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Article

Impact of the COVID-19 Pandemic on Swedish Adolescents' Mental Health, Psychosocial Functioning, Risk Behaviours, and Victimization: Gender Differences and Implications

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Abstract: The COVID-19 pandemic has shown varying effects on adolescents' mental health, psychosocial functioning, risk behaviours, and victimisation. This study aims to examine the changes reported by a sample of Swedish adolescents (N=1607) at the end of the first year of the pandemic in relation to these factors. Data was collected with an electronic survey between September 2020 and February 2021, targeting upper-secondary high school students (aged 15-19 years). The results indicate a relatively low overall impact of the pandemic on Swedish upper-secondary school students, with notable gender differences. Compared to females, a higher percentage of male adolescents reported experiencing elevated levels of anxiety, depression, sleep disturbances, anger, and increased illicit drug use as consequences of the pandemic. In contrast, females demonstrated an increase in several salutogenic behaviours. Victimization rates generally decreased during this period. These findings underscore the importance of heightened awareness among professionals within schools, social services, and healthcare settings regarding the distinct challenges encountered by a larger portion of male adolescents during the COVID-19 pandemic in Sweden.

Keywords: adolescents; COVID-19 pandemic; mental health; psychosocial functioning; risk behaviours; Sweden; victimisation

1. Introduction

The COVID-19 pandemic and its societal consequences, without a doubt, significantly impacted adolescents' transition into adulthood. The pandemic, coupled with its associated restrictions and changes, altered normal routines and disrupted many aspects of daily life for all. For adolescents, one of the major impacts of the pandemic was the closure of schools and the start of distance education [1,2]. While these changes disrupted learning [3], they also limited in-person social interactions with peers [4]. During ontogenesis, a child's need for stable and safe interactions with family members shifts to include the need for social interactions with other adolescents [5]. Adolescence is a period of rapid changes in neurodevelopmental [6] and physical functioning, and therefore it is also a time of increased vulnerability [7]. Pandemic-related disturbances to this social maturation process, coupled with the stress and uncertainty of the period, may have contributed to an increase in mental health problems, such as anxiety, depression, and trauma symptoms, among adolescents [8–10].

Previously reported risk factors for mental health problems during the pandemic include a history of mental health problems, a high number of stressful life events, an unstable family environment [11], and being female [12,13]. Past research, however, also identified protective factors for adolescents, such as effective social support and daily routines [1]. While the loss of social interaction with peers posed a risk factor, maintaining social connections with friends emerged as a protective factor [14], helping adolescents cope with the challenges and stresses of the pandemic.

Physical activity, both individually and as a team activity, also had protective effects on adolescents' mental health [15].

The pandemic's interruption of adolescents' social interactions with peers also altered their risk behaviours, such as substance use and antisocial behaviours, and influenced the form and frequency of their victimisation. The research on how adolescents changed their behaviours during the pandemic are conflicting, for example, concerning alcohol consumption [16] and cyberbullying, which was found to both increase [3,17] and decrease [18]. This emphasises the importance of focusing the well-known bio-psychosocial matrix on our behaviours and well-being [19].

The Swedish government's strategy to contain the virus emphasised individual responsibility. Recommendations imposed by the government included social distancing, regular and cautious hand hygiene, isolation at home when experiencing any type of symptoms, avoiding physical contact with seniors, avoiding unnecessary travelling and, if possible, working from home [20]. Even though Swedish adolescents were not affected by a lockdown, they were still required to limit social and physical contact with their peers and relatives.

During the COVID-19 pandemic, there were surges in cases (described as waves), during which Swedish public health services enacted certain restrictions and recommendations. In Sweden's first wave, March 2020 to July 2020 [21], upper-secondary school students were advised to switch to distance schooling [20]. Despite some limitations in social contact, it was still possible for adolescents to play sports. From the 15th of June 2020, distance schooling was withdrawn, and it was announced that education would return to normal during the next semester. By the end of the first wave, 80% of the Swedish population had adapted their everyday lives to decrease the risk of spreading the disease. The results of Kapetanovic et al. [22] study investigating changes in Swedish adolescents' psychosocial functioning during this first wave (data collected from 8th June 2020 to 7th July 2020) showed that most adolescents followed government regulations. Additionally, most experienced less substance use and victimisation, but poorer mental health. Adolescent girls and those studying through distance schooling were likelier to report negative changes in psychosocial functioning. This can be related to a study by Källmen and Hallgren [23], where female adolescents, in comparison to male adolescents, reported experiencing poorer mental health outcomes subsequent to exposure to COVID-19. But overall, the results in Kapetanovic et al. [22] study showed that most did not report any changes. The results also showed that some adolescents reported reduced peer interaction, parental conflict, and feeling a diminished sense of control over their lives. As mentioned above, while there are many research findings concerning the impact of COVID-19 on mental health and health conditions among adolescents during the first wave, there is far less research on the impact of the second wave.

In Sweden, the second wave of the pandemic began at the end of September 2020 and lasted until February 2021, leading to further recommendations. Students of all ages were advised to stay home if they were infected or lived with someone infected with COVID-19. In December 2020, upper-secondary school students had partial distance schooling. At the end of January 2021, Swedish public health services indicated that upper-secondary schools could withdraw partially from distance schooling [20]. In comparison to other countries around the world, Swedish restrictions on upper-secondary school students were relatively lenient. The present study aims to describe the changes Swedish adolescents reported at the end of the first year (the second wave) of the COVID-19 pandemic, considering their mental health, risk behaviours, psychosocial functioning, and victimisation, and compare the findings for female, male, and non-binary gendered adolescents. During the interpretation of the results, our emphasis lies on discerning the influence of pre-existing salutogenic behaviors in mitigating the impact of COVID-19 on the mental health and psychosocial well-being of adolescents. This analytical approach not only enriches our understanding but also contributes significantly to the domain of health promotion. Moreover, by scrutinizing the data through a biopsychosocial lens within the context of the pandemic, we aim to shed light on risk behaviors and victimization, thereby augmenting knowledge in the fields of social psychiatry and criminology.

Based on studies from Sweden during the first wave [22] and from multinational data from the second wave [24], we hypothesise that Swedish adolescents adapted well to the circumstances of the COVID-19 pandemic, and therefore the majority of them did not report negative changes in mental health, risk behaviours, psychosocial functioning, and victimisation. We also hypothesise that there were gender differences in how Swedish upper-secondary school students' mental health, risk behaviours, psychosocial functioning, and victimisation changed during the COVID-19 pandemic.

