Improvise, adapt, overcome?

The mental health and compliance of youth during the COVID-19 pandemic

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Chapter 5

Mental Health during the COVID-19 Pandemic: A One-Year Longitudinal Study in Late Adolescence and Early Adulthood

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Abstract

COVID-19 and the measures taken to contain the virus caused disruption in the lives of everyone, and particularly late adolescents and young adults may have been affected because of their developmental stage. In a sample of $N = 161$ late adolescents and young adults from the general population ($M_{age} = 21.17$, 87% female), this longitudinal study examined whether the COVID-19 duration affected mental health over the course of the first pandemic year, and whether the severity of the pandemic measures moderated this relation. When controlling for resilience and sex it was found that the duration of the pandemic was not associated with mental health, and that pandemic severity did not moderate this relation. It was also found that females reported more mental health problems and that greater resilience was associated with fewer mental health problems. Taking a mental health perspective on the impact of COVID-19 on the general population of young people, it is concluded that the various containment measures that were imposed during the first year of COVID-19 seem justified. However, it is discussed that the mental health of other (at-risk) groups may have been affected by the pandemic and the imposed measures.

Keywords: COVID-19 pandemic, Mental Health, Resilience, Late Adolescence, Early Adulthood

Introduction

When the World Health Organization (WHO) characterized the COVID-19 outbreak as a pandemic on March 11, 2020, and consequently urged governments worldwide to take measures to reduce the transmission of the virus, numerous researchers immediately expressed their worries about how measures such as quarantine and social distancing would negatively impact mental health. After all, the measures that were imposed – such as physical contact restrictions, various forms of lockdown, travel restrictions, curfews, and the requirement to wear masks – were drastic and considered to be highly intrusive for individuals (Khursid et al., 2020). Studies have suggested that disease mitigation measures to control a pandemic may increase stress levels, substance use, feelings of loneliness, and domestic abuse, but may also invoke other psychological problems, such as anxiety and depression (Clemens et al., 2020; Galea et al., 2020; Haider et al., 2020; Lewis, 2020). Although the mental health of the general population was at risk following the governmental measures that were imposed in the COVID-19 pandemic, late adolescents and young adults seemed particularly at risk for developing mental health problems (Imran et al., 2020; Liang et al., 2020). The present study aimed to examine whether the mental health of specifically late adolescents and young adults deteriorated during the first year of the COVID-19 pandemic.

During the COVID-19 pandemic, the measures that were taken to reduce the spread of COVID-19 varied over time, and ranged from relatively mild to highly intrusive measures, with far-reaching consequences for social interaction. For instance, quarantine implied that people had to socially isolate themselves whenever they experienced complaints or were diagnosed with COVID-19. Social distancing measures required that all people, even those without complaints, had to keep 1.5 meters distance from one another. During pandemic peaks even stricter measures were imposed, such as curfews and stay-at-home-obligations that stopped people, also those without complaints, from leaving their residences.

As the nature and intrusiveness of imposed measures varied during the pandemic depending on the spread of COVID-19, the mental health of adolescents and young adults may have varied as well, because their lives had been affected differently over the course of the pandemic. However, this has not been studied extensively. Many available studies focused on the first few weeks or month(s) of the pandemic in which relatively drastic and intrusive measures were imposed, such as lockdowns and curfews (Lee et al., 2020; Koning et al., 2022; Sønderskov et al., 2020; Wang et al., 2020a; Wang et al., 2020b). Moreover, these studies did not conduct substantial follow-up assessments when measures were mitigated or phased out. In addition, most studies were cross-sectional (i.e., Lee et al., 2020; Koning et al., 2022) rather than longitudinal. It is plausible to suggest that mental health problems may increase as the pandemic continues, because of the

accumulated exposure to stress induced by the containment measures and/or the spread of COVID-19 itself. Also, changes in the severity of imposed measures in terms of their intrusiveness may affect mental health, for instance because people may have felt less socially connected in periods in which relatively severe measures were imposed. As the current body of literature does not sufficiently address these issues, the present one-year longitudinal study evaluated changes in mental health during the first year of COVID-19 year. It was also examined whether the severity of imposed measures strengthened the association between the duration of the pandemic and mental health.

