# The State of Strength Use and Positive Affect during the Coronavirus Pandemic

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## Abstract

*Background*: Young adults are experiencing extra or amplified burdens during the coronavirus pandemic and consequential lockdown. Mental resources like positive affect and strength use have been found to be helpful in the past to overcome many of the pandemic related burdens. It has yet to be investigated if the pandemic impacted these resources and their possible association.

*Objective:* This study investigated the state and association of positive affect and strength use in young adults during the coronavirus pandemic.

*Methods:* This quantitative study used secondary data from two studies (April and November of 2020) conducted during the pandemic. The data included strength use and positive affect measurements utilising the Strength Use Scale and the standard and short-form Positive Affect and Negative Affect Schedule version. The participants (*N* = 232) also provided demographical data. The data was analysed with an independent sample t-test and a moderated multiple regression.

*Results:* The data indicated that the positive affect of young adults was higher in data set 2 and that strength use was higher in data set 1. An association between strengths use and positive affect was found. The group affiliation (data sets 1 or 2) did not impact the association between strength use and positive affect. The covariate age was negatively associated with positive affect.

*Conclusion:* The current study's findings indicate that the coronavirus pandemic could facilitate positive affect and restrain strength use. However, a future within-subject study would be necessary to confirm these implications. Altogether, the results show that strength use and positive are essential resources for young adults during the coronavirus pandemic.

**The State of Strength Use and Positive Affect during the Coronavirus Pandemic**

On January 30, 2020, the World Health Organisation (WHO) declared a public health emergency, their highest level of warning (World Health Organisation, 2020a). The announcement of a health emergency came as a reaction to the global coronavirus spread. The viral pneumonia, also called COVID-19 (World Health Organisation, n.d.), lead to a heightened risk of hospitalisation, with age and pre-existing conditions being risk-increasing factors (Garg et al., 2020; Wang, Horby, et al., 2020). Extreme coronavirus cases lead to "respiratory failure, septic shock, and/or multiple organ dysfunction/failure" (World Health Organisation, 2020b) and death. The transmission of the alarming virus happened by human-to-human physical contact, contaminated objects, contact with contaminated breathing droplets, or the aerosol of human breath, regardless of the distance between the people (Robert Koch Institut, 2021; World Health Organisation, 2020c). Since human contact was a vital element in the disease's dispersion, the WHO (2020d) advised the world population to reduce human-to-human contact as much as possible.

Many countries followed the advice of the WHO and implemented restrictions on human-to-human interaction by implementing various measures involving lockdowns of different degrees (International Monetary Fund, n.d.; World Health Organisation, 2020d). A lockdown consists of various large-scale restrictions that enforce physical distancing and travel reduction (Haug et al., 2020; World Health Organisation, 2020d, World Health Organisation, 2020e). In contrast to measures like quarantine or isolation, which are contact avoidance for people who have been interacting with infected individuals or are diseased (World Health Organisation, 2020f), a lockdown is a global and longer-lasting measurement affecting all individuals regardless of illness status (World Health Organisation, 2020d). Research has yet to identify how the months-long lockdowns effect individuals, compared to the shorter concepts of quarantine and isolation.

Although lockdowns were effectively confining the coronavirus, the loss of social life, daily routine, and autonomy became a harmful experience for many individuals (Haug et al.,

2020; Khan et al., 2020). The economic burdens of the lockdown were high, and many people experienced negative psychological effects because of the combination of pandemic and lockdown (Haug et al., 2020; Khan et al., 2020; Vardoulakis et al., 2020). Furthermore, Jeong et al. (2016) revealed that isolation could lead to emotions like anxiety or anger, and Liu et al. (2012) suggested that the experience of a pandemic related isolation can increase the likeliness of developing depression for people with previous traumatic experiences, three years after the isolation. Brooks et al. (2020) highlighted in their literature review on quarantine that the psychological impact of quarantine on individuals could be broad and persist over a long period. Since many people reduced their contact with others and stayed at home in lockdown, they were at higher risk of experiencing anxiety regarding their and other people's health, facing symptoms of acute stress disorder, being fatigued, and experiencing insomnia more frequently (Bai et al., 2004; Balkhi et al., 2020). Dubey et al. (2020) hypothesised that these side effects of the coronavirus pandemic might lead to severe long-time consequences and impact people's mental health in various ways (Kira et al., 2020).

The vulnerable and challenging nature of being a young adult left this age group especially exposed to long-term harm due to the pandemic and the lockdown. Young adulthood was identified as a critical life stage for personal, interpersonal, educational, and career development (Arnett et al., 2014; Barr et al., 2016; Lee et al., 2020). In the literature, young adulthood refers to a period of transition and uncertainty in various life areas (Barr et al., 2016; Lee et al., 2020). Many of those transitions held a danger of developing possibly unhealthy behaviours or thoughts (Centers of Disease Control and Prevention, 2021; Lee et al., 2020; Patrick et al., 2018). The challenges presented due to COVID-19 intensified the natural dangers of transitions. For example, the difficulties of navigating educational goals and challenges were deepened by lockdown-related delays in academic activities, like internships, studying abroad, or loss of in-person learning (Badri, 2021; Dubey et al., 2020; Greene & Maggs, 2017; Wang, Jing, et al., 2020). Another example was the struggle

associated with finding, maintaining, and ending interpersonal connections (Barr et al., 2013; Barr et al., 2016; Patrick et al., 2018). Young adults experienced more loneliness during the coronavirus pandemic compared to older adults and themselves before the pandemic (Lee et al., 2020; Luchetti et al., 2020). Loneliness enlarged the risk of having depressive symptoms, negative affect, and suicide (Cacioppo et al., 2006; Egloff et al., 2003; Killgore et al., 2020; Stravynski & Boyer, 2001). In general, young adults' experience of psychological distress grew with the pandemic (McGinty et al., 2020). Overall, the literature showed that young adults were confronted with many obstacles due to the COVID-19 pandemic.

Positive affect was a well-documented cognitive factor that could facilitate healthy emotional and mental development and might have supported young adults with the obstacles they were facing. It was described as a hedonic and pleasant temporary feeling that encouraged resources (DeYoung et al., 2007; Fredrickson, 1998; Hunt et al., 2021). Growing positive emotions could enhance decision-making, problem-solving and information processing (Isen & Means, 1983). Additionally, positive affect encouraged flexible thinking and proactive coping decisions (Greenglass & Fiksenbaum, 2009; Isen et al., 1987; Miao et al., 2017; Wu et al., 2021).