2. Materials and Methods

2.1. Study Design and Procedure

The international study Mental and Somatic Health without Borders (MeSHe) (<https://meshe.se/>) employed a cross-sectional design and utilised an electronic survey to collect data. The data for the current study were collected in Sweden between September 2020 and February 2021 using this electronic survey. The survey consists of validated questionnaires that assess various aspects of adolescents' mental and physical health, as well as their risk behaviours. Specifically, the questionnaires in this study address the impact of COVID-19 and changes in adolescents' behaviours, mental health, and experiences of victimisation during the COVID-19 period.

2.2. Study Population

Despite initial direct contact with the administrations of nearly all Swedish upper-secondary schools at the beginning of the fall semester in 2020, only 292 respondents were obtained, resulting in an unacceptably low response rate. To increase the sample size, the survey was made available on social media platforms during the Christmas holidays of 2020, specifically targeting 15-19-year-old upper-secondary school students. This expanded recruitment strategy yielded a total of 1370 responses, representing all 21 counties in Sweden. Among these 1662 responses, 1608 fulfilled the age requirements set by the national ethical committee. Only one participant did not specify their gender, leaving a total of 1607 female, male, and non-binary gendered Swedish upper-secondary school students whose data was utilised for the present study.

2.3. Instruments

The measures listed below have been previously employed in studies conducted with adolescent populations [22,24].

2.3.1. COVID Impact

This item assessed the extent to which COVID-19 personally impacted the lives of adolescents. Participants provided their responses on a numeric analogue scale ranging from 0 (indicating minimal or no effect) to 10 (indicating significant and profound impact).

2.3.2. Changes in Adolescents' Behaviours during COVID-19

The structure of this measure was originally established through repeated principal component analyses, as outlined in Kerekes et al. [24]. However, in our study population, the factors described in that research did not demonstrate acceptable reliability (Cronbach's alpha below 0.5 for each factor). Consequently, in the present study, we chose not to adhere to the factor structure when presenting the results. Instead, we opted to present the items in accordance with their contextual relevance.

2.3.3. Risk Behaviours

including the following: 1) consuming alcohol, 2) getting intoxicated by alcohol, 3) smoking cigarettes, 4) illicit drug use, including prescription drugs used for reasons other than prescribed, 5) arguing/fighting with a parent or parents, and 6) staying outside or being in the city without parents' knowledge. Cronbach's alpha for the risk behaviors in the present study was 0.69.

2.3.4. Norm-Breaking Behaviours

consisting of the following: 1) stealing from shops, people, or from own or someone else's home, and 2) harassing someone on the internet using written language or uploaded pictures and/or videos.

2.3.5. Salutogenic Approaches

incorporating the following: 1) having the opportunity to be in control over one's daily life, 2) keeping up with school projects and/or work, 3) spending time doing things that one did not have time to do before, 4) working out or exercising, 5) being outside and (for example) taking walks, 6) spending time with family and taking part in fun activities, 7) staying in contact with relatives and friends over the phone/internet, 8) staying connected with friends through social media or video games, and 9) meeting up with friends in real life. Cronbach's alpha for the Salutogenic approaches, in the present study was 0.60.

Participants were provided with the following response options: I didn't before and haven't started after, decreased a lot, decreased a little, no change, increased a little, and increased a lot.

2.3.6. Changes in Adolescents' Mental Health

This questionnaire comprised 10 items and aimed to evaluate adolescents' self-reported changes in sleep, stress, satisfaction, loneliness, involvement in society, and various affective states. Participants were asked to rate each item on a response scale consisting of four options: I strongly disagree, I disagree, I agree, and I strongly agree.

2.3.7. Changes in Adolescents' Victimization

The frequency of changes in victimisation was evaluated using a subset of five items adapted from the Swedish Crime Survey [25]. These items included physical violence, threats, sexual harassment, and two items related to online victimisation. Participants rated the frequency of these experiences on a 5-point scale, with response options ranging from decreased a lot to increased a lot.

2.4. Statistical Analysis

All analyses were conducted using IBM SPSS Statistics version 28. Descriptive statistics, including mean (M), median (Md), standard deviation (SD), and frequencies (%), were utilised to summarise the data. Chi-square tests and risk ratios were employed to compare the prevalence and risks associated with changes in mental health, risk behaviours, psychosocial functioning, and victimisation across genders. The distribution of responses for the COVID-19 impact item was assessed using the Shapiro-Wilk test, which revealed a significant deviation ($p < 0.001$) from normality. Therefore, differences in this item between genders were examined using the non-parametric Kruskal-Wallis test. The significance level was set at $p < 0.05$.

3. Results

3.1. Impact of the COVID-19 Pandemic on Swedish Adolescents

Figure 1 illustrates the distribution of responses from Swedish adolescents regarding the impact of the COVID-19 pandemic on their everyday lives, measured on a scale from 0 to 10. The proportions of male, female, and non-binary gendered adolescents reporting their perceived impact are displayed.

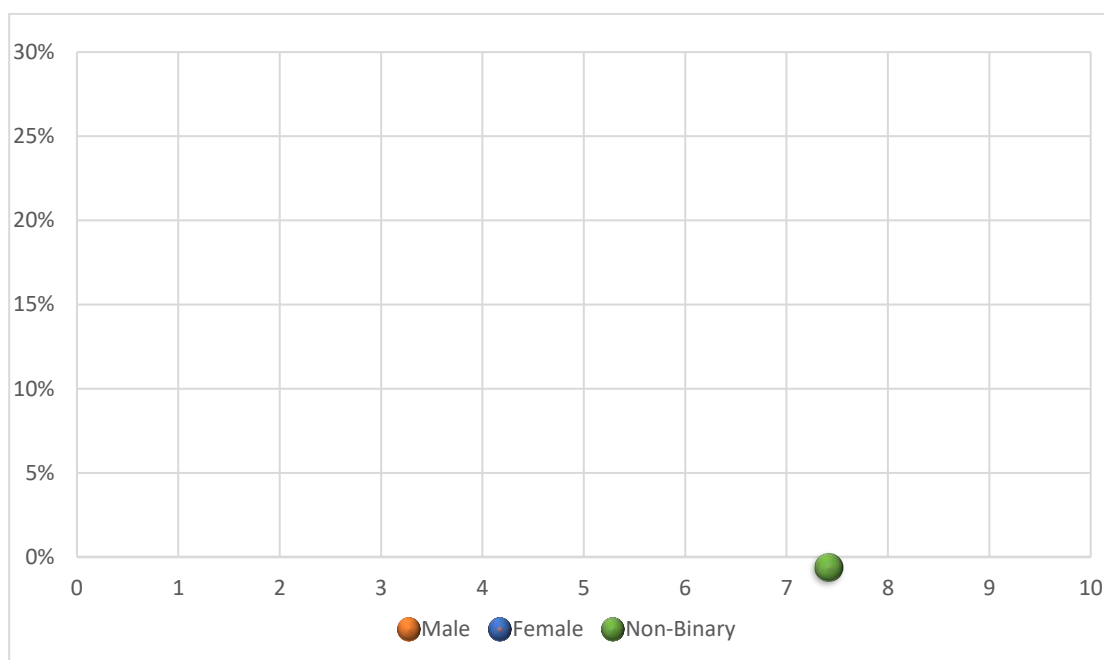


Figure 1. Impact of the COVID-19 pandemic on Swedish adolescents, by gender.