Most available (longitudinal) studies on the effects of the COVID-19 pandemic measures studied mental health in adults from the general population (e.g., Kämpfen et al., 2020; Marroquín et al., 2020; Zhao et al., 2020). However, several review studies suggested that younger age could be a risk factor for developing mental health problems during the COVID-19 pandemic (Loades et al., 2020; Meherali et al., 2021; Samji et al., 2022). Also, there is some empirical evidence showing that female adolescents experienced more mental health problems during the COVID-19 pandemic than male adolescents (Magson et al., 2021). It can therefore be assumed that late adolescents and young adults – and particularly young women – may have been more at risk for developing mental health problems during the COVID-19 pandemic than adults. Therefore, this study specifically focused on the mental health of late adolescents and young adults, and considered sex as a potential confounder.

The increased risk for developing mental health problems faced by late adolescents and young adults during the COVID-19 pandemic can be explained by their developmental stage, since engagement in social interaction is pivotal to their identity development. Erikson (1968) stated that one must master or resolve eight subsequent “stages of crisis” as part of the identity development, including developing a sense of identity and intimacy. The fifth stage of “Identity versus Role confusion” and the sixth stage of “Intimacy versus Isolation” take place during adolescence and young adulthood (Branje & Koper, 2018), and are both mastered and/or resolved through contact with others. During adolescence, the relationships between adolescents and their family members change as they shift towards spending more time with their peers (Kerpelman & Pittman, 2018; Magson et al., 2021). Not being able to successfully master or resolve a developmental stage can hinder identity development and poses a risk for mental health problems (e.g., anxiety, depression, loneliness) (Branje et al., 2018; Crocetti et al., 2009; Harter et al., 1996; Sandhu et al., 2012).

Social distancing measures that were imposed during the COVID-19 pandemic severely restricted opportunities for social interaction (e.g., attending social events) and intimacy (e.g., experiencing physical touch), and may have hindered identity development

of late adolescents and young adults. Although the population in general had to deal with these measures, it can be reasoned that late adolescents and young adults were at higher risk for developing mental health problems during the COVID-19 pandemic than adults, as social interaction is crucial for their development.

Particularly those who lived on their own, or those who just left their parental home, may have been negatively affected in their social interaction by measures such as lockdown or curfews. Social interactions were even more limited for single households, because stay-at-home measures and the requirement to practice social distancing with anyone outside a household were somewhat less drastic for multiple-person households. Adolescents and young adults in single households may thus have experienced even more mental health problems (Elmer et al., 2020), and therefore this study considered the living situation as a potential confounder as well.

Besides that social interaction is crucial for identity development (Branje et al., 2018; Crocetti et al., 2009; Harter et al., 1996; Sandhu et al., 2012), late adolescents and young adults greatly benefit from social interaction in the form of social support that they may receive from others. There is ample evidence that supportive relationships with others buffer against the development of mental health problems in general (Harandi et al., 2017; Vandervoort, 1999) and in late adolescents and young adults in particular (Klineberg et al., 2006). Adolescents and young adults may engage in supportive relationships with peers from which they benefit (e.g., Droogenbroeck et al., 2018; Klineberg et al., 2006; Roos & Cohen, 1987; Szkody et al., 2021), but also with adults, which is thought to have a similar buffering effect against mental health problems (Bal et al., 2003; Brady et al., 2017; Rothon et al., 2012). Particularly adults in the direct social environment of young people can fulfill a supporting role as so-called informal mentors (Van Dam et al., 2018). An informal or natural mentor is an adult in the direct social environment of an adolescent other than a parent, who helps, supports, and offers guidance to the adolescent. There is empirical evidence showing that supportive relationships with mentors, both formal and informal, are associated with greater resilience and fewer mental health problems in young people (Koper et al., 2022; Van Dam et al., 2018). In terms of identity development and supportive relationships it is thus crucial that young people engage in social interaction. When social interaction and the opportunity to benefit from supportive relationships is impeded, as was the case during COVID-19, the risk for mental health problems may increase in particularly adolescents and young adults.

