

4. Discussion

The prevalence rates of 17% have been published earlier (Zetterqvist et al., 2013, Zetterqvist et al., 2018) and are in line with previous international prevalence studies (Monto et al., 2018, Swannell et al., 2014). The very recent prevalence rate of 27.6 % is however considerably higher than previously documented, using a single general NSSI question vs. checklists to assess NSSI. Worth noting is that the prevalence of NSSI doubled from 8 % to 16 % in boys from 2011 and 2014 compared to 2020-2021, and NSSI increased among those identifying as non-binary, while the actual prevalence of adolescents who identified as non-binary was the same. There are, however, few individuals (n = 18) in this group, which calls out for caution when interpreting the results. A recent study focusing on a population of transgender, including non-binary, found more mental health problems and disruption in services, and less perceived family support during covid-19 in this group compared to cis youth (Hawke et al., 2021). Sample III (2020-2021) was somewhat older than sample II (2014). Earlier studies have shown that NSSI peaks around 14-15 years of age and then declines somewhat during late adolescence (Plener et al., 2015). Based on the developmental trajectory of NSSI it is unlikely that the increase in NSSI between 2014 and 2020-2021 can be attributed to age alone. Prevalence rates of NSSI increased gradually from the spring of 2020 (24.4 %) to the spring of 2021 (30.6 %) as the pandemic evolved. In Sweden, high schools have mostly been closed during the pandemic, and the issue of social isolation during the pandemic in relation to mental health has been raised previously (Hasking et al., 2021, Pieh et al., 2021). Earlier research has also shown high levels of insomnia and symptoms of depression, anxiety and eating disorders in adolescents and young adults during the covid-19 pandemic (Pieh et al., 2021). Our data from 2020-2021 also show that self-reported symptoms of depression and anxiety have significantly increased compared to 2014, which corroborates earlier studies that are highlighting the issue of mental health of adolescents after the onset of covid-19 (Pieh et al., 2021). Our cross-sectional data of NSSI do not allow causal interpretations but confirm the few recent studies that show increases in self-harm, irrespective of intent, presenting at emergency services (McIntyre et al., 2020, Ougrin et al., 2021), and widen the understanding to include large representative adolescent high-school samples. One limitation is lack of data from the years directly preceding the onset of the pandemic in 2020, and it is not clear whether the increase found in the present study is due to the pandemic. It is thus possible that the increase appeared before the onset of the pandemic. The prevalence of NSSI was already higher in the spring of 2020. To our knowledge, however, there are no consistent data in the scientific literature showing such a drastic increase in adolescent NSSI prior to the pandemic. It is likely that the long-term psychosocial consequences were not fully evident in the early days of the pandemic (Hawton et al., 2021), but these are now becoming more apparent and emphasize the need to focus on the consequences on mental health for adolescents (Fegert et al., 2020). Further studies are needed to confirm our preliminary results and caution has to be taken concerning generalization of the results until more studies examine the psychosocial effects of the pandemic on adolescents. Strategies to deal with mental health and NSSI in adolescents in the wake of the pandemic are important areas for future research.

Table 1
Frequency and percentage of lifetime prevalence of NSSI in high school adolescents from three time points during 2011-2021

	Sample 1 2011 *N* (%)	Sample 2 2014 *N* (%)	Sample 3 2020-2021 *N* (%)
Total sample size	3,060	5,743	3,258
Girls	1,537* (50.2)	3,153† (54.9)	1,787 (54.8)
Boys	1,509* (49.3)	2,536† (44.2)	1,445 (44.4)
Non-binary	NA	53† (0.9)	26 (0.8)
Age (*M, SD*)	16.46 (.62)	17.96 (.63)□	18.19 (.61)□
NSSI in total sample	525 (17.2)	1015 (17.7)□	898 (27.6)□
NSSI in girls	402 (26.4)	778 (24.7)□	649 (36.3)□
NSSI in boys	120 (8.0)	222 (8.8)□	231 (16.0)□
NSSI in non-binary	NA	15 (28.3)□	18 (69.2)□

Note. NSSI = nonsuicidal self-injury; * = gender missing for 14 participants; † = gender missing for 1 participant; NA = not applicable; □ $p < .001$

Author Statement

MZ, LJ, ÅL, and CGS designed the research. MZ and CGS analyzed the data. MZ drafted the manuscript and all authors read and provided feedback on the manuscript.

Declaration of Competing Interest

The authors have no conflict of interest to declare.

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