A total of 1,584 participants (98.5% of the study population) provided responses to this question. Among them, there were 618 males, 951 females, and 14 non-binary gendered adolescents. Due to the limited number of non-binary gendered respondents, statistical analysis could not be conducted for this group. The median score for the entire study population was three ($Md=3$), indicating a moderate level of perceived impact.

Significant gender differences were observed, with male students reporting a significantly higher impact of COVID-19 on their everyday lives compared to female students ($Md=4$ and 3 ; $M=4.03$ and 3.14 ; $SD=2.49$ and 2.21 , respectively; $p<0.001$) (Figure 1).

3.2. Changes in Swedish Adolescents' Behaviour During the COVID-19 Pandemic

The questionnaire used in this study aimed to capture any changes in adolescents' behaviours during the COVID-19 pandemic and to determine the direction of those changes. It also assessed whether adolescents had engaged in specific behaviours before the pandemic.

Responses on the absence of these behaviours provide insight into the overall behaviour patterns of Swedish adolescents, regardless of the COVID-19 pandemic. By utilising these data, we can calculate gender-dependent risk ratios for specific defined behaviours.

Regarding risk behaviours, no gender differences were observed in the proportion of adolescents who reported not smoking (approximately 80%), not consuming alcohol (around 50%), and not getting intoxicated by alcohol (approximately 40%). However, significant differences ($p<0.001$) were noted in the frequency of illicit drug use and staying outside/being in the city without parental knowledge. Males were 41% likelier to indicate occasional engagement in these behaviours compared to females. On the other hand, females exhibited an increased risk of arguing with their parents even before the COVID-19 outbreak (Table 1).

Table 1. The proportion of male and female adolescents reporting the absence of a specific type of behaviour.

		"I didn't do it before and haven't started during or after COVID-19"			Risk ratio for male students of having certain defined behaviours in comparison to females	
		Female %	Male %	<i>p</i>	RR	CI lower/upper
Risk behaviours	Smoking cigarettes	82.10	80.10	0.33	1.08	0.93/1.26
	Consuming alcohol	41.00	43.40	0.38	0.94	0.83/1.073
	Getting intoxicated by alcohol	50.20	49.50	0.78	1.02	0.90/1.15
	Illicit drug use, including the use of prescription drugs for reasons other than prescribed	92.70	87.20	<0.001	1.41	1.19/1.66
	Staying outside/being in the city without parents' knowledge	53.50	44.50	<0.001	1.25	1.1/1.42
	Arguing/fighting with a parent or parents	20.80	31.10	<0.001	0.74	0.65/0.84
Norm-breaking behaviours	Stealing from shops/people or from own or someone else's home	92.70	91.40	0.35	1.11	0.90/1.37
	Harassing someone on the internet using written language or uploaded pictures and/or videos	98.00	96.10	0.025	1.43	1.09/1.88
	Spending time with family and taking part in fun activities	3.80	3.80	0.97	0.99	0.72/1.38
	Spending time doing things that one did not have time to do before	4.90	3.90	0.39	1.16	0.82/1.63
Salutogenic approach	Keeping up with school projects and/or work	1.90	2.40	0.53	0.88	0.59/1.30
	Having the opportunity to be in control over one's daily life	2.00	1.70	0.70	1.10	0.67/1.81
	Working out or exercising	11.70	13.40	0.36	0.91	0.76/1.10
	Being outside and taking walks (for example)	2.60	6.10	0.002	0.64	0.51/0.81
	Staying in contact with relatives and friends over the phone/internet	3.20	6.80	0.003	0.66	0.53/0.84

Meeting up with friends in real life	1.60	4.20	0.002	0.61	0.48/0.78
Staying connected with friends through social media or video games	14.40	8.10	<0.001	1.57	1.18/2.09

RR= Risk ratio; CI= Confidence interval.

In the context of norm-breaking behaviours, there were no gender differences found in the proportion of male and female adolescents, indicating that they had never stolen from shops, people, or their own home (over 90%). However, a slightly higher proportion of females (98%) reported that they had never harassed someone on the internet using written language or uploaded pictures and/or videos compared to male students (96%). This indicated that the male gender was associated with a significant ($p=0.025$; 43%) increased risk generally (not as a consequence of the COVID-19 pandemic) of engaging in harassment (Table 1).

In terms of salutogenic behaviours, the proportion of adolescents reporting that they had never utilised these approaches was relatively low, ranging from 2% to 13%. Overall, Swedish adolescents indicated a high level of engagement in these behaviours as a general trend. There were, however, significant differences (p ranging between 0.003 and <0.001) between genders in some of these behaviours. Male adolescents were 36% less likely than females to report that they had never been outside, 34% less likely than females to report that they had never used phone/internet to keep in contact with relatives and friends, and 39% less likely than females to report that they never met with friends in real life. In other words, these behaviours were more often present in female adolescents' behaviour even before the COVID-19 outbreak. Conversely, a higher proportion of female students reported that they had never used social media or video games to stay in contact with friends (14% vs. 8% of males), indicating that this type of behaviour is generally more associated with males (Table 1).

Table 2 describes the proportion of adolescents who reported changes (either a decrease or increase) compared to those who reported no change in these behaviours (including responses indicating that they had never engaged in the behaviour or that it remained unchanged during the COVID-19 pandemic) (Table 2).

Table 2. The proportion of adolescents reporting any change compared to those reporting no change (including those who had never done it) in their behaviours during the COVID-19 pandemic.