Last, another factor which could have a buffering effect on developing mental health problems is resilience (Demetriou, 2021). Resilience can be described as the dynamic process of positive adaption during and after stressful life circumstances, such as the COVID-19 pandemic (Kalisch et al., 2017). Resilience has been widely research and

higher resilience levels are associated with fewer mental health problems (Gheshlagh et al., 2017; Hu et al., 2015; Ungar & Theron, 2020). Therefore, the current study also examined resilience and the availability of a natural mentor as potential confounders.

The Current Study

This one-year longitudinal study aimed to examine whether the COVID-19 pandemic duration was associated with mental health problems of late adolescents and young adults over the course of the first year of the pandemic. A second aim was to examine whether the severity of the pandemic measures moderated this relation. To address these aims, late adolescents and young adults were sampled from the general population in the Netherlands and were asked to participate in ten assessments between April 2020 and April 2021. Partly informed by empirical evidence, this study considered certain demographics (sex, age, education level, and living situation), the availability of a natural mentor, and resilience, as potential confounders in the analyses.

Methods

Participants

A total of 263 Dutch-speaking participants enrolled in the first wave of this study. Due to the longitudinal nature of this study, only those who completed at least two survey waves were included in the analyses. The final sample consisted of 161 participants (M_{age} = 21.17, SD_{age} = 2.38, range = 16 – 24 years, 87% female). Based on the guidelines of the Central Bureau of Statistics (CBS, 2024) of the Netherlands for classifying educational levels into categories, most participants followed or finished a high level of education (*n* = 128; 79.5%), some followed or finished a middle level of education (*n* = 31; 19.3%), and a few followed or finished a low level of education (*n* = 2; 1.2%). Dutch guidelines for education were used in favor of international guidelines, because the Dutch education levels are difficult to translate to international guidelines. Of all 161 participants, *n* = 37 (23.0%) lived in a single household on their own, and nearly all participants had a natural mentor (*n* = 152; 94.4 %).

Procedure

The current study was approved by the ethics committee of the Faculty of Social and Behavioral Sciences of the University of Amsterdam (2020-CDE-12058). Participants were recruited online through social media channels such as Facebook, a one-time national radio recruitment, and the website of the University of Amsterdam. The participants filled

out the survey online, because of the lockdown and social distancing measures following the COVID-19 pandemic. Participation in the study was voluntarily, and no reward was given for participation. The questionnaire was designed and shared through Qualtrics. The first questionnaire was available on April 1st 2020 and remained open for 14 days, which was during the first lockdown in the Netherlands. The subsequent measurement waves were instigated by a change in nature of the imposed (preventive) measures, meaning that measures were sometimes more severe and at other times less severe depending on the spread of COVID-19. Participants could complete each wave within 7 days after a survey wave was initiated, which occurred more often in the first several months of the COVID-19 pandemic and less often in the following months of the first year of the pandemic. The final measurement wave, one year after the start of the COVID-19 pandemic, became available on March 31st, 2021, and remained open for 14 days. For all specific dates and the corresponding risk levels during each time period as stated by the Dutch government, see Appendix 1.

Instruments

The respondents were asked about their mental health problems and their degree of resilience, by means of standardized and validated questionnaires (T1-T10). In addition, questions were asked about demographics (sex, age, education level, and living situation; T1), and availability of a natural mentor (T1 and T10). The questionnaire was in Dutch and comprised Dutch translations of standardized questionnaires. Pandemic severity was operationalized using the risk levels as stated by the Dutch government, where a high risk level corresponded with greater pandemic severity (see Appendix 1).