The beneficial values of positive affect could have supported young adults during COVID-19. Positive affect assisted young adults in their education and work-life by promoting job-related decision-making abilities, self-esteem in their career decisions, as well as goal achievement, goal control, and expectations (Griskevicius et al., 2010; Haase et al., 2012; Isen & Means, 1983; Park et al., 2019). Moreover, they supported the social needs of young adults by, for example, reducing social dysfunction or facilitating potent, long-lasting social resources (Badri et al., 2021; Keltner & Bonanno, 1997). Furthermore, positive emotions could have fostered the protection and the recovery from psychological stress and negative affect that young adults were experiencing during the coronavirus pandemic (Monfort et al., 2015; Sewart et al., 2019; Zautra et al., 2005). Also, positive affect could shield from the physiological impact of negative emotions (Fredrickson et al., 2000; Zautra et

al., 2005). Prior research investigated the benefits of positive affect. The results indicated a possibly beneficial effect for multiple facets of life, which might have been more burdened due to the coronavirus pandemic. However, it had not yet been established whether positive affect was a reliable resource during the pandemic. To evaluate positive affect as a resource during the coronavirus pandemic, the state of the mental component during the pandemic needed to be analysed.

Besides the general level of positive affect, it was vital to examine possibilities to enhance positive affect as a resource during the coronavirus pandemic. Strength use has been found to promote positive affect (Wood et al., 2011). The term strength use referred to the level of utilisation an individual showed of their character strengths (Govindji & Linley, 2007). Wood et al. (2011) proposed a definition of character strength: a particular cognitive or physical trait that empowers an individual to achieve much of their goals or to their best abilities. The mere possession of such a trait could already benefit the individual or the group surrounding them (Peterson & Seligman, 2004). However, only the application of the strength could achieve the full scale of empowerment and benefit (Wood et al., 2011). By instinctively using their character strengths, a person obtained lesser distress and more well-being and self-esteem. Furthermore, high levels of strength use were associated with being energised, satisfied and achieving one's accomplishments (Dubreuil et al., 2014; Linley, 2008; Linley et al., 2010; Peterson & Seligman, 2004; Proctor et al., 2011; Seligman & Csikszentmihalyi, 2000; Wood et al., 2011). In addition, it made personal growth and development more likely and might have been a guarding factor from negative affect (Dollard & Bakker, 2010; Matsuguma et al., 2018). Although it had advantages for people in multiple facets of life, strength use was not studied widely. The association between positive affect and strength use in young adults has yet to be discussed (Wood et al., 2011).

**Research Question**

This paper aims to explore the ways in which positive affect and strength use affect young adults during the pandemic (*"How does the coronavirus pandemic influence strength*

*use and positive affect of young adults?"*). In order to determine positive affect's and strength use's values as resources for young adults during the pandemic, the conditions of the resources are required to be examined. Therefore, the study will compare the level of positive affect and strength use at the beginning and later during the pandemic. Furthermore, the association between positive affect and strength use will be examined. The hypotheses to answer the research question are:

*Hypothesis 1: The utilisation of character strengths in young adults impacts their positive affect.*

*Hypothesis 2: The potential impact that the utilisation of character strengths has on the positive affect of groups of young adults is the same at the beginning of the coronavirus pandemic compared to a posterior phase.*

*Hypothesis 3: The positive affect of young adults remaind the same at the beginning of the coronavirus pandemic, compared to young adults in a posterior phase of the pandemic*.

*Hypothesis 4: Young adults' utilisation of character strengths remains the same at the beginning of the coronavirus pandemic, compared to young adults in a posterior phase of the pandemic.*

# Methods

## Design

The current study used secondary data from two phases of the pandemic, collected between April 2, 2020, and April 25, 2020, as well as between November 11, 2020, and November 25, 2020. To examine positive affect and strength use during the first lockdown period, this study used the data set by Bechler (2020). The later period was represented by the data collected by Westerneng (2021). In the following, the data set by Bechler (2020) will be called data set 1 and the data set by Westerneng (2021) data set 2. The studies for data sets 1 and 2 were cross-sectional surveys using an online questionnaire and were approved by the Ethics Committee of the Faculty of Behavioural, Management and Social Science (BMS) at the University of Twente (application number: 200274 and 201255).

## Participants

Participants were recruited as follows. Both datasets used convenience and snowballing sampling as their sampling methods. The tools used for the recruitment of participants partly differed between the studies. Data set 1 employed Facebook and the SONA system, a website providing students from the BMS department of the University of Twente with study credit in return for study participation (Bechler, 2020) and data set 2 recruited through personal contacts and the SONA system (Westerneng, 2021).

Data set 1 included 181 participants between the ages of 10 and 69, and data set 2 included 77 young adults between 17 and 33 years old. For the secondary analysis, all participants were combined into one sample. Cases were included only if they were at least 18 years old but not older than 30 years. This inclusion criterion was chosen because the topic of the study is the strength use and positive affect in young adults. Young adults in this study are defined as being between 18 and 30 years old (Rokach, 2018; Victor & Yang, 2012).

Besides the criteria on age, participants were excluded for not filling in the survey beyond the demographical data. The inclusion and exclusion criteria specific for the original

studies of data sets 1 and 2 prevented some participants from filling in the entire survey. Therefore, some participants could not fill in the rest of the study. For all other participants, pairwise exclusion was chosen for missing data since it shows higher power than listwise deletion (Lang & Little, 2018).

**Procedure**

Both studies used Qualtrics to send a one-time online survey to participants. Consenting, eligible participants filled out the Satisfaction with Life Scale (SWLS), the Strength Use Scale (SUS), the Positive and Negative Affect Schedule (PANAS) and the Virtue in Action-72 (VIA-72) for data set 1 (Bechler, 2020). For data set 2, the SUS, positive half of the Positive and Negative Affect Schedule Short Form (PANAS-SF), Utrecht Work Engagement Scale (UWES-S) and Mental Health Continuum Short Form (MHC-SF) were completed (Westerneng, 2021). The current study uses the results of the positive scales of the PANAS and PANAS-SF, as well as the results from the SUS.