		Change		No Change		p between genders
		Female %	Male %	Female %	Male %	
Risk behaviours	Smoking cigarettes	14.70	15.70	85.30	84.30	0.6
	Consuming alcohol	40.90	41.20	59.10	58.80	0.91
	Getting intoxicated by alcohol	37.10	38.90	62.90	61.10	0.47
	Illicit drug use, including the use of prescription drugs for reasons other than prescribed	5.80	11.20	94.20	88.80	<0.001
	Staying outside/being in the city without the parent's knowledge	24.80	26.70	75.20	73.30	0.41
	Arguing/fighting with a parent or parents	43.20	33.30	56.80	66.70	<0.001
Norm-breaking	Stealing from shops/people or from your	5.40	5.30	94.60	94.70	0.89

behaviours	own or someone else's home					
	Harassing someone on the internet using written language or uploaded pictures and/or videos	0.70	1.30	99.30	98.70	0.27
	Spending time with family and taking part in fun activities	66.80	58.80	33.20	41.20	<0.001
	Spending time doing things that one did not have time to do before	54.30	50.60	45.70	49.40	0.15
	Keeping up with school projects and/or work	68.40	66.90	31.60	33.10	0.54
	Having the opportunity to be in control over one's daily life	69.90	63.30	30.40	36.70	0.01
	Working out or exercising	68.30	68.30	31.70	31.70	0.98
	Being outside and taking walks (for example)	70.40	71.30	29.60	28.70	0.71
	Staying in contact with relatives and friends over the phone/internet	63.10	58.50	36.90	41.50	0.07
	Meeting up with friends in real life	80.60	75.60	19.40	24.40	0.019
	Staying connected with friends through social media or video games	45.40	58.40	54.60	41.60	0.001
	Salutogenic approach					

For most behaviours, there were no significant differences in the proportion of male and female students who reported changes during the COVID-19 pandemic. However, females reported a significantly higher proportion of changes in four behaviours—spending quality time with family, having the opportunity to control everyday life, frequency of arguments with parents, and frequency of meeting friends in real life. On the other hand, males reported a significantly higher proportion of changes in two behaviours—illicit drug use and staying in contact with friends via social media (Table 2).

Risk behaviours generally decreased in a higher proportion among both male and female adolescents, with the exception that a greater proportion of male students ($p=0.83$) reported increased illicit drug use, and a larger proportion of female students ($p=0.15$) reported an increase in the frequency of arguing with their parents. (Figure 2).

No significant differences were found between females and males in the proportion of adolescents who reported an increase or decrease in either of the two norm-breaking behaviours. Both males and females reported similar proportions, with the majority indicating a decrease in incidents of stealing while reporting an increase in incidents of harassing someone over the internet (Figure 3)

Significant gender differences were found within reported changes in salutogenic behavioural approaches. Specifically, 73% of females reported an increase in "spending time doing things that I did not have time to do before," compared to 64% of males ($p=0.005$). Additionally, 75% of females indicated a decrease in having a sense of control over one's daily life, while 68% of males reported a decrease in this aspect ($p=0.029$). Furthermore, a significantly higher proportion of female adolescents ($p=0.002$) reported a decrease in meeting up with friends in real life. (Figure 4).

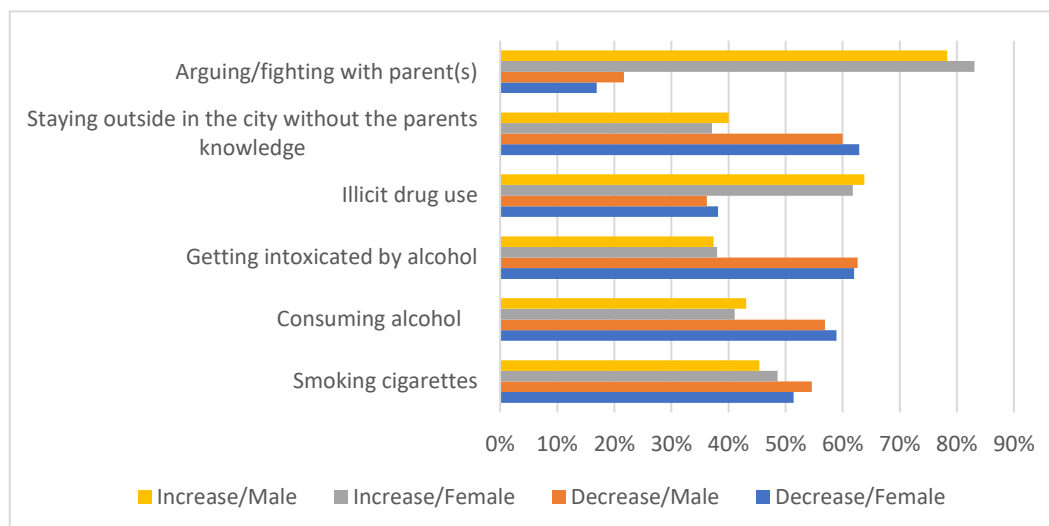


Figure 2. The proportion of male and female adolescents who reported decreased or increased risk behaviours during the COVID-19 pandemic.

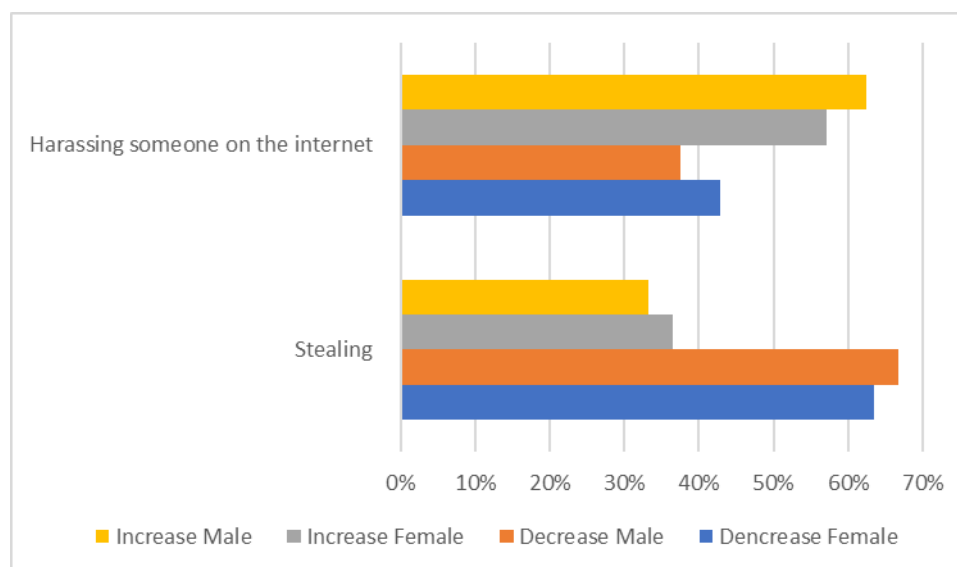


Figure 3. Decrease and increase of norm-breaking behaviours in males and females during the COVID-19 pandemic.

