Brief Report: Predictors of Adolescent Mental Health and Wellbeing
During the COVID-19 Pandemic

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Acknowledgments

The TeenCovidLife Survey 1 is one of a series of studies (www.ed.ac.uk/generation-scotland/covidlife-volunteers) run by the Generation Scotland team (www.ed.ac.uk/generation-scotland) at the University of Edinburgh with support from the Wellcome Trust (216767/Z/19/Z). It was run in collaboration with the Scottish Schools Health and Wellbeing Improvement Research Network (SHINE), at the University of Glasgow.

Abstract

Purpose: This study explored predictors of COVID-19-related stress and wellbeing of Scottish adolescents during the COVID-19 lockdown to identify potentially malleable risk and protective factors.

Methods: 5,548 participants were surveyed regarding stress, loneliness, wellbeing, schoolwork, support from school, and interaction with friends and family. Multiple linear regressions within a structural equation modelling framework were fit to predict COVID-19-related stress and wellbeing during the UK's first lockdown.

Results: Loneliness, variables related to the ability to continue with schoolwork, and perceived support from school were important predictors of greater COVID-19-related stress and wellbeing during the first lockdown. Female adolescents were also more likely to show higher stress and poorer wellbeing.

Conclusions: Facilitating meaningful social interaction and ensuring the ability to continue with schoolwork, and providing social support from school should be priority strategies to help protect the mental health and wellbeing of secondary school students during lockdowns and other disruptions to school attendance.

Keywords: adolescents, stress, wellbeing, COVID-19 pandemic, lockdown

Implication and Contribution statement

This study explored key aspects of the COVID-19 lockdown that were associated with adolescents' stress and wellbeing. These findings can help inform strategies to mitigate stress and poor well-being among adolescents during lockdowns, emphasising the importance of meaningful social interactions, continuing schoolwork and of schools providing social support to pupils.

Adolescence is viewed as a critical period of psycho-social development in which peer interaction is paramount, educational milestones are reached, and there is an elevated risk of the emergence of mental health issues [1]. Given this, the impact of the Coronavirus Disease 2019 (COVID-19) measures [2], such as those designed to contain the spread of the pandemic, may have a particularly distressing effect on adolescents through isolation, lack of peer interaction, and disruption to education. Research investigating the impact of the COVID-19 lockdown on general population and students have established its negative psychological effects [3, 4]. However, to inform targeting of monitoring and prevention, and identify any potentially malleable risk factors, it is important to identify who is most at risk of poor mental wellbeing during the lockdown and what schools can do to mitigate this. The purpose of this study was thus to explore the predictors of mental health and wellbeing of Scottish adolescents during the first COVID-19 lockdown.

Methods

Participants and Measures

This study utilised ‘TeenCovidLife Survey 1’ data collected by the Generation Scotland team at the University of Edinburgh, in collaboration with the Schools Health and Wellbeing Improvement Research Network (SHINE) at the University of Glasgow: <https://www.ed.ac.uk/generation-scotland/for-researchers/covidlife>. There were 5,548 participants (3,593 female; 1,870 male), the majority of whom (n=5,439) reported being in being high-school pupils. The average age of female participants was 14.4 (SD = 1.53) and of male participants was 14.0 (SD = 1.43).

Measures are described in full at: <https://osf.io/uv6j2/>. Dependent variables were *stress due to COVID-19* (1 = ‘None of the time’ to 4 = ‘All of the time’) and *wellbeing* (0 = ‘at no time’ to 5 = ‘All of the time’), measured respectively by the Chicago COVID-19

Comorbidities (C3) Cohort Study [5], and by the 5-item World Health Organisation Wellbeing scale [6]. Candidate predictors were *Loneliness* (1 = 'None of the time' to 4 = 'All of the time'), *availability of space study* (0 = 'no' to 1 = 'yes'), *availability of a computer for study* (0= 'no', 1= 'yes'), *difficulty of schoolwork* (1 = ' Very easy' to 5 = 'Very difficult'), *keeping in touch with friends* and *keeping in touch with family* (both single items with response scales: 1 = 'Very easy' to 4 = 'Very difficult'), *support from school* (sum of three items with response scales: 1 = 'Not at all true of me' to 4 = 'Very much true of me'), and *accommodation type* (1= 'House or bungalow', 2= 'Flat or apartment', 3= 'Hostel', 4= 'Mobile home or caravan', 5= 'Sheltered housing', 6= 'Homeless', 7='Other').

Multiple regressions were conducted to predict *stress due to COVID-19* and *Wellbeing*, with all predictors entered simultaneously. Diagonally weighted least squares (DWLS) estimation was used for the former due to its ordinal categorical response scale and maximum likelihood estimation was used for the latter. Both models were fit in lavaan within R statistical software. An analysis plan was pre-registered at: <https://osf.io/ejq6n>; however, it was judged necessary/optimal to make a number of deviations based on examination of the data and emerging literature on the impact of COVID-19 since the study was pre-registered. These included: omission of ethnicity, number of rooms in home, and accommodation type as covariates. This was due to low numbers of participants in ethnic origin categories other than white categories and accommodation type categories other than 'house or bungalow' resulting in estimation difficulties. In the case of number of rooms, its omission was due to indications that participants had not correctly understood the question.

Results

Full results are at: <https://osf.io/ac83t/>. The most important predictors of *stress due to COVID-19* ($p < .001$) were (in standardised units): *loneliness* ($\beta = .44$), *difficulty of school work*

($\beta=.19$), and female sex ($\beta=.13$). The most important predictors of *wellbeing* ($p<.001$) were: *loneliness* ($\beta=-.43$), *keeping in touch with family* ($\beta=-.07$), *difficulty of school work* ($\beta=-.22$), *availability of space for study* ($\beta=.06$), *support from school* ($\beta=.12$), and female sex ($\beta=-.11$). When additionally adjusting for estimates of pre-pandemic levels of loneliness, these results were essentially unchanged.

Discussion

We investigated the predictors of stress due to COVID-19 and wellbeing of Scottish adolescents during the first COVID-19 full lockdown. The most important predictors of feeling higher stress related to the pandemic were feeling lonely, having difficulty completing schoolwork, and female sex. The most important predictors of better well-being were lower levels of loneliness, less difficulty keeping in touch with family, less difficulty completing school work, availability of space to do school work, support from school, and male sex. These findings are in line with previous studies [4, 7]. They emphasise the importance of social interactions in adolescents' mental health and highlight the significant roles of schoolwork and support received from school staff on stress related to COVID-19 and mental wellbeing.

The current study provided insights into various aspects of the COVID-19 lockdown that had a negative and positive impact on adolescents' stress and wellbeing. These findings are crucial in informing strategies to mitigate stress and poor wellbeing in adolescents in the case of future lockdowns or other disruptions to school attendance. Our results suggest that ensuring that adolescents are facilitated to continue their studies, are supported to have meaningful contact with others and feel supported by their teachers/school will be important. Further, female pupils may be especially at risk and may therefore represent priority targets for mental health monitoring and prevention efforts. Taken together, our results suggest that

schools can play an important role in protecting the wellbeing of pupils during periods where attendance is disrupted; a role which should be acknowledged in planning for potential future lockdowns. It will be important to conduct follow up surveys over time to establish how these factors affect the ability of adolescents to ‘bounce back’ as COVID-19 suppression measures ease and normal schooling returns.

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