Symptom Checklist-27 (SCL-27)

Mental health problems were assessed with the Dutch translation of the Symptom Checklist-27 (SCL-27), which is an abbreviated version of the Dutch SCL-90-R (Arrindell & Ettema, 2003) and a multidimensional screening questionnaire for mental health symptoms. The SCL-27 contains 27 items, divided over six scales that assess depressive symptoms, dysthymic symptoms, physical symptoms, symptoms of agoraphobia, symptoms of social phobia, and symptoms of distrust. For the current study, only the total scale was used as we were interested in mental health in general rather than specific mental health symptoms. Items were responded to on a 5-point Likert scale ranging from (1) ‘not at all’ to (5) ‘a lot’. A mean item score was calculated for each participant. The SCL-27 has been validated in the Dutch population (Koning et al., 2025), and showed excellent reliability in the current study (range α = .92 - .96).

Child and Youth Resilience Measure-12 (CYRM-12)

Resilience was assessed using the Child and Youth Resilience Measure-12 (CYRM-12), an abbreviated version of the CYRM-28 (Liebenberg et al., 2013). The CYRM-12 contains 12 items across three scales that measure individual capabilities/ resources, relationships with primary care givers, and contextual factors that facilitate a sense of belonging. Respondents replied to items on a 5-point Likert scale ranging from (1) 'not at all' to (5) 'a lot'. A mean score was calculated for each participant. The validity and reliability of the Dutch translation of the CYRM-12 has shown to be moderate and improved by removing two items that showed insufficient fit (Koning et al., 2025). Therefore, the current study used the Dutch 10-item CYRM, excluding items 1 and 2, which showed good reliability in the current sample (range α = .78 - .87).

Natural Mentor Questions

Participants were asked whether or not they had a supportive relationship with a natural mentor. This question was asked in the first (T1) and last (T10) survey wave. The question was: 'In addition to your parents, do you have someone you trust, and who you turn to for advice?'.

Statistical Analyses

First, descriptive statistics were obtained to gain insight in the means and standard deviations of the studied variables. Next, to answer the research questions, a series of multilevel regression analyses were performed in Mplus 8.7 (Muthén & Muthén, 1998-2017), also referred to as hierarchical linear models, to account for the nested structure of our data. More specifically, two-level models were examined in which measures (Level 1) were nested within participants (Level 2). The intraclass correlation (ICC) at Level 2 was 0.817. We performed four sets of regression analyses. First, in Model 1, we examined the significance of the covariates (participants' level of resilience, age, sex, and living situation). In this model, whether or not participants had a natural mentor and the education level of participants could not be considered as a covariate due to insufficient variance (i.e., 79.5% of participants followed or finished a high level of education and 94.4% had a mentor). Only significant covariates were included in subsequent models. In Model 2, we examined the relation between pandemic duration (time in days) and mental health problems, both without and with covariates (Model 2a and Model 2b, respectively). Next, in Model 3, we tested whether pandemic severity moderated the relation between the duration of the COVID-19 pandemic (time in days) and mental health. Again, we tested this moderator effect without and with covariates (Model 3a and Model 3b). For

interpreting the results at Level 1, the within-person correlated change was used.

In all analyses, $p < .05$ was considered as statistically significant. The effect sizes of models are reported using explained variance (R^2 values); 0.02 was considered small, 0.13 medium, and 0.26 large (Cohen, 1998). Full information maximum likelihood estimation was used to deal with observations with incomplete or missing data. All models were saturated and therefore had a perfect fit, thus, fit statistics are not reported.

Results

Preliminary analyses

Descriptive statistics of the variables of main interest – i.e., pandemic severity and mental health problems - are shown in Table 1 for each measurement wave. Table 1 also reports on the number of participants, the sex distribution, and the mean resilience scores per wave. The average resilience score of the participants varied from 3.94 to 4.15 (see Table 1), corresponding to a score of 'quite a bit' on the 5-point Likert Scale. Although no reliable norm scores were available for the resilience instrument, average scores may indicate fairly high resilience from the perspective of the meaning of scale scores, and because all participants rated themselves at the positive end of the resilience scale.