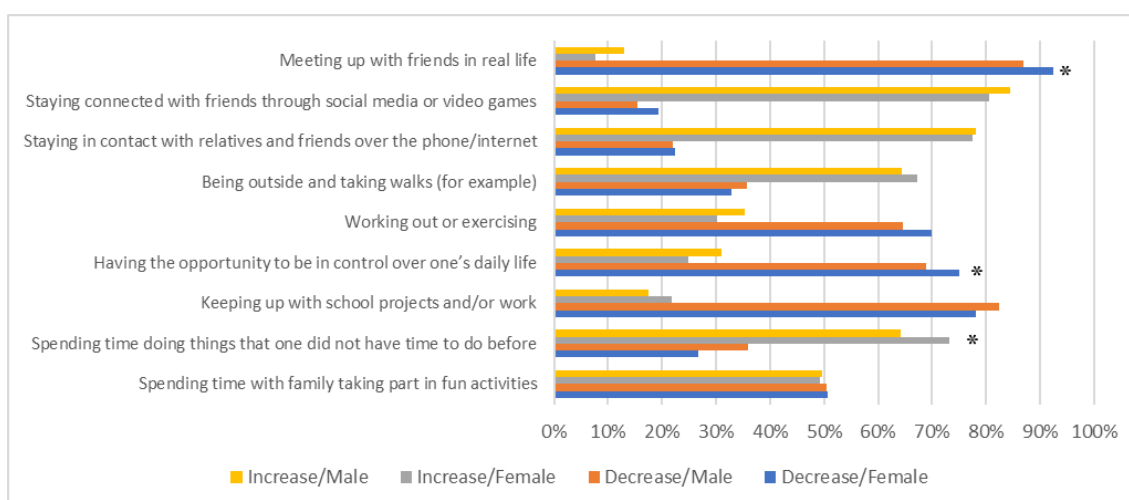


Figure 4. Decrease and increase in salutogenic approaches in males and females during the COVID-19 pandemic.

In general, among those who reported any changes, a higher proportion indicated a decrease in their ability to keep up with schoolwork, having control over their lives, and engaging in exercise. On the other hand, a higher proportion reported an increase in the frequency of spending time doing things that they did not have time to do before (Figure 4).

3.3. Changes in Swedish Adolescents' Mental Health During COVID-19 Pandemic

Several significant differences were observed in the proportion of female and male students, indicating negative changes in their mental health during COVID-19 (Figure 5). A significantly higher proportion of males reported increased anxiety (44% of males, 30% of females, $p < 0.001$), increased depression (39% of males, 27% of females, $p < 0.001$), increased anger (58% of males, 45% of females, $p < 0.001$), increased frequency of conflicts (71% of males, 64% of females, $p = 0.006$), and feelings of loneliness (35% of males, 28% of females, $p = 0.002$) during COVID-19, compared to before the outbreak. On the other hand, a higher proportion of females reported feeling more content or fulfilled (83% of females, 79% of males, $p = 0.043$), and being more active in society during the COVID-19 pandemic (87% of females, 84% of males, $p = 0.043$), compared to before the outbreak (Figure 5).

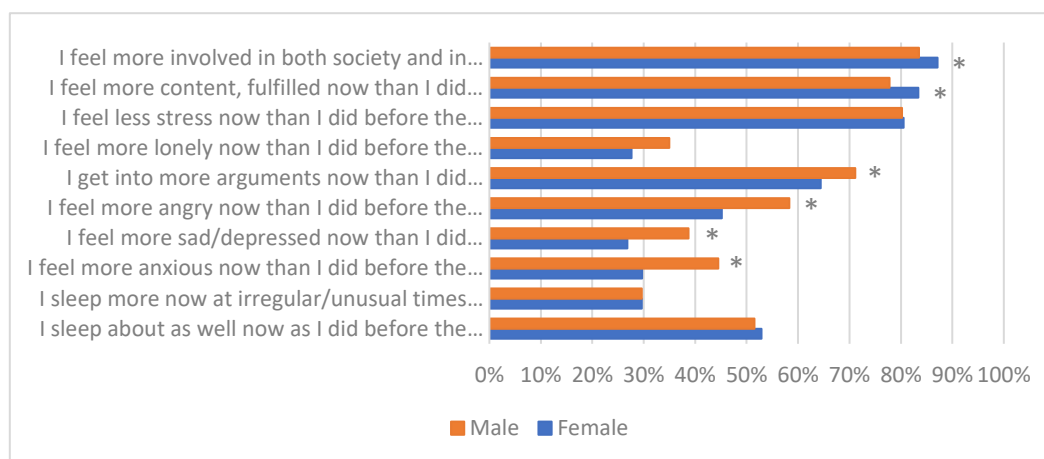


Figure 5. Reported changes in Swedish adolescents' mental health, by gender, during the COVID-19 pandemic. *Before implies prior to the outbreak of the COVID-19 pandemic.

3.4. Changes in Experiencing Victimisation During the COVID-19 Pandemic

Most Swedish adolescents (77%-95% of males and 82%-93% of females) respondents did not experience any form of victimisation during the COVID-19 pandemic. A significantly higher proportion of males than females (18% of males, 9% of females, $p = 0.001$) reported being intentionally hit, kicked, or subjected to other forms of violence that caused injuries but did require them to visit the hospital. On the other hand, a significantly higher proportion of females than males (22% of females, 10% of males, $p = 0.001$) indicated that someone groped or touched them in a sexual manner without their consent (Figure 6).

