

Literature screening report: Secondary impact of COVID-19 containment measures in children, adolescents and young adults: mental health and recommendations - 15.12.2021 - Julia Dratva, Frank Wieber, Simona Marti, Anthony Klein.

Literature screening report II

Secondary impact of COVID-19 containment measures in children, adolescents and young adults: mental health and recommendations

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Abstract

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Preamble

A large number of scientific publications become available on a daily basis, reflecting the rapid development of knowledge and progress of science on COVID-19 related issues. Leading authorities should base decisions or policies on this knowledge; hence they need to master the actual state of this knowledge. Due to the large number of publications shared daily, decision makers heavily depend on accurate summaries of these publications, in the different public health domains. Therefore, the authors of this report were mandated by the Swiss School of Public Health plus (SSPH+), on request of the Federal Office of Public Health (FOPH), to inform the FOPH on recent findings from the literature regarding mental health and public health recommendations to cope with secondary health impact caused by the pandemic and containment measures.

Background

The COVID-19 pandemic is an unprecedented global public health crisis touching the whole population in different ways. Since the beginning of the pandemic containment measures and policies have been implemented to curb the epidemics. Driven by the scenario of an exponential epidemic and overburdened health system, the Swiss government ordered different containment policies and hygiene recommendations. Current but still limited evidence indicates that children and adolescents have an equally high attack rate, but luckily are at far less risk to contract severe COVID-19. However, the literature overview provided to the FOPH on health impact of confinement measures in the young population, suggests a considerable secondary health risk and adverse outcomes in children, adolescents, and young adults. Due to the methodological heterogeneity of the studies and geographical variation of the containment measures, it is challenging to draw definitive conclusions about the real impact of the COVID-19 pandemic. Furthermore, the published evidence is of varying quality and strength of evidence, especially limiting is the high number of cross-sectional studies without previous data to compare results to. Irrespectively, the recent review indicates a rather consistent impact on mental health outcomes and impact on access to or state of the art care, while impact on health behaviors and somatic health outcomes varies more across Europe.

The current literature screening report focusses on mental health outcomes and effects, an area of concern, and identifies longitudinal studies in children and youth age 0 – 25 years to be able to deduce causality and/or change over the pandemic period. Mental health is defined broadly, covering mental well-being to mental disorders and psychiatric conditions. The focus is put on direct effects on confinement/containment measures or the pandemic periods on mental health outcomes, and suggestions by authors on solutions, recommendations and best practices in the context.

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Questions addressed.

- What are the secondary mental health effects of COVID-19 and the containment measures in children, adolescents, and young adults?
 - What impact do the pandemic and the containment measures have on mental health of children, adolescents and young adults?
 - What impact does the containment measure “school closures” have on mental health?
 - Overview and comparison of recommendations and best practice in different countries
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Methodology

The current literature search spans the period September 1st, 2021 until the 28th of February 2022. Longitudinal studies from the previous report on secondary mental health impact will be identified and added to provide an overall picture. Three literature data banks were accessed to identify relevant literature: PubMed (biomedical literature), Embase (biomedical), and PsycInfo (psychological literature). A search string was defined and tested based on the study questions and outcomes of interest (see attachment). The search string was adapted to the three literature data banks, which provide different features for selective searching.

Literature was/will be searched at three time points: 1st of September 2021, January 10th 2022, 28th February. Literature was exported into Covidence (www.covidence.org), a systematic literature search software, and screened for inclusion. Inclusion criteria were data on children, age 0 – 25 years, exposure related to pandemic policies or containment measures, outcomes according to study questions, study data from European continent, and a longitudinal study design. Longitudinal study design was defined as any study that analyzed data at two time points in either the same population or using the same instruments in a reference population. Systematic reviews were not included but checked for longitudinal studies. In case of longitudinal studies, they were included, if not already presented in the report I. Relevant results of the included publications were extracted in Covidence by a researcher. All studies included in the narrative review were considered of sufficient quality.

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Results and Findings

What are the secondary mental health effects of COVID-19 and the containment measures in children, adolescents, and young adults?

Summary

Number of publications:

Time period:

Results

What impact do the pandemic and the containment measures have on mental health of children, adolescents and young adults?

Summary

The trajectory of mental health in children, adolescents, and young adults is in line with lockdown restrictions, such that their mental health decreased with the onset of the COVID-19 pandemic, gradually increased over the Spring and Summer months and then decreased from September 2020 onwards.