Table 1

Descriptive statistics for each measurement wave

Wave	Pandemic severity	*n* per wave	Sex distribution	Mental health problems *(M, SD)*	Resilience *(M, SD)*
1	4	161	87.0% female	1.91 (0.65)	4.15 (0.49)
2	4	121	85.1% female	1.84 (0.66)	4.15 (0.49)
3	3	107	85.0% female	1.89 (0.67)	4.12 (0.50)
4	2	98	88.8% female	1.78 (0.56)	4.13 (0.50)
5	1	74	87.8% female	1.78 (0.69)	4.05 (0.49)
6	1	70	87.1% female	1.91 (0.71)	4.05 (0.60)
7	3	62	85.5% female	1.91 (0.68)	4.02 (0.56)
8	4	56	85.7% female	1.94 (0.65)	4.10 (0.56)
9	4	54	87.0% female	1.81 (0.61)	3.94 (0.63)
10	4	54	87.0% female	2.00 (0.63)	4.05 (0.57)

Note. Pandemic severity was expressed as the risk level as stated by the Dutch government (see Appendix 1). Mean mental health problems and mean resilience could vary between 1 and 5.

Model 1: Covariates

The analyses showed that resilience and sex were significant covariates of mental health problems. Resilience was negatively related to mental health problems, indicating that a higher resilience was associated with fewer problems β = -0.49, *SE* = 0.07, p < .001. Females (*M* = 1.93, *SD* = 0.66) reported more problems than males (*M* = 1.54, *SD* = 0.49), β = 0.22, *SE* = 0.07, p = .002, indicating that sex was associated with mental health problems. Therefore, resilience and sex were included as covariates in subsequent analyses. Age and living situation were not significant and thus dropped in consequent analyses (p = .405 and p = .809, respectively).

Models 2a and 2b: Duration of the pandemic and mental health

We examined pandemic duration as predictor of mental health problems in a model without covariates (2a) and with covariates (2b). Model 2a revealed pandemic duration as a significant predictor of mental health problems, β = 0.93, *SE* = 0.05, p = .035. The regression coefficient demonstrated that participants reported more mental health problems as the pandemic progressed. The within-effects of this model were extremely small (R^2 = 0.01). Yet, Model 2b showed that pandemic duration was not a significant predictor of mental health problems when controlling for resilience and sex, β = 0.53, *SE* = 0.04, p = .189. Including these covariates significantly improved model fit, $\Delta\chi^2$ (2) = 32.19, p < .001. The within-effects of this model were medium in size (R^2 = 0.23).

Models 3a and 3b: Pandemic severity as moderator of the association between duration of the pandemic and mental health problems

We examined pandemic severity as a moderator of the association between pandemic duration and mental health problems in a model without covariates (3a) and with covariates (3b). Model 3a revealed that pandemic severity does not significantly moderate the association between pandemic duration and mental health problems, β = -0.29, *SE* = 0.22, p = .181. The within-effects of this model were small (R^2 = 0.02). Similarly, Model 3b showed that pandemic severity was not a significant moderator when controlling for resilience and sex, β = -0.27, *SE* = 0.18, p = .124. Including these covariates significantly improved model fit, $\Delta\chi^2$ (2) = 38.42, p < .001. The within-effects of this model were medium (R^2 = 0.26).

Discussion

This one-year longitudinal study aimed to examine whether the duration of the COVID-19 pandemic was associated with mental health problems in Dutch-speaking late adolescents and young adults from the general population, and whether the severity of the pandemic measures moderated this association. The results suggested that the duration of the pandemic in days since the first lockdown in the Netherlands was not associated with mental health problems, and that the strength of this non-significant association was not influenced by pandemic severity. This implies that pandemic duration was not related more (or less) strongly with mental health problems as the severity of the pandemic measures increased (or decreased). We also found that participants with high levels of resilience reported fewer mental health problems, and that females reported more mental health problems than males. Moreover, both resilience and sex explained more variance in mental health problems than the duration of the pandemic, and therefore seem more important in predicting mental health. In terms of mental health, these results suggest that late adolescents and young adults dealt rather successfully with the COVID-19 pandemic, and the invasive governmental measures that were imposed to protect the population against the spread of COVID-19.