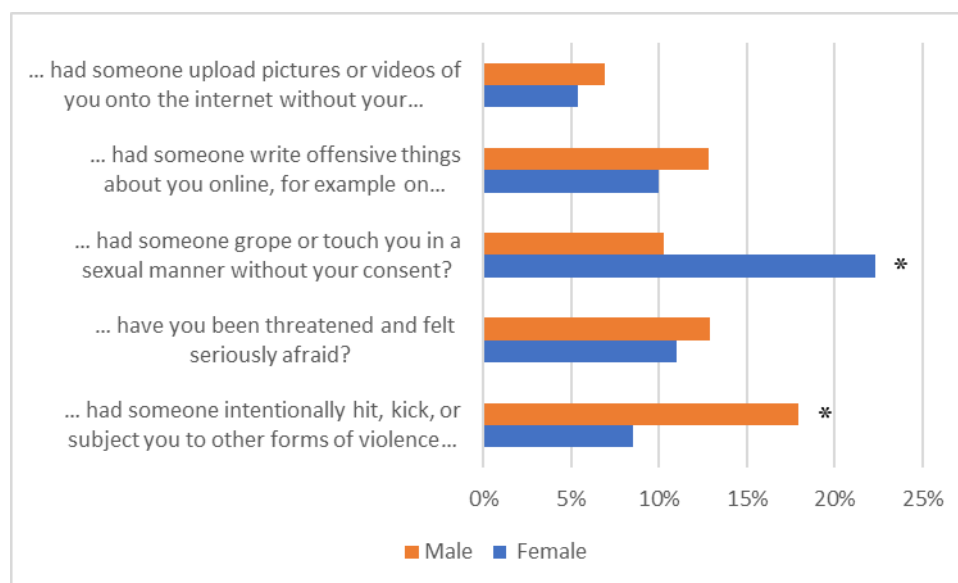


Figure 6. The proportion of adolescents by gender experiencing victimisation during COVID-19.

For all items assessing changes in experiencing victimisation during the COVID-19 pandemic, a higher proportion of adolescents reported a decrease rather than an increase in different types of victimisation. There was a significantly higher proportion of males who reported decreased victimisation compared to females (p ranging between <0.001 and 0.035) (Figure 7).

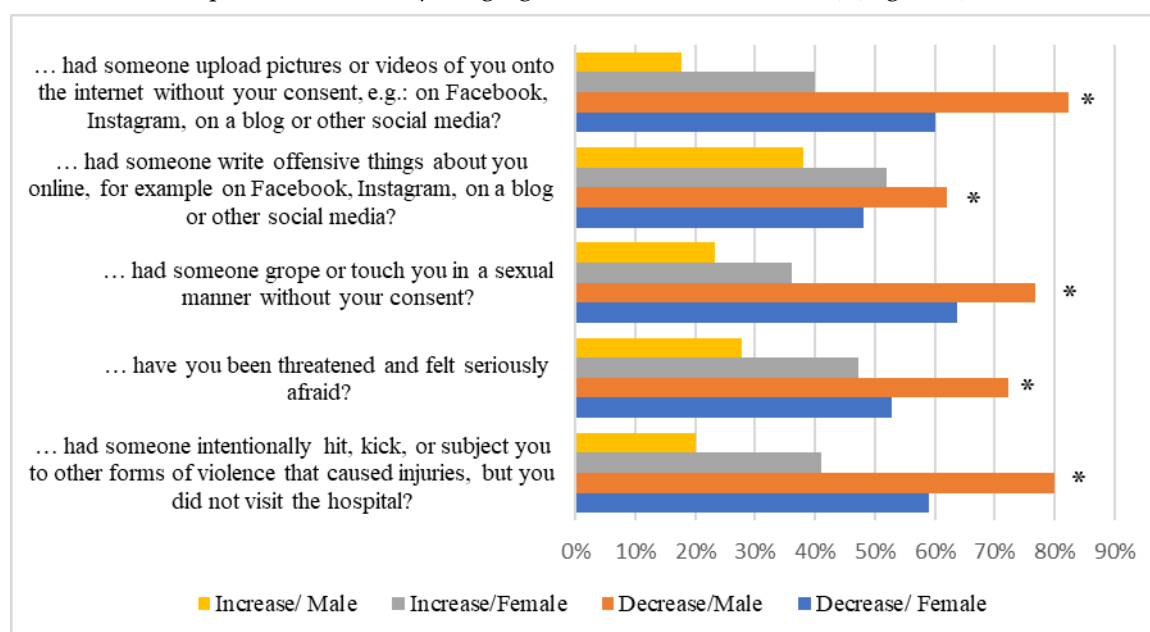


Figure 7. Decrease and increase in victimisation by gender during the COVID-19 pandemic.

4. Discussion

The findings of this study reveal that the pre-existing salutogenic behaviours exhibited by Swedish adolescents played a significant role in mitigating the impact of COVID-19 on their psychosocial functioning and mental health. It is evident that the majority of participants actively engaged in various life events by maintaining social connections with friends and family, continuing to engage in physical activity, and staying on track with school projects, among other activities. These findings correspond to the research conducted by de Zarate et al. [26], who explored the association between physical activity, personal social contact, and well-being among adolescents during the

COVID-19 pandemic. They observed a positive correlation between physical activity, personal social contact, and the well-being of young individuals. Thus, the salutogenic behaviours mentioned in the present study can be interpreted as protective factors. In a similar vein, Fan et al. [27] emphasised the significance of employing effective coping strategies to mitigate the adverse effects of the pandemic on daily life.

In this section, the study's results concerning adolescents' everyday lives and psychosocial functioning will be discussed in relation to factors supporting health, well-being, and resilience. Moreover, the study's findings pertaining to Swedish adolescents' experiences of mental health, risk behaviour, and victimisation in the context of the COVID-19 pandemic will be explored, and gender differences and their implications will also be discussed.

4.1. The Impact of the COVID-19 Pandemic on Adolescents' Everyday Lives

The present study reveals that Swedish upper-secondary school students reported a generally low impact of the COVID-19 pandemic on their everyday lives. This data file was part of a multinational analysis comparing the impact of COVID-19 across different countries [24], where it was noted that Swedish adolescents reported a lower impact compared to adolescents from other countries. One possible explanation could be that restrictions in Sweden were less severe than in other countries. Another possible explanation for this phenomenon is that their pre-existing salutogenic behaviours are rooted in positive sociocultural and socioeconomic factors. Such factors may have equipped Swedish adolescents with strong adaptability, contributing to their reports of being less negatively impacted of the COVID-19 pandemic than adolescents from other countries. Masten [28] described how all individuals possess the capacity to adapt, but some exhibit greater resilience due to their positive relationships with family, peers, and even teachers, which act as protective factors. Sweden is a highly developed country with a high standard of living. For example, the Organisation for Economic Cooperation and Development (OECD) [29] notes that Swedes report higher-than-average life satisfaction and have stronger social networks when compared to the OECD average. This is important to consider, as it paints a picture of a nation of content individuals who can rely on their relationships during challenging times, elucidating why the resilience described by Masten [28] is more apparent among Swedish youth. Another relevant study that explored psychological resilience among slightly older adolescents (18-24 years) was conducted by Renati et al. [30] in Italy. Their findings suggest that psychological resilience serves as a mitigating factor for potential emotional disturbances arising from adverse circumstances, such as pandemics.