**Measurement**

***The Strength Use Scale***

In order to measure the individual's strength use, both data sets 1 and 2 applied the SUS. This questionnaire incorporated 14 items, which measure the opportunities to utilise strengths and the behaviours surrounding strength use (Govindji & Linley, 2007). Examples were questions such as: "I am regularly able to do what I do best" or "I use my strengths to get what I want out of life". Participants reported about their strength use on a 7-point Likert scale from 1 ("strongly disagree") to 7 ("strongly agree"). The final score was a mean score of all items, with higher means indicating more frequent strengths use. The level of validity and reliability was sufficient (Govindji & Linley, 2007; Wood et al., 2011). The Cronbach's alpha of data set 1 in the current study was $\alpha$ = .905, and for data set 2, it was $\alpha$ = .903.

***The Positive Affect and Negative Affect Schedule***

The current study utilised the positive subscale of the PANAS and the PANAS-SF to measure the participants' subjective well-being. Two different versions of this questionnaire

were used because for data set 1, the PANAS was used, and for data set 2, the PANAS-SF. The PANAS consisted of 20 questions on two subscales (positive and negative affect), with each ten items (Watson et al., 1988). The PANAS-SF consisted of ten items (Mackinnon et al., 1999), five for each subscale. The positive subscale included items of positive affect such as “inspired” or “alert”. The items consisted of emotions, rated on a 5-point Likert scale on their experienced intensity (Mackinnon et al., 1999; Watson et al., 1988). The scale went from 1 (“very slightly or not at all”) to 5 (“extremely”), indicating the experience of the emotions. The scores from each subscale were summed up and used to determine two total scores, one for each subscale. The reliability of both subscales was high for the PANAS (Merz et al., 2013). For data set 1, the Cronbach’s alpha of the PANAS was $\alpha = .792$. In comparison, the reliability of the PANAS-SF was “acceptably high” (Mackinnon et al., 1999). The Cronbach’s alpha of the current study was $\alpha = .552$.

**Data Analysis**

While preparing the data of data sets 1 and 2, unused variables were excluded, and dummy variables for gender were generated. Moreover, participants that did not comply with the inclusion and exclusion criteria were excluded, and missing values were labelled and excluded pairwise. Next, mean sum score variables for strength use and positive affect were calculated. When all of these steps were completed, a new dataset with the age, gender dummies, strength use mean sum scores and positive affect mean sum scores was prepared. In the final dataset, descriptive and inferential statistical analyses were conducted. Descriptive statistics were used to describe demographic data, as well as strength use and positive affect.

To answer the research question (“*How does the coronavirus pandemic influence the strength use and positive affect of young adults?*”), an independent sample t-test and a moderated multiple regression were conducted. The independent sample t-test compared the strength use of a group of young adults at the beginning of the pandemic with the strength use of another group of young adults a few months later (hypothesis 4). The

analysis was conducted in IBM SPSS Statistics 26.0. The moderated multiple regression analysed positive affect in the beginning and later in the pandemic (hypothesis 3), a potential association between strength use and positive affect (hypothesis 1), and how the pandemic possibly interacted with the hypothetical relationship (hypothesis 2). Age and gender were included in the moderated multiple regression as covariates. The moderated multiple regression analysis is conducted with the PROCESS macro tool developed for the IBM SPSS Statistics 26.0 program by Andrew Hayes (2013).

## Results

### Descriptive statistics

A total of 258 young adults partook in data sets 1 and 2; however, 26 participants were excluded because they were too young (N=3), too old (N=4), or they did not complete the questionnaire beyond the demographics (N=19). The inclusion and exclusion criteria resulted in a final *N* = 232. Overall, 157 (67.7%) women, 73 (31.5) men, and 2 (.9) people identifying as other participated in the current study. The average age of young adults in this study was 21.91 years old (*SD* = 2.53). Table 1 shows the mean, standard deviation, minimum, and maximum of strength use and positive emotions. The occupation of the participants in data set 1 varied between being employed (N= 24), self-employ (N=1), being a student (N=149) and no occupation (N=1). The data set 2 included merely students (N=76).

**Table 1**

*Descriptive Statistics of Positive Affect, Strength Use and Age*

| | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| Positive Affect | | | | |
| Data Set 1 | 1.50 | 4.50 | 3.20 | .65 |
| Data Set 2 | 1.80 | 4.80 | 3.42 | .64 |
| Combined | 1.50 | 4.80 | 3.27 | .66 |
| Strength Use | | | | |
| Data Set 1 | 2.93 | 6.93 | 5.02 | .78 |
| Data Set 2 | 2.00 | 6.00 | 4.03 | .78 |
| Combined | 2.00 | 6.93 | 4.70 | .90 |
| Age | | | | |
| Data Set 1 | 18.00 | 29.00 | 22.34 | 2.17 |
| Data Set 2 | 18.00 | 30.00 | 20.85 | 2.64 |
| Combined | 18.00 | 30.00 | 21.80 | 2.31 |

## Main analysis

### *Independent T-test*

The data fulfilled the assumptions of the independent sample t-test. The independent sample t-test was conducted to compare strength use over multiple months during the coronavirus pandemic. The analysis revealed a significant difference between data set 1($M$ = 5.02, $SD$ =.78) and data set 2 ($M$ = 4.03, $SD$ = .78); $t(230) = 9.105$, $p < .001$. The means signalled that the strength use of people was significantly lower in the later phase of the pandemic.

### *Moderated multiple regression*

In the process of checking for the assumptions for the moderated multiple regression, five more cases were excluded from this calculation because they were identified as outliers to the extent that made exclusion necessary. After this, all assumptions were met.

The moderated multiple regression was performed to determine whether the interaction between strength use and positive affect was impacted by the belonging to the group in data set 1 or data set 2. Age and gender were covariates. The overall model was significant, $F(5, 221) = 15.63$, $p < .001$, $R2 = .2612$ and explains the variance in positive affect with 26.12%.

The interaction effect should have indicated whether the interaction between strength use and affiliation with a group (data sets 1 or 2) predicts positive affect in a significant manner. The analysis did not show that the connection with the early-pandemic group or the later-pandemic group moderated the effect between strength use and positive affect significantly, $b = -.1404$, $t(221) = -1.29$, $p = .1968$.

Besides the interaction effect, there were found the simple effects between strength use and positive affect, group affiliation and positive affect and the covariates and positive affect. These simple effects revealed a significant relationship between positive affect and strength use, $b = .4793$, $t(221) = 7.26$, $p < .001$, group affiliation, $b = .378$, $t(221) = 3.599$, $p <$

.001 and age, $b$ = -.099, $t(221)$ = -5.068, $p$ < .001. Gender, on the other hand, did not have a significant relationship with positive affect, $b$ = -.135, $t(221)$ = -5.068, $p$ = .102. These findings indicate that strength use, affiliation with group and age did impact positive affect. Rising levels of strength use were associated with higher levels of positive affect. The latter measured group of young adults showed a higher positive affect level than the group at the pandemic's beginning. In addition, increasing age was negatively associated with positive affect.