Health related Quality of Life / Well-being / Life satisfaction

- Health-related quality of life and emotional well-being in Swiss children between 5 and 11 years was reduced in 2020 relative to 2014/15 (Bringolf-Isler et al., 2021)
- Loosening the lockdown restrictions was associated with an increase in emotional well-being and a decrease in child problem behavior in 3- to 10-year-old-children in Germany (Essler et al., 2021).
- With schools that were open throughout the pandemic, 9–11-year-old-children in Sweden showed only marginal or small reductions in their psychosocial well-being (Vira and Skoog, 2021)
- During the pandemic, health-related quality of life of 11–17-year-old-children and adolescents in Germany significantly decreased between mid-2020 and end-2020 and emotional and peer

problems, anxiety and depression symptoms and psychosomatic complaints increased (Ravens-Sieberer et al., 2021).

- Whereas male adolescents' life satisfaction decreased after the COVID-19 related lockdown in the Netherlands compared to before the pandemic, female adolescents' life satisfaction remained stable. After the introduction of lockdown measures, adolescents reported more internalizing symptoms. Particularly, concerns about the social consequences of lockdown measures were associated with low life satisfaction (Van der Laan et al., 2021).

Depression / Loneliness / Distress

- Young adults' self-reported loneliness decreased from June through July 2020 and then increased from September to November 2020. Whereas being employed or in school and having a higher annual household income were associated with lower levels of self-reported loneliness, pre-existing physical and mental health conditions were associated with higher levels of self-reported loneliness. Whereas males who reported receiving a higher level of emotional support also reported lower levels of loneliness, females reported similar levels of loneliness regardless of the amount of emotional support they reported (Hu & Gutman, 2021)
- Compared to 2018/2019, clinically relevant depressive symptoms in German adolescents aged 16 to 19 years increased from 10.4% of the adolescents prior to the lockdown to 25.3%. Almost 60% of adolescents who had elevated scores before also showed increased depressive symptoms in spring 2020. 21.3% of adolescents newly developed clinically relevant symptoms from before the lockdown to during the lockdown. Young women and adolescents with an immigrant background higher risk of developing depressive symptoms.
- Highly extraverted adolescents in Germany experienced a larger rise in depressiveness, and a third of this total effect was mediated through increases in loneliness (Alt et al., 2021)
- The trajectory of mental health in young adults in the UK is in line with lockdown restrictions, such that their mental health gradually increased over the Spring and Summer months and decreased from September 2020 onwards (Stroud & Gutman, 2021)

Similarly, distress in young adults in GB surged in April 2020 but returned to pre-pandemic levels by September 2020. When looking at the development over the past decade, however, young adults' mental health significantly declined (Gagné et al., 2021)

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Substance abuse

Overall, the three articles observed a reduction of alcohol consumption throughout the pandemic. Differences are seen with respect to previous drinking behaviour, e.g. regular binge drinkers drank more than irregular binge drinkers, but also showed a decline. In a Spanish study drinking frequency and quantity was associated with level of depression (Vera et al), but not in a college students sample in Portugal (Vasconcelos et al). Acute alcohol intoxications decreased substantially in the first lockdown as compared to the pre-lockdown, but increased again afterwards (Pigeaud et al., 2021).

Suicidal behaviour and psychiatric hospitalisations

- Suicidal behaviour and psychiatric hospitalisations were not significantly increased during the pandemic as compared to the pre-Covid up-ward trend (Rømer et al., 2021).

Number of publications: 14

Time period: 01.09.21 – 22.11.21

Results

Health related Quality of Life / well-being / Life satisfaction

Bringolf-Isler et al. (2021) measured the difference in the health-related quality of life (HRQoL) of primary school children in 2014/15 compared to 2020 in Switzerland. In total, 1'712 Children (aged 5 to 11 years) participated. The baseline assessment of the SOPHYA cohort study (2014/15) comprised 799 children. At the follow-up assessment in 2020, 913 children were newly recruited. The overall scores of the KINDL-R questionnaire (82.4 [81.8; 83.0] vs. 79.6 [79.1; 80.2], $p < .001$), and the emotional well-being scores (85.6 [84.6; 86.6] vs. 83.3 [82.4; 84.2]), were lower during the year of the pandemic (2020), indicating a reduction in children's HRQoL and emotional well-being. The highest decrease between 2014/15 and 2020 in the adjusted models was seen for the youngest age group (85.0 [83.7; 86.2] vs. 81.1 [80.4; 81.8], $p < .001$) and for girls (83.0 [82.1; 83.8] vs. 80.0 [79.1; 80.9] $p < .001$). Children's HRQoL was particularly low during periods with restrictions and at the height of the COVID-19 waves in 2020."