Interestingly, in a multinational sample, a higher proportion of males, compared to females or non-binary gender students, reported a lower impact of COVID-19 on their lives [24]. However, in the present Swedish sample, male students reported a significantly higher impact of COVID-19 compared to female students. This finding suggests that the stronger impact on male adolescents in the Swedish context may be attributed to culturally specific gender differences in how adolescents coped and behaved during the first year of the pandemic.

4.2. Changes in Psychosocial Functioning During the COVID-19 Pandemic

Only a small proportion of Swedish adolescents reported a lack of salutogenic approaches in their lives, which partially explains the low impact of the pandemic on their everyday lives, as reported above. Among those who reported changes in suggested salutogenic approaches, a higher proportion indicated a decreased ability to keep up with schoolwork, feel control over their lives, and participate in exercise. However, a higher proportion also reported an increased frequency in engaging activities they didn't have time for before. A similar proportion of both genders reported an increased frequency of participating in outdoor activities, such as taking walks. While slightly more females than males reported feeling more content and active in society during the COVID-19 pandemic, more male adolescents reported increased internet use. Internet usage generally differs between genders, however, as noted by Sun et al. [31]. Although more male adolescents reported increased internet usage, they may use it in different ways. Males were 57% likelier to use the internet

to stay connected with friends through social media or video games, a behaviour that further increased during the pandemic for both genders.

Approximately 80% of both genders increased their online contact with relatives and friends, given the circumstances and restrictions in Sweden that focused on limiting in-person contact. This could be partially viewed as a potentially problematic use of the internet. Orhon et al. [32] found that problematic internet use among adolescents during the pandemic was associated with poorer sleep quality. Lower psychosocial functioning, such as a lack of physical activity, reduced academic performance, and problematic relationships with parents, were identified as predictors. However, for adolescents, using the internet as a means to stay connected with others was also an important tool to avoid social isolation, maintain social networks, and protect their mental health, as supported by previous studies [33].

4.3. Adolescents and Family Time during the COVID-19 Pandemic

It is common for young individuals to seek independence and distance themselves from their parents [34]. However, the COVID-19 restrictions created a situation in which parents and adolescents were confined together at home throughout the day. Interestingly, our findings indicate that this increased family time had a more noticeable impact on female adolescents, leading to an increased frequency of arguments and conflicts.

It is noteworthy that only one-fifth of the female participants in our study reported never having arguments with their parents, whereas almost a third of the male participants reported the same. Despite this difference, both male and female adolescents spent a similar amount of time with their parents, and the proportion of adolescents experiencing changes (either a decrease or an increase in their behaviour) did not differ significantly between genders. These findings suggest that the majority of adolescents in our study had healthy relationships with their parents, which can be considered a protective factor against the impact of the pandemic. This can also be correlated with the findings of Herke et al. [35], who posit that a favourable familial environment is significantly related to positive health and well-being outcomes among children and adolescents. To further extend the discussion concerning adolescents' familial experiences during the COVID-19 pandemic, the findings show that while females reported significantly more arguments with their parents during the COVID-19 pandemic, they also reported significantly less frequently than males that they had stayed outside without their parents' knowledge. This suggests that female adolescents are likelier to ask for permission and engage in arguments with their parents, while males tend to act more independently.

In a study by Magson et al. [14], an increase in conflicts between adolescents and their parents was found to be correlated with a decrease in life satisfaction during the COVID-19 pandemic. In line with this, our study revealed that a significantly higher proportion of female students reported a decrease in their sense of control over their daily lives, which may have contributed to a decrease in life satisfaction. This finding aligns with the results of the Moksnes et al. [36], study, which demonstrated that female adolescents exhibited a stronger negative association between interpersonal and school-related stressors and life satisfaction compared to males. However, it is important to note that throughout the 10-year period of the Moksnes et al. [36], study, life satisfaction remained consistently at high and stable levels, as measured in three cross-sectional assessments conducted in 2011, 2016, and 2022.

4.4. Changes in Mental Health during the COVID-19 Pandemic

The present study revealed that more Swedish male adolescents reported an increase in feelings of anxiety, depression, loneliness, and anger, and involvement in conflicts (not limited to conflicts with their parents) compared to their female counterparts. Additionally, we observed that over 80% of those who reported worsened mental health also reported an increase in illicit drug use. This finding is noteworthy because a previous review [37] and a study focused on the same population [24] in a multinational context have shown a higher increase in mental health issues among females. In the context of Swedish adolescents, several studies demonstrated that female adolescents reported experiencing poorer mental health outcomes such as headaches, depression, feeling fear, stomach

problems, difficulty sleeping, and poor appetite, increased anxiety and worry levels after exposure to COVID-19 compared to male adolescents [23,38,39].

The conflicting findings between these Swedish studies are fascinating yet challenging to explain. One possible explanation could be that the different studies [38,39] examined only limited aspects of mental health, focusing on anxiety and various worry themes, as well as depression and somatic complaints [23]. In contrast, the current study conceptualises mental health in a broader sense, encompassing symptoms of anxiety, depression, loneliness, and anger, and involvement in conflict. This comprehensive approach may distribute the load of negative effects across different factors, potentially leading to a reported decreased intensity compared to when it is expressed solely through one individual concept.

The different findings from studies with multinational samples may be attributed to the unique socio-cultural position of Swedish female adolescents. A previous study on Swedish adolescents' psychological distress levels indicated that female adolescents exhibited a significantly stronger decrease in mental health in response to negative psychosocial factors within their families compared to male adolescents [40]. Combined with our finding that more female adolescents reported an increased number of conflicts with their families, while more male students reported decreased mental health as a consequence of the COVID-19 pandemic, this may suggest that changes at the micro-environmental level (such as within the family) may have a stronger impact on females, while changes at the macro-environmental level (such as a pandemic) may more strongly affect males. This underscores the significance of gender-differences in adolescents' ability to cope with their surrounding environment, and possible protective factors, during the COVID-19 pandemic.

4.5. Risk Behaviours Before and during the COVID-19 Pandemic

One of the most important findings of the present study is that the majority of Swedish adolescents (93% of females and 87% of males) reported never using illicit drugs. Among the small percentage who used illicit drugs (13% of males and 7% of females), a significant proportion (84% of males and 71% of females) reported changes in the frequency of use. Approximately 60% of those (similar proportion in both genders) who reported changes also reported an increase in illicit drug use, representing almost 7% of males and 3% of females in the study population. The level of substance use (alcohol and drug) and the corresponding changes during the COVID-19 pandemic within the same sample as our study have been extensively examined and quantified using specific measures of alcohol and drug use (AUDIT and DUDIT) in a recent publication by Sfindla et al. [41].