***Post hoc analyses***

A Mann-Whitney U test was conducted post hoc to determine whether there was a critical difference of age between data sets 1 and 2. The distributions between both groups differed, Kolmogorov-Smirnov $p$ < .001 and the Mann-Whitney U test indicated that there was a significant difference between the age in data set 1 ($M_{Rank}$ = 131.01) and data set 2 ($M_{Rank}$ *= 77,38)*, $U$ = 2943.50, $Z$ = - 5.79, $p$ < .001, $r$ = - 0.38. The mean ranks demonstrate that the participants in data set 2 are significantly younger than in data set 1.

## Discussion

The coronavirus pandemic and the consequential lockdowns worldwide created various stressors, including social isolation. These obstacles were especially harmful to young adults (Barr et al., 2013; Barr et al., 2016; Dubey et al., 2020; Lee et al., 2020; Luchetti et al., 2020; McGinty et al., 2020; Patrick et al., 2018; Wang, Jing, et al., 2020). Many of the negative effects on mental health could potentially be lessened by a high level of positive affect (Badri et al., 2021; Griskevicius et al., 2010; Haase et al., 2012; Isen & Means, 1983; Monfort et al., 2015; Park et al., 2019; Sewart et al., 2019; Zautra et al., 2005). Wood et al. (2011) found that positive affect improved with higher levels of strength use. Therefore, the current study's purpose was to gain a better understanding of strength use and positive affect in young adults during the COVID-19 pandemic.

The analyses verified two hypotheses and rejected two other ones. The findings suggest that strength use impacted young adults' positive affect during the pandemic. Moreover, the association between both concepts was not significantly affected by the affiliation with data sets 1 or 2. However, interestingly positive affect was different between the earlier and later measurements. The group of young adults at the beginning of the pandemic had lower levels of positive affect than the group measured a few months later. In addition, strength use varied between the groups. The second group's participants had significantly lower levels of strength use than those in the first group. Like the information relevant to the hypotheses, the results show that age negatively influences positive affect and gender does not significantly affect positive affect. Moreover, a post hoc analysis indicated a significant age difference between the two reviewed groups.

### Positive Affect and Strength Use

The analyses revealed an association between positive affect and strength use. This result is consistent with previous research. For example, Bakker et al. (2019) demonstrated that the daily use of strengths forecasted the daily positive affect of individuals. Wood et al. (2011) supported these findings with their study, finding a positive association between

strength use and positive affect. Additionally, Matsuguma et al. (2018) found a significant association between the two concepts. Hence, the current findings confirm the previous literature.

This study found no significant difference between the association in the group at the beginning of the coronavirus pandemic and the later one. Hence, the results indicate that the pandemic might not impact the association. As the findings are based on a between-subject approach, the results from this analysis should be treated with considerable caution. Nevertheless, the selection of the data sets purposefully included the factor of time difference. Consequently, time might be a determining factor in the results. Still, to confirm that the pandemic did not affect the association between strength use and positive affect, a within-person study needs to be conducted in the future.

Although the affiliation with data sets 1 or 2 did not impact the association between strength use and positive affect, the results show that, for data set 2, the strength use of participants dropped, but the positive affect increased simultaneously. This result is unexpected. When group affiliation does not change the association, the results for the latter measurement should either be a higher positive affect and strength use or a lower positive affect and strength use. Contrary to expectations, the study found a high level of positive affect and lower strength use in data set 2.

A reason for this rather contradictory result could be the significant age difference found between data sets 1 and 2. The participants from data set 1 were significantly older than the participants from data set 2. Since the analyses suggest that higher age is negatively associated with positive affect, the higher levels of positive affect in data set 2 might be due to its significantly younger participants.

This work highlighted that an association between strength use and positive affect could be found in young adults during the pandemic and that strength use facilitates positive affect, making strength use a potentially valuable mental resource during the pandemic. It is recommended that future research undertake a within-subject longitudinal study during a

pandemic to clarify the effect of a pandemic on the association between strength use and positive affect. In that future investigation, the age of the participants should be considered an influential factor.

**Positive Affect in Young Adults**

The participants from the second data set reported higher levels of positive affect than those from data set 1. The larger result could indicate that the pandemic and its consequences might positively influence the positive affect of young adults. However, caution must be exercised because of the between-person approach utilised in this study. Since the study compared different groups of people, the difference might be due to the other people participating, not the effect of the pandemic. A within-person study should be conducted in the future to confirm the findings regarding positive affect during the pandemic.

If the higher level in data set 2 resulted from the effects of the pandemic, the stress-related growth theory might explain the finding. Stress-related growth refers to positive outcomes, like the positive re-evaluation of a stressful event or the acquisition of knowledge and empathy resulting from a negative and stressful life event (Park et al., 1996; Janoff-Bulman, 1992; Antonovsky, 1987). These positive consequences exist next to the obvious negative impacts of the stress-inducing circumstance (Park et al., 1996). The organismic valuing theory can explain the possibility of positive changes due to stressful experiences (Joseph & Linley, 2005). This theory states that through experiencing social support, individuals can positively accommodate trauma-related information in a way that promotes well-being. Stress-related growth has been associated with positive affect (Park et al. 1996). During the pandemic, young adults reported increased virtual interaction, social media use and video call use (Raj & Bajaj, 2021). These virtual connections with friends and family were considered one of the five most helpful activities for adults and adolescents (Janssen et al., 2020). Actively using social media like private and public messaging is associated with more perceived social support, which means young adults might experience the social support necessary to implement stress-related growth (Yang et al., 2020). Since the

pandemic is related to high stress in young adults, the concept of stress-related growth might explain the increase in positive affect (McGinty et al., 2020).

Despite potential other reasons for the difference between the two measurements, the present findings suggest that positive affect was a valuable resource for young adults during the pandemic. Since the positive affect values are higher after a few months of the pandemic, the circumstances of young adults should be enhanced. However, to make this point, future research must further investigate the role of positive affect during the coronavirus pandemic. Moreover, future research must investigate further the relationship between stress-related growth and positive affect during the coronavirus pandemic. Also, a longitudinal study using a within-subject approach should explore the development of positive affect during the coronavirus pandemic to confirm or deny the current findings.