Essler et al. (2021) conducted a study in Germany in 3 to 10 year-old-children with two timepoints (the first at the peak of the lockdown restrictions ($N = 2'921$), the second after restrictions had been majorly loosened ($N = 890$). They used a modified KIDSCREEN and the Strengths and Difficulties Questionnaire (SDQ) to assess changes in emotional well-being. Whereas emotional well-being increased ($M = 3.40 [1.17]$ vs. $M = 4.29 [1.12]$, $p < .001$) and child problem behavior decreased ($M = 3.47 [1.85]$ vs. $M = 2.86 [1.63]$, $p < .001$), family-related well-being ($M = 4.21 [1.10]$ vs. $M = 4.04 [0.85]$, $p < .001$) decreased slightly.

In a longitudinal study, Vira and Skoog (2021) assessed changes in Swedish middle class students' psychosocial well-being from before to during the COVID-19 pandemic. Data from 849 children in 30 middle schools in western Sweden were collected via self-report surveys between October 2019 and January 2020 (t_1 ; age range: 9 to 11 years, $M_{\text{age}} = 10$ years, $SD_{\text{age}} = .03$) and one year later between November 2020 and February 2021 (t_2 , age range: 10 to 12 years, $M_{\text{age}} = 11$, $SD_{\text{age}} = .05$). In Sweden, middle school students attended school as normal throughout the pandemic. Paired t -tests showed that mean-levels significantly decreased in almost all of students' psychosocial factors from t_1 to t_2 , namely hope, self-efficacy, and self-esteem. However, the effect sizes ranged from negligible to small according to Cohen's d standards. The largest decreases in mean-level were

found in students' perceived support from teachers ($M_{t1} = 5.32$, $SD_{t1} = .84$, $M_{t2} = 5.04$, $SD_{t2} = .97$; $p < .001$, Cohen's $d = .29$), class and school well-being ($M_{t1} = 4.90$, $SD_{t1} = .80$, $M_{t2} = 4.65$, $SD_{t2} = .86$; $M_{t1} = 5.17$, $SD_{t1} = .94$; $M_{t2} = 4.93$, $SD_{t2} = .95$; respectively; Cohen's d both = $.26$; $p < .001$), and students' self-esteem ($M_{t1} = 4.13$, $SD_{t1} = .93$, $M_{t2} = 3.82$, $SD_{t2} = 1.06$; Cohen's $d = .27$, $p < .001$). No significant differences in students' emotional problems ($M_{t1} = 1.50$, $SD_{t1} = .45$, $M_{t2} = 1.53$, $SD_{t2} = .46$) and negligible differences in their sense of hope ($M_{t1} = 4.77$, $SD_{t1} = .89$, $M_{t2} = 4.61$, $SD_{t2} = .96$; Cohen's $d = .17$, $p < .001$) and self-efficacy ($M_{t1} = 72.62$, $SD_{t1} = 22.95$, $M_{t2} = 69.75$, $SD_{t2} = 23.85$; Cohen's $d = .13$, $p < .01$) from before to during the pandemic were found.

Ravens-Sieberer et al. (2021) conducted a nationwide longitudinal population-based study (COPSY) to investigate the impact of COVID-19 on the quality of life and mental health in children and adolescents between 7 and 17 years in Germany. In total, 1923 children and adolescents aged 7 to 17 years ($M_{age} = 12.67$ years, $SD_{age} = 3.29$ years) and their parents participated across two waves during the pandemic (May/June 2020 and December 2020/January 2021). The families were recruited through a population-based approach from an online panel using quota sampling, $n = 1'288$ families participated in both waves. To compensate for the drop-outs from wave 1 to 2, new families ($n = 337$) were recruited using an additional quota sampling. The self-report and parent-proxy surveys assessed health-related quality of life (KIDSCREEN-10), mental health problems (SDQ with the subscales emotional problems, conduct problems, hyperactivity, and peer problems), anxiety (SCARED), depressive symptoms (CES-DC, PHQ-2) and psychosomatic complaints (HBSC-SCL). For comparisons with the pre-pandemic period, population-based data from the BELLA study (Behaviour and Wellbeing of Children and Adolescents in Germany) and the international HBSC study (Health Behaviour in School-aged Children) was used. In wave 1, 69.4% of the 11- to 17-year-old children and adolescents reported that the pandemic was a burden; with the corresponding proportion in wave 2 being significantly higher, the effect size indicated a small effect for this difference between the two waves (82.6%; $p < .001$; $\phi = .15$). Furthermore, the health-related quality of life (HRQoL) and mental health of children and adolescents significantly decreased during the pandemic, with 47.7% of the 11- to 17-year-olds reporting low HRQoL in wave 2 compared to 40.2% in wave 1 and 15.3% pre-pandemic, though the effect between the two waves during the pandemic remained negligible ($p < .001$; $\phi = .08$). Furthermore, there was a significant increase from pre-pandemic to wave 1 ($p < .001$) in mental health problems such as conduct