The increase in drug use among our study population contradicts the information about a general decrease in drug use from another developed country, Spain [42]. It has been previously noted that adolescent males tend to self-medicate with illicit drugs or alcohol rather than seeking help when facing various mental health issues [43]. The higher proportion of male adolescents in our study engaging in increased illicit drug use during the COVID-19 pandemic may be both a consequence and a contributing factor to their reported higher rates of worsened mental health, including increased anxiety, depression, sleep problems, and anger. This pattern of increased illicit drug use among males was also observed in the multinational sample [24]. The significant prevalence of illicit drug use as a way of coping among Swedish adolescents, especially when compared to other countries, highlights the ongoing need for heightened awareness among their social networks, including family and friends as well as various organisations (such as schools, sports clubs, social services, and health services) to effectively recognise and respond to signs of addiction, self-harm, and norm-breaking behaviours even years after the COVID-19 pandemic.

Regarding alcohol use, a similar proportion (about 40%) of female and male adolescents reported never using alcohol, and approximately 50% of both genders reported never getting intoxicated. Both genders, in similar ratios, reported decreasing their alcohol consumption and instances of getting intoxicated more than increasing them. Our finding that about 60% of adolescents used alcohol prior to the pandemic and that its use decreased during the COVID-19 pandemic aligns with a study conducted among Catalan adolescents (14-18 years old) [42]. A study by Vallentin-Holbech [44] observed a decline in alcohol consumption among Danish students during the second

wave of the COVID-19 pandemic, coinciding with increased restrictions. Decreased alcohol use was attributed to reduced opportunities to purchase alcohol and drink in public spaces, and the absence of social gatherings and parties, where alcohol is typically more accessible. The relatively high proportion of Swedish adolescents consuming alcohol reflects cultural norms and expectations in Western countries [45].

In our study, males were 43% likelier than females to report engaging in online harassment as perpetrators, although this behaviour was reported by a very small proportion (4%) of the study population. The reported increased time spent on the internet provides more opportunities for harassment, which could explain the corresponding increase in this item. It is possible that females adhere more to gender-appropriate behaviour norms, leading to positive online experiences, while males may have negative experiences [31]. This could also explain why more male adolescents reported experiencing increased victimisation and harassment online.

4.6. The Frequency of Victimisation before and during the COVID-19 Pandemic

The majority of Swedish adolescents in our study (ranging from 77% to 95% of males and 82% to 93% of females) reported not experiencing victimisation during the COVID-19 pandemic. However, among those who did report being victimised, a notable gender-specific pattern emerged. Significantly more males reported physical assault, while significantly more females reported sexual assault, aligning with well-documented patterns of victimisation. Westlund and Öberg [46] highlighted that crimes against another person, including robbery, violence, and sexual offences, are common among youth, additionally aligning with our findings. Additionally, Axell [47] revealed that young females aged 16-24 are likelier to experience intimate partner violence compared to females over 25 years, with one in five reporting various forms of victimisation by their partner or ex-partner. However, in the context of cyberbullying involving children and adolescents during the COVID-19 pandemic, Sorrentino et al. [48] conducted a systematic review and found an increase in the prevalence of cyberbullying in several Asian countries and Australia, while Western countries experienced a decline. Interestingly, our study indicated a higher proportion of adolescents reporting a decrease rather than an increase of victimisation, with significantly more males reporting a decreased frequency compared to females. This overall decrease in victimisation could potentially be attributed to the increased time spent in online schooling, as previous research has indicated that most crimes against children and adolescents occur within school environments [49]. Furthermore, our findings suggested that males experienced a greater decrease in all victimisation indicators, possibly indicating that male adolescents are both perpetrators and victims in environments outside of their homes, such as schools, of which they were partly deprived during the COVID-19 pandemic.

5. Conclusions

Our study provides valuable insights into the impact of the COVID-19 pandemic on psychosocial functioning, risk behaviours, and mental health among Swedish adolescents. One notable finding is that the pandemic appears to have had only a modest effect on Swedish upper-secondary school students. Particularly relevant is the higher proportion of male adolescents reporting a deterioration in their mental health as a consequence of the pandemic. Conversely, females demonstrated an increase in several salutogenic behaviours, such as spending time with family and taking part in fun activities and meeting up with friends in real life, while males displayed an increase in negative behaviours, such as engaging in illicit drug use. However, it is important to note that these response patterns were observed for only a limited number of selected questions, where the proportion of respondents represented a small fraction of the overall study population.

6. Practical Implications and Future Research

At the time of writing, it has been over four years since the outbreak of the COVID-19 pandemic, a global event that has had a profound impact on the world. It is crucial to carry the learning gained from the experiences of the pandemic into the future. To effectively understand and address the

consequences of such events, especially their impact on younger generations, it is essential to build a comprehensive sociocultural database of evidence-based studies in this field.

Our study focuses on a sample of Swedish adolescents, providing insight into how they adapted to the circumstances of the COVID-19 pandemic, as well as their resiliency and ability to cope. Nevertheless, society still needs to be prepared to develop and offer both general and specialised psychological support and care to adolescents. One of the most significant findings of our study was the association between worsened mental health and increased illicit drug use among males. This underscores the importance of early intervention and involvement, particularly by educational institutions, in addressing mental health issues and preventing further deterioration among adolescents. It is crucial to raise awareness about how males express and experience poor mental health to ensure timely support and intervention. Further studies should focus on representative samples of adolescents in Sweden and examine not only the immediate but also the long-term effects of the pandemic, which spanned approximately two years and had a significant impact on various aspects of adolescent development. It is crucial to follow up on the well-being and experiences of individuals who reported worsened mental health, increased victimisation, and increased illicit drug use as a result of the pandemic. Additionally, researchers could explore the support and assistance that Swedish organisations involved with youth could offer in developing effective strategies for addressing the consequences of the pandemic and promoting positive mental health outcomes among adolescents. Ultimately, this study holds significance for policymakers as they deliberate on the potential duration and severity of future restrictions and the resulting consequences. This is particularly relevant due to the fact that Sweden's restrictions during the COVID-19 pandemic were relatively more lenient or deviated from those imposed in other countries.

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Informed Consent Statement: All participating students were provided with clear information stating that their involvement in the study was voluntary and anonymous. Prior to beginning the survey, participants were required to provide their agreement through an electronic informed consent document. Toward the end of the survey, information regarding available resources and links to support organisations was provided to the entire community.

Data Availability Statement: The datasets used and/or analyzed during the current study are available from the project leader, Professor Nóra Kerekes, upon reasonable request.

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