**Strength Use in Young Adults**

The findings of this study demonstrate that the young adults from data set 2 displayed less strength use than the ones from data set 1. This finding might indicate that the pandemic represented an obstacle for young adults to utilise their strengths. These implications are derived from a between-subject study, thus need to be interpreted with care since the difference could also stem from the two different groups analysed. Despite the limitations of this approach, the time difference between the data sets still holds a potential explanation for the findings. Therefore, although future research needs to investigate the strength use of young adults in a within-subject approach, the interpretation can still be acknowledged with caution.

In case future research can affirm the findings, an explanation for the outcomes could be that in the context of the pandemic and the lockdown, people might not have been able to express their strength as before due to the restrictions of the lockdown (Niemiec, 2019; Stichter, 2016). Niemiec (2019) suggests that there are different reasons why people stop using their strengths. One reason to stop utilising one’s strengths could be missing skills to apply the strengths in the circumstances one is experiencing, which could be reasonable

during a pandemic that drastically changes ones living circumstances and reality. An example of this could be the way the lockdown altered the interaction between people from face-to-face to online, meaning that people with strength like social intelligence, kindness or love needed to express their strengths differently than before (Janssen et al., 2020; Peterson & Seligman, 2004; Raj & Bajaj, 2021). Another reason people stop using their strengths would be missing awareness of how and when to apply strengths and forgetting about them as a possibility (Niemiec, 2019). Some people might also desist from using their strengths because their environment does not value them, or there is a fear of judgment and exclusion. Niemiec (2019) would suggest that these reasons might be responsible for a general decline in strength use. Applying these reasons for strength use reduction to the daily life and reality of people during the COVID-19 pandemic seems to give a potential explanation for the findings. Future research needs to investigate how people were restricted to use their usual strengths expression during quarantine.

**Age and Positive Affect**

The current paper is consistent with the position in previous literature, indicating that increasing age is negatively associated with positive affect. Previous results comparing different age groups of adults have found evidence for rising and falling levels of positive affect with higher age. Klaiber et al. (2020) have documented that younger adults indicated lower levels of positive affect than older adults during the coronavirus pandemic. On the contrary, Charles et al. (2001) noted that positive affect in young adults shows to be stable; however, older adults experience a falling level of positive affect. A similar result was found by Kunzmann et al. (2000). They connected increasing age to a lower level of positive affect. Although these prior studies did not examine the group of young adults, in particular, they match the findings of the present study.

Besides the possible general declining development of positive affect with increasing age, the risk perception concerning the coronavirus might contribute to the lower level of positive affect in older young adults. Many studies have documented that during COVID-19

older age was a significant risk perception predictor (Iorfa et al., 2020; Lu et al., 2021). Sica et al. (2021) demonstrated that a low level of perceived COVID-19 risk positively influenced individuals' positive affect, and Alschuler et al. (2021) documented a greater perceived risk of dying due to COVID-19 resulted in less positive affect. All in all, the perceived likelihood of survival and perceived low risk of contracting COVID-19 could be considered protective factors against stress, anxiety and depression (Wang, Jing, et al. 2020). Thus, a higher level of risk perception in older young adults might explain the lower positive affect with increasing age.

**Limitations**

It is plausible that a number of limitations might have influenced the results obtained. The first limitation of the current study would be the lack of comparable sociodemographic data between the data sets. The data sets only had a slight overlap of demographical data which means possible explanations for the results, like economic background or nationality, could not be considered because it is impossible to compare the data sets. The restricted possibility of taking other factors into account when interpreting the results increases the risk for more misinterpretation.

A second limitation of this study was that the measures included in a lockdown have changed from country to country and varied over time (International Monetary Fund, n.d.; World Health Organisation, 2020d; World Health Organisation, n.d.). These inconsistencies mean that participants might have experienced different circumstances while answering the surveys. For example, at the time of the second measurement, the Netherlands gradually increased restrictions after a spike of cases that slowly decreased during the period of enquiry (International Monetary Fund, n.d.; National Institute for Public Health and the Environment, 2021). In contrast, Germany was implementing stricter measures, but the cases kept rising (Die Bundesregierun, 2020; Robert Koch-Institut, n.d.). These distinctions show that the risk perception could have been different between Dutch and German

participants. Consequently, participants might have provided information on separate circumstances. This circumstance would reduce the validity of the current study.

## Conclusion

In conclusion, the present study found an association between strength use and positive affect. The results indicate a potential negative influence of the coronavirus pandemic on strength use, but a possible positive effect on positive affect. A longitudinal within-person study is recommended for future research. The evidence from this study suggests that age negatively impacts positive affect. Taken together, these findings implicate that strength use and positive are considered valuable resources for young adults during the pandemic and consequential lockdowns.

## References

Alschuler, K. N., Roberts, M. K., Herring, T. E., & Ehde, D. M. (2021). Distress and risk perception in people living with multiple sclerosis during the early phase of the COVID-19 pandemic. *Multiple Sclerosis and Related Disorders*, *47*(October), 102618. 10.1016/j.msard.2020.102618

Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well.* Jossey-Bass.

Arnett, J. J., Žukauskiene, R., & Sugimura, K. (2014). The new life stage of emerging adulthood at ages 18-29 years: Implications for mental health. *The Lancet Psychiatry*, *1*(7), 569-576. 10.1016/S2215-0366(14)00080-7

Badri, S. (2021). Study-life integration and young adult students mental health. *Journal of Public Mental Health*, *20*(1), 24-32. 10.1108/JPMH-06-2019-0069

Bai, Y. M., Lin, C. C., Lin, C. Y., Chen, J. Y., Chue, C. M., & Chou, P. (2004). Survey of stress reactions among health care workers involved with the SARS outbreak. *Psychiatric Services*, *55*(9), 1055-1057. 10.1176/appi.ps.55.9.1055

Bakker, A. B., Hetland, J., Olsen, O. K., & Espevik, R. (2019). Daily strengths use and employee well-being: The moderating role of personality. *Journal of Occupational and Organizational Psychology*, *92*(1), 144-168. 10.1111/joop.12243

Balkhi, F., Nasir, A., Zehra, A., & Riaz, R. (2020). Psychological and Behavioral Response to the Coronavirus (COVID-19) Pandemic. *Cureus*, *12*(5). 10.7759/cureus.7923

Barr, A. B., Culatta, E., & Simons, R. L. (2013). Romantic Relationships and Health among African American Young Adults: Linking Patterns of Relationship Quality over Time to Changes in Physical and Mental Health. *Journal of Health and Social Behavior*, *54*(3), 369-385.10.1177/0022146513486652