problems, hyperactivity, peer problems and emotional problems (pre-pandemic: 17.6%, wave 1: 30.4%; wave 2: 30.9%), however, the change in mental health problems from wave 1 to wave 2 was not significant ($p = .706$). A proportion of 30.1% had symptoms of generalized anxiety in wave 2 compared to 24.1% in wave 1 and 14.9% pre-pandemic. The difference between pre-pandemic and wave 1 data was significant, the difference between waves 1 and 2 was significant as well, but negligible due to the effect size ($p = .002$; $\phi = .07$). In wave 2, 15.1% reported depressive symptoms (pre-pandemic: 10.0%, wave 1: 11.3%), however, no significant difference in depressive symptoms was found between pre-pandemic and wave 1. The difference between wave 1 and wave 2 data was significant, but negligible ($p = .010$; $\phi = .01$). Children and adolescents also reported psychosomatic complaints such as irritability (pre-pandemic: 39.8%, wave 1: 53.2%, wave 2: 57.2%), headaches (pre-pandemic: 28.3%, wave 1: 40.5%, wave 2: 46.4%), stomachaches (pre-pandemic: 21.3%, wave 1: 30.5%, wave 2: 36.4%), and feeling low (pre-pandemic: 23.0%, wave 1: 33.8%, wave 2: 43.4%). Comparing wave 1 and wave 2, significant differences indicated higher proportions of children being affected by headaches ($p = .007$), stomachaches ($p = .004$) and feeling low ($p < .001$); with the effect sizes being negligible for headaches and stomachaches ($\phi = .06$ for both), and small for feeling low ($\phi = 0.10$). Mixed model panel regression analyses showed that the time across wave 2 versus wave 1 was associated with statistically significant lower HRQoL ($- 0.77$ or $- 0.09$ SD; 95% CI [$- 1.26$; $- 0.28$]; $p < .05$), stronger emotional problems ($+ 0.18$ or $+ 0.08$ SD; 95% CI [0.09 ; 0.28]; $p < .05$) and peer problems ($+ 0.10$ or $+ 0.05$ SD; 95% CI [0.01 ; 0.18]; $p < .05$), more pronounced symptoms of anxiety ($+ 0.45$ or $+ 0.10$ SD; 95% CI [0.20 ; 0.70]; $p < .05$) and depression symptoms ($+ 0.46$ or $+ 0.12$ SD; 95% CI [0.23 ; 0.70]; $p < .05$), and stronger psychosomatic complaints such as irritability, headaches and sleeping problems (0.10 or $+ 0.16$ SD; 95% CI [0.07 ; 0.14]; $p < .05$).

In a two-wave prospective study, Van der Laan et al. (2021) assessed gender-specific changes in life satisfaction after the COVID-19 related lockdown in Dutch adolescents and whether changes were associated with concerns about COVID-19 and lockdown measures. Data on mental well-being before the lockdown were collected between March 2019 and March 2020 ($n = 224$) – in the context of an ongoing population-based birth cohort study in the Netherlands called WHISTLER – and a follow-up was conducted 5 to 8 weeks after the first introduction of lockdown measures ($n = 158$; $M_{age} = 15.53$ years, $SD = 1.25$ years). There was a significant decrease in life satisfaction, $F(1,$

153) = 13.195, $p < .001$, $\eta^2_p = .079$, after the introduction of lockdown measures when compared with the pre-pandemic period. Moreover, a significant interaction between gender and time since lockdown on life satisfaction was observed, $F(1, 153) = 6.034$, $p = .015$, $\eta^2_p = .038$, such that boys' life satisfaction at follow-up decreased compared to their life satisfaction assessed before the pandemic, while there was no significant change over time in girls' life satisfaction. The factor "concerned about social consequences of lockdown measures" was significantly associated with a lower life satisfaction (adjusted β : -.25, 95% CI [-.43; -.06], $p = .01$). None of the other factors were significantly associated with a lower life satisfaction: "concerns about health" (adjusted β : -.04, 95% CI [-.23; .14], $p = .64$), "concerns about financial matters" (adjusted β : -.02, 95% CI [-.23; .19], $p = .86$), and "concerns about family relations" (adjusted β : -.15, 95% CI [-.37; .08], $p = .21$).