The current results are in line with several other longitudinal studies that were conducted during the first year of the COVID-19 pandemic and found that the mental health of late adolescents and young adults from the general population was not affected by the COVID-19 pandemic (Joensen et al., 2022; Măirean et al., 2023; Van Zyl et al., 2021). The current results also align with a meta-analysis that quantitatively synthesized longitudinal studies from Western countries that examined the impact of the COVID-19 pandemic on the mental health of late adolescents and young adults in the general population (Koning et al., 2024). They found no overall effect of the COVID-19 pandemic on any of the 13 aspects of mental health they examined, including anxiety, depression, and stress, nor any indication of publication bias.

In contrast, a systematic qualitative review including research on mental health changes during the first 8 months of the COVID-19 pandemic showed that most late adolescents and young adults did experience a deterioration of their mental health during the pandemic compared to the pre-pandemic period (Kauhanen et al., 2023). These researchers took a descriptive and qualitative approach to their synthesis of primary research rather than a quantitative as performed by Koning et al. (2024). The systematic review revealed that the deterioration in mental health was worse for females and for those with pre-existing mental health problems (Kauhanen et al., 2023). Other studies also reported a decrease in mental health of late adolescents and young adults, yet this deterioration occurred only during the first few months of the pandemic, but returned

to pre-pandemic levels over the course of 12 through 16 months (Gagné et al., 2021; Graupensperger, Calhoun, Fleming et al., 2022; Graupensperger, Calhoun, Patrick et al., 2022). A similar increase in mental health problems was found in a meta-analysis examining children and youth under 18 (Deng et al., 2023), which synthesized 191 studies and examined (changes in) mental health by examining the prevalence of various mental health problems, such as depression or sleeping problems. They found higher prevalences of mental health problems when comparing results with findings from a previous meta-analysis on pre-pandemic data (Racine et al., 2021), thus suggesting an increase. Additionally, they observed an increase over time during the pandemic, but also reported signs of stabilization and recovery (Deng et al., 2023).

Many of the longitudinal studies only focused on the first months of the COVID-19 pandemic (e.g., Daly et al., 2020; Hamza et al., 2021) instead of the entire first year as the current study does. Additionally, most studies did not measure resilience in addition to mental health problems. The current study shows resilience is an important factor when examining mental health. The present study comprised of a sample which reported high resilience scores, which is in line with overview studies that show Dutch youth are generally doing better internationally in terms of life satisfaction, general wellbeing, and their social context (Boer et al., 2022). This may explain why no deterioration in mental health was found.

Taken together, the current study, the longitudinal studies, the systematic review (Kauhanen et al., 2023), and the meta-analyses (Deng et al., 2023; Koning et al., 2024) provide no conclusive evidence whether mental health of late adolescents and young adults from the general population in Western countries was affected over the course of the first year of COVID-19. However, the possible long-term effects of the COVID-19 pandemic on mental health remains unclear. To our knowledge, there are no longitudinal studies available that examined the mental health of late adolescents and young adults from the general population during the full three pandemic years, which makes it difficult to draw conclusions about the long-term effects. Therefore, conclusive or robust evidence that the COVID-19 pandemic affected the mental health of late adolescents and young adults from the general population in the long run remains scarce, although research showing no negative short-term effects is accumulating (i.e., Knowles et al., 2022; Stamatis et al., 2022).

Strengths and Limitations

This study has various strengths, the first being that the study is longitudinal even though it only covered the first year of the pandemic. As such, this study adds to the literature as most studies on mental health of young people during COVID-19 were cross-sectional (i.e., Al Omari et al., 2020; Koning et al., 2021; Rauschenberg et al., 2021). Second, this study focused on a mixed age group, which is underrepresented in research on the effects of COVID-19 on the mental health of youth. In the current sample of participants (aged 16-24 years) there are both students who attended school or college and those who were already employed. This increases generalizability, as most studies only focused on adolescents (10-18 years), students, or on (working) adults (18 years or older). Third, this study took the severity of the imposed measures into account, as it was reasoned that stress intensity may depend on the severity of measures.