Barr, A. B., Sutton, T. E., Simons, L. G., Wickrama, K. A. S., & Lorenz, F. O. (2016). Romantic relationship transitions and changes in health among rural, white young

adults. *Journal of Family Psychology*, *30*(7), 832-843. http://dx.doi.org/10.1037/fam0000207

Baumeister, R. F., & Leary, M. R. (1995). The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation. *Psychological Bulletin*, *117*(3), 497-529. 10.1037/0033-2909.117.3.497

Bechler, L. (2020). Character Strengths, Strength Use and Subjective Well-being in Young Adults [Bachelor Thesis, University of Twente]. University of Twente Student Theses. http://purl.utwente.nl/essays/81816

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N. R., & Gideon, J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, *395*(10227), 912-920. 10.1016/S0140-6736(20)30460-8

Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A. (2006). Loneliness as a specific risk factor for depressive symptoms: Cross-sectional and longitudinal analyses. *Psychology and Aging*, *21*(1), 140-151. http://dx.doi.org.ezproxy2.utwente.nl/10.1037/0882-7974.21.1.140

Centers of Disease Control and Prevention. (2021). *Indicators of Anxiety or Depression Based on Reported Frequency of Symptoms During Last 7 Days*. https://data.cdc.gov/NCHS/Indicators-of-Anxiety-or-Depression-Based-on-Repor/8pt5-q6wp

Charles, S. T., Reynolds, C. A., & Gatz, M. (2001). Age-related differences and change in positive and negative affect over 23 years. *Journal of Personality and Social Psychology*, *80*, 136–151. http://dx.doi.org/ 10.1037/0022-3514.80.1.136

Clark, J. L., Algoe, S. B., & Green, M. C. (2018). Social Network Sites and Well-Being: The Role of Social Connection. *Current Directions in Psychological Science*, *27*(1), 32-37. 10.1177/0963721417730833

DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology*, *93*, 880–896. http://dx.doi.org/10.1037/0022-3514 .93.5.880

Demerouti, E., Cropanzano, R., Bakker, A., & Leiter, M. (2010). From thought to action: Employee work engagement and job performance. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 147-163). Psychology Press.

Die Bundesregierung (2020). Diese Regeln gelten jetzt (2. November). https://www.bundesregierung.de/breg-de/themen/coronavirus/regelungen-ab-2-november-1806818

Dollard, M. F., & Bakker, A. B. (2010). Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee engagement. *Journal of Occupational and Organizational Psychology*, *83*, 579–599. doi:10.1348/096317909X470690

Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, M. J., Chatterjee, S., Lahiri, D., & Lavie, C. l. J. (2020). Psychosocial impact of COVID-19. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, *14*(5), 779-788. 10.1016/j.dsx.2020.05.035

Dubreuil, P., Forest, J., & Courcy, F. (2014). From strengths use to work performance: the role of harmonious passion, subjective vitality, and concentration. *Journal Positive Psychology, 9*, 335–349. 10.1080/17439760.2014. 898318

Egloff, B., Schmukle, S. C., Burns, L. R., Kohlmann, C. W., & Hock, M. (2003). Facets of Dynamic Positive Affect: Differentiating Joy, Interest, and Activation in the Positive and Negative Affect Schedule (PANAS). *Journal of Personality and Social Psychology*, *85*(3), 528-540. 10.1037/0022-3514.85.3.528

Forest, J., Mageau, G. A., Crevier-Braud, L., Bergeron, É., Dubreuil, P., & Lavigne, G. L. (2012). Harmonious passion as an explanation of the relation between signature

strengths' use and well-being at work: Test of an intervention program. *Human Relations*, *65*(9), 1233-1252. 10.1177/0018726711433134

Fredrickson, B. L. (1998). What Good Are Positive Emotions? *NIH Public Access*, *2*(3), 300-319. doi:10.1037/1089-2680.2.3.300.

Fredrickson, B. L., Mancuso, R. A., Branigan, C., & Tugade, M. M. (2000). The undoing effect of positive emotions. *Motivation and Emotion*, *24*(4), 237–258. 10.1023/a:1010796329158

Garg, S., Kim, L., Whitaker, M., O'Halloran, A., Cummings, C., Holstein, R., Prill, M., Chai, S. J., Kirley, P. D., Alden, N. B., Kawasaki, B., Yousey-Hindes, K., Niccolai, L., Anderson, E. J., Openo, K. P., Weigel, A., Monroe, M. L., Ryan, P., Henderson, J. … Fry, A. (2020). Prevention Hospitalization Rates and Characteristics of Patients Hospitalised with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. *Weekly I*, *69*(15), 458-464. https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm

Govindji, R., & Linkey, P. A. (2007). Strengths use, self-concordance and well-being: Implications for strengths coaching and coaching psychologists. *International Coaching Psychology Review*, *2*(2), 143-153. 10.1037/t54221-000

Greene, K. M., & Maggs, J. L. (2017). Academic time during college: Associations with mood, tiredness, and binge drinking across days and semesters. *Journal of Adolescence*, *56*, 24-33. 10.1016/j.adolescence.2016.12.001

Greenglass, E., & Fiksenbaum, L. (2009). Proactive coping, positive affect, and well-being testing for mediation using path analysis. *European Psychologist*, *14*, 29–39. https://doi.org/10.1027/1016-9040.14.1.29

Griskevicius, V., Shiota, M. N., & Nowlis, S. M. (2010). The many shades of rose-colored glasses: An evolutionary approach to the influence of different positive emotions. *Journal of Consumer Research*, *37*(2), 238-250. 10.1086/651442

Haase, C. M., Poulin, M. J., & Heckhausen, J. (2012). Happiness as a motivator: Positive affect predicts primary control striving for career and educational goals. *Personality and Social Psychology Bulletin*, *38*(8), 1093–1104. 10.1177/0146167212444906

Haug, N., Geyrhofer, L., Londei, A., Dervic, E., Desvars-Larrive, A., Loreto, V., Pinior, B., Thurner, S., & Klimek, P. (2020). Ranking the effectiveness of worldwide COVID-19 government interventions. *Nature Human Behaviour*, *4*(12), 1303-1312. https://doi.org/10.1038/s41562-020-01009-0

Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. New York, NY: Guilford Press.