Furthermore, participants did not report more internalizing symptoms after the introduction of lockdown measures, $F(1, 151) = 2.152$, $p = .144$, $\eta^2_p = .014$ when compared with baseline assessments. The factors "concerns about health" (adjusted β : 1.93, 95% CI [.53; 3.33], $p = .01$), "concerns about social consequences of lockdown measures" (adjusted β : 2.39, 95% CI [.96; 3.81], $p = .001$), and "concerns about family relations" (adjusted β : 2.41, 95% CI [.73; 4.08], $p = .01$) were found to be associated with more internalizing symptoms. Adolescents reported significantly better psychosomatic health after the introduction of lockdown, $F(1, 152) = 36.544$, $p < .001$, $\eta^2_p = .194$ compared to the pre-pandemic period. No factor was associated with a worse psychosomatic health ("concerns about health" [adjusted β : -.04, 95% CI [-.12; .04], $p = .30$], "concerns about social consequences of lockdown" [adjusted β : -.08, 95% CI [-.17; .00], $p = .06$], "concerns about financial matters" [adjusted β : .08, 95% CI [-.01; .17], $p = .09$], and "concerns about family relations" [adjusted β : .01, 95% CI [-.09; .11], $p = .88$).

Depression / Loneliness / Distress

A study by Hu and Gutman (2021) in the UK investigated the trajectory of loneliness in young adults (aged 18 to 25 years) from June to November 2020 and its association with emotional support as well as demographic and health factors. The analytic sample included 419 young adults (296 females; 123 males). "The final growth curve model, with coefficient estimates of the intercept and slopes accounting for the self-reported loneliness trajectory from June to November 2020. On average, those aged 18 to 25 experienced a decrease in self-reported loneliness from June through July and then an increase from September to November 2020. The positive quadratic trend for time

was highly significant, indicating a U-shape trajectory of self-reported loneliness over time. Several covariates revealed significant main effects at the intercept only. Being employed, being in school, as well as having a higher annual household income were all associated with lower levels of self-reported loneliness. Pre-existing physical and mental health conditions were associated with higher levels of self-reported loneliness. A significant interaction between gender and self-reported emotional support was found at the intercept only. Males who reported receiving a higher level of emotional support also reported lower levels of loneliness compared to males who reported receiving a lower level of emotional support. Females, however, reported similar levels of loneliness regardless of the amount of emotional support they reported.

Naumann et al. (2021) investigated the change in mental health of adolescents in Germany during the first wave of the COVID-19 pandemic and the lockdown. The longitudinal data derived from the nationwide randomly selected anchors of the German family panel pairfam, the age group considered in the analyses were born in 2001 and 2003 ($n = 2465$) and surveyed for the first time in 2018/2019, 854 of those adolescents (aged 16 to 19 years) participated also in the COVID-19 supplementary survey from May to July 2020. Depressiveness assessed using the State-Trait Depression Scale and results are weighted. During the first lockdown in 2020, adolescents showed a significant increase in depressive symptoms: while prior to the lockdown, 10.4% of the adolescents showed clinically relevant depressive symptoms (95% CI [8.4; 12.5]), in spring 2020 the proportion of adolescents with depressive symptoms increased to 25.3% (95% CI [22.4; 28.2]), which is a statistically significant increase of 14.9% (95% CI [11.8; 18.0]). Of those adolescents who had already shown clinically relevant depressive symptoms in 2018/2019 ($n = 89$; 10.4%), almost 60% still had elevated scores on the depressive scale in spring 2020, while in 40% ($n = 36$) of the respondents the score had fallen below the threshold value. Of those adolescents who had no clinically relevant depressive symptoms prior to the pandemic ($n = 765$), 21.3% ($n = 163$) developed clinically relevant symptoms between the two surveys. A logistic regression revealed that young women had a significantly higher risk of developing depressive symptoms than men of the same age (OR = 2.8, 95% CI [1.7; 4.3], $p < .01$). Immigrant background was also a strong risk factor (OR = 1.8, 95% CI [1.06; 3.02], $p < .05$).