This study has also some limitations. The main limitation is that a substantial part of the sample consisted of highly educated females, which limited the generalizability of the results to males and young people with lower levels of education. This is particularly the case, as empirical evidence showed that females were more at risk of mental health problems during the COVID-19 pandemic than males (Kauhanen et al., 2023). Second, we experienced a high level of drop-out from the first (wave 1) to the last measurement (wave 10; about 80%). Additionally, there was only a limited number of participants who filled out the questionnaire in each wave, leading to missing data. This limited generalizability as well. Yet, we were able to use all data from youth participating in at least two measurement waves by using a hierarchical or multilevel analysis approach in which waves were nested within participants. Third, the data were obtained in only the first year of the COVID-19 pandemic, whereas the full pandemic lasted over three years (11 March 2020 – 5 May 2023; World Health Organization, 2024). Therefore, the results of this study cannot be generalized to the full course of the COVID-19 pandemic. It may be that a mental health effect was absent during the first year of the pandemic, but that the pandemic might have taken its toll on the mental health of late adolescents and young adults in the long run – although there is no confirming evidence to this to date. Longitudinal data obtained during the entire duration of the pandemic need to be analyzed to draw more firm conclusions. Last, the first measurement wave of this study took place after the spread of COVID-19 had already been declared a pandemic. Therefore, no pre-pandemic data were available, and no conclusions can be drawn about changes in mental health before and during the pandemic.

Implications

The results of this study have practical implications for policymakers and clinical practice. First, the current results suggest that the mental health of late adolescents and young adults in the general population was not affected by the duration of the pandemic, and that this association was not influenced by the severity of the pandemic. Therefore, the preventive measures taken by the Dutch government to prevent the spread of the COVID-19 may have been justified from a mental health perspective, but more information from other perspectives (e.g., medical or economical) is needed to draw conclusions about justification. The preventive measures that were put in place to contain the spread of COVID-19 saved many lives of particularly the most vulnerable (e.g., Deb et al., 2020; Talic et al., 2021), while on average, these measures did not affect the mental health of late adolescents and young adults of the general population. These youth may have been sufficiently resilient to deal with the invasiveness and the duration of the preventive measures. This could explain why the current study did not find an increase in mental health problems, as the sample showed high resilience scores. However, it is important to stress that there is empirical evidence suggesting that youth from clinical populations did suffer from preventive measures that were taken during the COVID-19 pandemic (Fischer et al., 2023; Kleine et al., 2023; Zijlmans et al., 2023).

Conclusion

This study did not find that the mental health of Dutch late adolescents and young adults from the general population deteriorated during the first year of the COVID-19 pandemic. Also, no evidence was found that this association was influenced by the severity of the measures that were imposed by the Dutch government to contain COVID-19. The adolescents and young adults in this study showed rather high levels of resilience, which may have helped them in coping with the pandemic and the measures, and may have buffered against the development of mental health problems. Our findings suggest that the COVID-19 pandemic did not have short-term negative effects on mental health of young people, but it seems evidence concerning this topic is not univocal. Future research could expand on the potential role that resilience may have played during COVID-19, which may be useful for guiding mental health policy and care in stressful situations such as a pandemic.

Appendices

Appendix 1

Specific dates and risk level for each measurement wave

Measurement wave	Date	Risk Level
1	1 April 2020 – 15 April 2020	4
2	24 April 2020 – 30 April 2020	4
3	14 May 2020 – 20 May 2020	3
4	11 June 2020 – 17 June 2020	2
5	6 July 2020 – 12 July 2020	1
6	14 September 2020 – 20 September 2020	1
7	20 October 2020 – 26 October 2020	3
8	16 December 2020 – 22 December 2020	4
9	27 January 2021 – 02 February 2021	4
10	31 March 2021 – 13 April 2021	4