Hunt, C. A., Smith, M. T., Mun, C. J., Irwin, M. l. R., & Finan, P. H. (2021). Trait positive affect buffers the association between experimental sleep disruption and inflammation. *Psychoneuroendocrinology*, *129*, 105240. 10.1016/j.psyneuen.2021.105240

International Monetary Fund (n.d.). *Policy Responses to COVID-19*. https://www-imf-org.ezproxy2.utwente.nl/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19

Iorfa, S. K., Ottu, I. F. A., Oguntayo, R., Ayandele, O., Kolawole, S. O., Gandi, J. C., Dangiwa, A. L., & Olapegba, P. O. (2020). COVID-19 Knowledge, Risk Perception, and Precautionary Behavior Among Nigerians: A Moderated Mediation Approach. *Frontiers in Psychology*, *11*(November), 1-10. 10.3389/fpsyg.2020.566773

Isen, A. M., & Means, B. (1983). The influence of positive affect on decision-making strategy. *Social Cognition*, *2*(1), 18–31. https://doi.org/10.1521/soco.1983.2.1.18

Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology, 52*(6), 1122–1131. https://doi-org.ezproxy2.utwente.nl/10.1037/0022-3514.52.6.1122

Janoff-Bulman, R. (1992). Shattered Assumptions: Towards a New Psychology of Trauma. New York: Free Press

Janssen, L. H. C., Kullberg, M. L., Verkuil, B., van Zwieten, N., Wever, M. C. M., van Houtum, L. A. E. M., Wentholt, W. G. M., & Elzinga, B. M. (2020). Does the COVID-19 pandemic impact parents' and adolescents' well-being? An EMA-study on daily affect and parenting. *PLoS ONE*, *15*(October), 1-21. 10.1371/journal.pone.0240962

Jeon, M. (2005). Chapter 1 Emotions and Affect in Human Factors and Human–Computer Interaction: Taxonomy, Theories, Approaches, and Methods. *Emotions and Affect in Human Factors and Human-Computer Interaction*, 3-26. 10.1016/B978-0-12-801851-4.00001-X

Jeong, H., Yim, H. W., Song, Y. J., Ki, M., Min, J. A., Cho, J., & Chae, J. H. (2016). Mental health status of people isolated due to Middle East Respiratory Syndrome. *Epidemiology and health*, *38*, 1-7. 10.4178/epih.e2016048

Joseph, S., & Linley, P. A. (2005). Positive Adjustment to Threatening Events: An Organismic Valuing Theory of Growth Through Adversity. *Review of General Psychology, 9*(3), 262–280. https://doi-org.ezproxy2.utwente.nl/10.1037/1089-2680.9.3.262

Keltner, D., & Bonanno, G. A. (1997). A study of laughter and dissociation: Distinct correlates of laughter and smiling during bereavement. *Journal of Personality and Social Psychology*, *73*(4), 687–702. 10.1037/0022-3514.73.4.687

Khan, A. H., Sultana, M. S., Hossain, S., Hasan, M. T., Ahmed, H. U., & Sikder, M. T. (2020). The impact of COVID-19 pandemic on mental health & well-being among home-quarantined Bangladeshi students: A cross-sectional pilot study. *Journal of Affective Disorders*, *277*(August), 121-128. 10.1016/j.jad.2020.07.135

Killgore, W. D. S., Cloonan, S. A., Taylor, E. C., & Dailey, N. S. (2020). Loneliness: A signature mental health concern in the era of COVID-19. *Psychiatry Research*, *290*(May), 113-117. 10.1016/j.psychres.2020.113117

Kira, I. A., Shuwiekh, H. A. M., Alhuwailah, A., Ashby, J. S., Sous Fahmy Sous, M., Baali, S. B. A., Azdaou, C., Oliemat, E. M., & Jamil, H. J. (2020). The effects of COVID-19 and

collective identity trauma (intersectional discrimination) on social status and well-being. *Traumatology*. 10.1037/trm0000289

Klaiber, P., Wen, J. H., DeLongis, A., & Sin, N. L. (2020). The ups and downs of daily life during COVID-19: Age differences in affect, stress, and positive events. *Journals of Gerontology Psychological Sciences*, *76*(2), 30-37. https://doi.org/10.1093/geronb/gbaa096

Kunzmann, U., Little, T. D., & Smith, J., (2000). Is age-related stability of subjective well-being a paradox? Cross-sectional and longitudinal evidence from the Berlin aging Study. *Psychology and Aging*, *15*(3), 511-526. http://dx.doi.org/10.1037/0882-7974.15.3.511

Lang, K. M., & Little, T. D. (2018). Principled missing data treatments. *Prevention Science*, *19*(3), 284-294. 10.1007/s11121-016-0644-5

Lee, C. M., Cadigan, J. M., & Rhew, I. C. (2020). Increases in Loneliness Among Young Adults During the COVID-19 Pandemic and Association With Increases in Mental Health Problems. *Journal of Adolescent Health*, *67*(5), 714-717. 10.1016/j.jadohealth.2020.08.009

Linley, P. A. (2008). *Average to A+: Realising Strengths in Yourself and Others*. Coventry: CAPP Press.

Linley, P. A., Nielsen, K. M., Wood, A. M., Gillett, R., & Biswas-Diener, R. (2010). Using signature strengths in pursuit of goals: effects on goal progress, need satisfaction, and well-being, and implications for coaching psychologists. *International Coaching Psychology Review*, *5*(1), 6–15. https://meredithroach.files.wordpress.com/2011/05/strengths-_goals.pdf

Littman-Ovadia, H., & Freidlin, P. (2020). Positive Psychopathology and Positive Functioning: OCD, Flourishing and Satisfaction with Life through the Lens of Character Strength Underuse, Overuse and Optimal Use. *Applied Research in Quality of Life*, *15*(2), 529-549. 10.1007/s11482-018-9701-5

Liu, X., Kakade, M., Fuller, C. J., Fan, B., Fang, Y., Kong, J., Guan, Z., & Wu, P. (2012). Depression after exposure to stressful events: Lessons learned from the severe acute respiratory syndrome epidemic. *Comprehensive Psychiatry*, *53*(1), 15-23. 10.1016/j.comppsych.2011.02.003

Lu, P., Kong, D., & Shelley, M. (2021). Risk Perception, Preventive Behavior, and Medical Care Avoidance among American Older Adults During the COVID-19 Pandemic. *Journal of Aging and Health*, *33*(7-8), 577-584. 10.1177/08982643211002084