A German study by Alt et al. (2021) hypothesized a detrimental effect of extraversion during lockdown conditions on adolescents' mental health. Inspecting change, higher extraversion at t_1 predicted a greater increase in negative mood ($b = .14, p = .003, r = .19, 95\% \text{ CI } [0.11, 0.29]$), more anhedonia ($b = .15, p = .002, r = .20, 95\% \text{ CI } [0.11, 0.32]$), and a higher increase of loneliness ($b = .15, p < .001, r = .20, 95\% \text{ CI } [0.13, 0.29]$). A higher rise in loneliness predicted a stronger increase of both negative mood ($b = .44, p < .001, r = .49, 95\% \text{ CI } [0.39, 0.54]$) and anhedonia ($b = .38, p < .001, r = .43, 95\% \text{ CI } [0.37, 0.54]$). Inspecting pre-pandemic associations at t_1 , extraversion was negatively correlated with anhedonia ($r = .39, p < .001, 95\% \text{ CI } [0.45, 0.33]$) and negative mood ($r = .26, p < .001, 95\% \text{ CI } [0.31, 0.19]$). Females showed a higher increase in negative mood ($b = .09, p = .005, r = .14, 95\% \text{ CI } [0.07, 0.20]$) and anhedonia ($b = .08, p = .024, r = .13, 95\% \text{ CI } [0.06, 0.20]$). Change in loneliness was not predicted by gender ($b = .05, p = .143, r = .10, 95\% \text{ CI } [0.06, 0.17]$). At t_1 , being female was correlated with higher extraversion ($r = .13, p = .002, 95\% \text{ CI } [0.06, 0.19]$), more negative mood ($r = .25, p < .001, 95\% \text{ CI } [0.18, 0.31]$) and more anhedonia ($r = .09, p = .022, 95\% \text{ CI } [0.02, 0.15]$).

Stroud and Gutman (2021) assessed changes in the mental health of young adults in the UK during the COVID-19 pandemic using data from the nationally representative, longitudinal panel survey of the Understanding Society COVID-19 survey. The following data on current mental health was measured at six time points (April, May, June, July, September, and November 2020) using the 12-item General Health Questionnaire (GHQ-12), the analyzed sample included 880 young adults (aged 18-25 years in wave 1, $M_{\text{age}} = 21.80$ years, $SD = 2.28$ years). Growth curve modeling was used to examine the trajectory of mental health from April to November 2020. The significant intercept revealed that the mental health scores were the highest in April, which is indicating poorer mental health. "There was a significant negative linear slope indicating an improvement in mental health during the first three months of the pandemic. There was also a significant positive quadratic slope, indicating a worsening of mental health from September onward." Analyzed by gender, results showed that the mental health of the female participants was the lowest in April 2020, but it gradually improved until September 2020, when it started to decrease again, while male participants had a relatively stable trajectory of mental health between April and November 2020. These results imply that trajectory of mental health is in line with lockdown restrictions in the UK, with them gradually easing over the Spring and Summer months and tightening from September onwards.

A study by Gagné et al. (2021) investigated long-term trends in mental health among 16–34-year-olds (age groups 16-24 years and 25-35 years). They used all waves from the British Household Panel study (1991-2008) and the UK household Longitudinal Study (2009 - 2020) and the first five UKHLS Covid-19 waves administered in April, May, June, July, and September 2020. Findings are based on the General Health Questionnaire 12 (GHQ-12), clinically significant cases and severe cases for mental distress. In April 2020, the risk of becoming a clinically significant case increased across groups by 55% to 80% compared to the 2018–19 baseline. This increase, however, rapidly diminished over time: in July–September 2020, there was only a higher risk of caseness in men aged 25–34 years (prevalence ratio = 1.29, 95% CI [1.01,1.65]) compared to the 2018–19 baseline. Between April and July-September 2020, the risk of distress significantly decreased in all groups by 21% to 46%. Whereas the increases in April were similar across groups, the decreases in July-September were smaller in men aged 25-35 years (PR= 0.79, 95% CI [0.65,0.97]) compared with women aged 16-24 years (PR= 0.54, 95% CI [0.45,0.65]. Comparing 2018-19 with July- September 2020, there were few differences in the risk of caseness across groups, with significant increases in distress only found in men aged 25-34 years (PR = 1.29, 95% CI [1.01.1.65]). In April 2020, the increase in GHQ scores was largely attributable to the increase in endorsements on “(not) able to enjoy your normal day-to-day activities”, “(not) capable of making decisions...”, and “(not) playing a useful part in things”

Eating disorders and/or substance abuse (alcohol, cannabis, prescription drugs, drugs)

In a longitudinal study conducted by Vasconcelos et al. (2021), the effects of the COVID-19 mitigation measures on alcohol consumption, and binge drinking in college students were assessed. A convenience sample of 146 Portuguese college students was recruited at a University in Portugal in October 2019 (age range: 17-26 years, $M_{age} = 19.5$, $SD = 1.5$ years) consisting of regular binge drinkers (regular BDs), infrequent binge drinkers (infrequent BDs) and non-binge drinkers (non-BDs) who were surveyed at three time points: pre-lockdown (Fall 2019), during lockdown (April–May 2020) and 6 months after (post-lockdown: October–November 2020). Results revealed that during lockdown, almost half of the participants (48%) decreased their alcohol use, while 15% had a higher consumption of alcohol, and 37% did not change their alcohol intake. Compared to pre-lockdown, during post-lockdown 57% of participants decreased their alcohol intake, while 9% showed an increased alcohol use, and 34% drank the same. When lockdown and

post-lockdown moments were compared, they found that slightly more than half of respondents (51%) kept drinking the same amount, while 28% decreased alcohol intake and 21% increased it. Furthermore, an estimated linear mixed-effects model indicated that all college students decreased their alcohol consumption over the course of the pandemic. Regular BDs decreased alcohol consumption from pre-lockdown ($M = 10.9$) to lockdown ($M = 4.8, p < .001$) and to post-lockdown ($M = 2.2, p < .001$), not differing significantly between lockdown and post-lockdown ($p = .215$). Infrequent BDs diminished their alcohol consumption in the post-lockdown ($M = 0.8$) compared to the pre-lockdown period ($M = 5.5, p = .010$), on the other hand alcohol craving increased from Lockdown to Post-Lockdown ($p = 0.012$). There was an association between the moment of assessment and stress ($\beta = 3.18, p < .001$), depression ($\beta = 2.55, p < .001$) and anxiety ($\beta = 2.36, p < .001$) with the scores of all those three affective states being higher during post-lockdown compared with lockdown. There was no significant association between stress, depression and anxiety and alcohol consumption.

In a retrospective cohort study, Pigeaud et al. (2021) investigated the association between the lockdown due to COVID-19 and acute alcohol intoxication (AAI) among adolescents in the Netherlands. Between January 1st and December 31st, 2020, 482 adolescents under 18 years (median age: 16 years) were admitted for AAI to one of the 12 participating hospitals. To estimate the effect of the lockdown measures on the admission for AAI, different time periods were compared: pre-lockdown (January 1st - March 15th, 2020), during the first lockdown (March 16th - May 31st, 2020), after the first lockdown (June 1st - October 14th, 2020), and the beginning of the second lockdown (October 15th - December 31st, 2020). As a reference group, the same periods in 2019 were used. A Poisson regression model revealed a decrease in the prevalence of adolescents admitted for AAI by 70% ($p = .002, 95\% \text{ CI } [.14, .63]$) between the pre-lockdown and the first lockdown period. Comparing the first lockdown phase and the period after the first lockdown (reopening phase), the prevalence of adolescents admitted for AAI significantly increased ($p = .047, 95\% \text{ CI } [1.01, 4.88]$), however it did not significantly differ from the same period in 2019 ($p = .758, 95\% \text{ CI } [.50, 1.66]$). There was also no significant difference between the reopening phase and the second lockdown period ($p = .074, 95\% \text{ CI } [.23, 1.07]$).

A longitudinal study from Vera et al. (2021) compared changes in alcohol consumption before and after the COVID-19 outbreak and the impact of sociodemographic and mental health variables on such changes in young adults in Spain. Data were collected through a targeted sampling procedure as part of a larger, ongoing longitudinal study. The sample consisted of 305 young adults from Spain aged between 18 and 26 years (Mean = 21.27, SD = 2.21), who completed a first questionnaire from November 2019 and February 2020 (T1) and second follow-up questionnaires in March 2021 (T2). Linear mixed-effects models with time as the only fixed predictor to estimate changes in drinking quantity and frequency revealed that there was an average decrease in the quantity of alcohol consumption of 6.44 Standard Drink Units (SDU) between pre- and post-COVID-19 period and an average decrease in frequency of 3.16 days drinking (during the past two months) between pre- and post-COVID-19 outbreak. Participants with a relatively high depression level at the pre-COVID assessment ($b = -1.10, p = .306$) did not show a decline in drinking frequency, while those with a relatively low ($b = -2.91, p = .014$) or moderate depression level ($b = -2.18, p = .039$) showed significant decreases in drinking frequency. Furthermore, decreases in quantity of alcohol use were less pronounced among those participants with a relatively high level of depression ($b = -4.71, p = .003$) and more pronounced for those with a relatively low ($b = -8.32, p < .001$) or moderate ($b = -7.29, p < .001$) level of depression.

Impact on the utilization of mental health services (hospitalizations or mental health emergencies)

Rømer et al. (2021) conducted a time-trend study to assess patterns in psychiatric admissions, referrals, and suicidal behavior before and during the COVID-19 pandemic using data from hospital and Emergency Medical Services (EMS) health records covering 46% of the Danish population ($n = 2'693'924$). They compared data on the number of psychiatric in-patients, referrals to mental health services as well as suicidal behavior (such as self-harm, suicide attempts, and suicide) in the years before the COVID-19 pandemic to data during the first lockdown from March 11th and May 17th, 2020), the inter-lockdown period from May 18th – December 15th, 2020), and the second lockdown from December 16th, 2020 – February 28th, 2021. In the age group <18 , the annual number of in-patient at psychiatric clinics increased by 3.2% from 2018 to 2019 (744 vs. 768) and further by 7.4% from 2019 to 2020 (768 vs. 825). The rate of psychiatric hospitalizations among children and adolescents was increased by 11% during the pandemic ($RR = 1.11, 95\% CI [1.07; 1.15], p < .01$),

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however, this increase did not significantly exceed the pre-pandemic, upwards trend in psychiatric hospitalizations among this age group ($p = 0.78$). The rate of referrals to mental health services during the pandemic were not significantly different among children and adolescents after adjusting for multiple testing ($p = .07$), nor was itsignificantly different from the pre-pandemic trend (Ratio = 1.37, CI = 0.97 –1.93, $p = 0.28$). Hospital-recorded suicidal behavior decreased by 4.4% from 2019 to 2020 (295 vs. 282 events); however, it reached 124 events by February 28th, 2021, accounting for 46.1% of total suicidal behavior events in that period across all the age groups. In the EMS data, the age group <18 accounted for 5.2% of suicidal behavior events in 2019, 5.9% in 2020 and 9.0% in 2021 (January and February only). The weekly number of EMS-registered suicidal events was low (range = 0–8), therefore monthly counts were used and revealed no significant change in suicidal behavior after adjusting for multiple testing ($p = .06$) among the age group <18.

What impact does the containment measure “school closures” have on mental health?

Summary

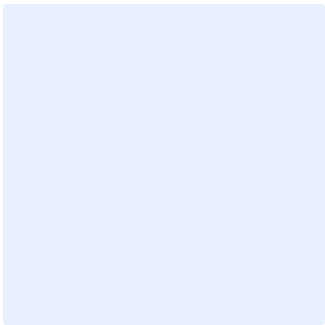
No specific studies on school closures found in this period

Number of publications:

Time period:

Results

Tbd.



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Overview and comparison of recommendations and best practice in different countries

This section will be filled in in the next report.

Summary

Number of publications:

Time period:

Results

Tbd.

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All references: .ris file

Appendix 1

Literature Search string:

(lockdown[tiab] OR social distanc*[tiab] OR social isolation[tiab] OR quarantine[tiab] OR school closure[tiab] OR public health[tiab] OR community[tiab] OR anxiety[tiab] OR depress*[tiab] OR loneliness[tiab] OR suicid*[tiab] OR mental health[tiab] OR stress[tiab] OR child abuse[tiab] OR neglect[tiab] OR disorder*[tiab] OR school[tiab] OR education[tiab] OR delay[tiab] OR learning[tiab] OR secondary pandem*[tiab] OR consequence*[tiab] OR impact[tiab] OR effect*[tiab] OR implicat*[tiab]) AND ("Coronavirus"[Mesh] OR corona[tiab] OR coronavirus[tiab] OR covid-19[tiab]) AND ("Adolescent"[Mesh] OR "Child"[Mesh] OR "Infant"[Mesh] OR child*[tiab] OR adolescen*[tiab] OR infant*[tiab] OR pediatric[tiab] OR paediatric[tiab] OR maternal[tiab] OR paternal[tiab] OR "young adult*[tiab]) AND ("Cohort studies"[MeSH] OR "cohort stud*[All Fields] OR "longitudinal studies"[MeSH] OR "longitudinal stud*[All Fields] OR longitud*[All Fields] OR "prospective studies"[MeSH] OR "prospective stud*[All Fields] OR "follow-up studies"[MeSH] OR "follow-up stud*[All Fields] OR follow-up[All Fields] OR "retrospective studies"[MeSH] OR "retrospective stud*[All Fields] OR "repeated cross-sectional"[All Fields] OR "repeatedly cross-sectional"[All Fields] OR "trend stud*[All Fields])