Luchetti, M., Lee, J. H., Aschwanden, D., Sesker, A., Strickhouser, J. E., Terracciano, A., & Sutin, A. R. (2020). The trajectory of loneliness in response to COVID-19. *American Psychologist*, *75*(7), 897-908. 10.1037/amp0000690

Mackinnon, A., Jorm, A. F., Christensen, H., Korten, A. E., Jacomb, P. A., & Rodgers, B. (1999). A short form of the Positive and Negative Affect Schedule: Evaluation of factorial validity and invariance across demographic variables in a community sample. *Personality and Individual Differences*, *27*(3), 405-416. 10.1016/S0191-8869(98)00251-7

Matsuguma, S., Kawashima, M., Negishi, K., Sano, F., Mimura, M., & Tsubota, K. (2018). Strengths use as a secret of happiness: Another dimension of visually impaired individuals' psychological state. *PLoS ONE*, *13*(2), 1-11. 10.1371/journal.pone.0192323

McGinty, E. E., Presskreischer, R., Han, H., & Barry, C. L. (2020). Psychological Distress and Loneliness Reported by US Adults in 2018 and April 2020. *Journal of the American Medical Association*, *324*(1), 93-94. 10.1001/jama.2020.9740

Merz, E. L., Malcarne, V. L., Roesch, S. C., Ko, C. M., Emerson, M., Roma, V. G., & Sadler, G. R. (2013). Psychometric properties of Positive and Negative Affect Schedule (PANAS) original and short forms in an African American community sample. *Journal of Affective Disorders*, *151*(3), 942-949. https://doi.org/10.1016/j.jad.2013.08.011

Miao, M., Zheng, L., & Gan, Y. (2017). Meaning in life pro- motes proactive coping via positive affect: A daily diary study. *Journal of Happiness Studies*, *18*(6), 1683–1696. https:// doi.org/10.1007/s10902-016-9791-4

Monfort, S. S., Stroup, H. E., & Waugh, C. E. (2015). The impact of anticipating positive events on responses to stress. *Journal of Experimental Social Psychology*, *58*(May), 11–22. https://doi.org/10.1016/j.jesp.2014.12.003

National Instirure for Public Health and Environment (2021). Ontwikkeling COVID-19 in grafieken [Development of COVID-19 in Graphs]. https://www.rivm.nl/en/node/154271

Niemiec, R. M. (2019). Finding the golden mean: the overuse, underuse, and optimal use of character strengths. *Counselling Psychology Quarterly*, *32*(3-4), 453-471. 10.1080/09515070.2019.1617674

Patrick, M. E., Rhew, I. C., Lewis, M. A., Abdallah, D. A., Larimer, M. E., Schulenberg, J. E., & Lee, C. M. (2018). Alcohol Motivations and Behaviors During Months Young Adults Experience Social Role Transitions: Microtransitions in Early Adulthood. *Psychology of Addictive Behaviors*, *32*(8), 895-903. 10.1037/adb0000411

Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and Prediction of Stress-Related Growth. *Journal of Personality*, *64*(1), 71-105. 10.1111/j.1467-6494.1996.tb00815.x

Park, I. J., Lee, J., Kim, M., Kim, J. Y., & Jahng, S. (2019). Affect in daily career decision self-efficacy and career choice anxiety. *The Career Development Quarterly*, *67*(4), 313–326. https://doi.org/10.1002/cdq.12201

Peterson, C., & Seligman, M. E. (2004). *Character Strengths and Virtues: A Handbook and Classification*, Vol. 1. Oxford: Oxford University Press.

Pressman, S. D., & Cohen, S. (2005). Does positive affect influence health? *Psychologial Bulletin*, *131*(6), 925–971. https://doi-org.ezproxy2.utwente.nl/10.1037/0033-2909.131.6.925

Proctor, C., Tsukayama, E., Wood, A. M., Maltby, J., Eades, J. F., & Linley, P. A. (2011). Strengths gym: the impact of a character strengths-based intervention on the life satisfaction and well-being of adolescents. *The Journal of Positive Psychology*, *6*(5), 377–388. 10.1080/17439760.2011.594079

Raj, T., & Bajaj, A. (2021). Living alone in lockdown: Impact on mental health and coping mechanisms among young working adults. *Current Psychology*. 10.1007/s12144-021-01511-2

Robert Koch Institut. (2021). *Epidemiologischer Steckbrief zu SARS-CoV-2 und COVID-19* [Epidemiological profil about SARS-CoV-2 and COVID-19]. https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Steckbrief.html;jsessionid=EAE4539B9EDAE0125F80540D9742A507.internet122?nn=13490888#doc13776792bodyText2

Robert Koch Institut (n.d.). COVID-19-Fälle/Tag nach Erkranknungs-/Meldedatum (siehe Erläuterung) [COVID-19-cases/day of contraction/reporting date (see comment). https://experience.arcgis.com/experience/478220a4c454480e823b17327b2bf1d4/page/page_1/

Rokach, A. (2018). Strategies of coping with loneliness throughout the lifespan. *Love, Romance, Sexual Interaction: Research Perspectives from Current Psychology*, *20*(1), 225-244. 10.4324/9781351309561-12

Sabella, K. (2021). Factors that hinder or facilitate the continuous pursuit of education, training, and employment among young adults with serious mental health conditions. *Psychiatric Rehabilitation Journal*. 10.1037/prj0000470

Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive Psychology. An introduction. *The American Psyhologist*, *55*(1), 5–14. 10.1037/0003-066X.55.1.5

Sewart, A. R., Zbozinek, T. D., Hammen, C., Zinbarg, R. E., Mineka, S., & Craske, M. G. (2019). Positive Affect as a Buffer Between Chronic Stress and Symptom Severity of

Emotional Disorders. *Clinical Psychological Science*, *7*(5), 914-927. 10.1177/2167702619834576

Sica, C., Perkins, E. R., Latzman, R. D., Caudek, C., Colpizzi, I., Bottesi, G., Caruso, M., Giulini, P., Cerea, S., & Patrick, C. J. (2021). Psychopathy and COVID-19: Triarchic model traits as predictors of disease-risk perceptions and emotional well-being during a global pandemic. *Personality and Individual Differences*, *176*(November), 110770. 10.1016/j.paid.2021.110770

Stichter, M. (2016). Practical Skills and Practical Wisdom in Virtue. *Australasian Journal of Philosophy*, *94*(3), 435-448. 10.1080/00048402.2015.1074257

Stravynski, A., & Boyer, R. (2001). Loneliness in Relation to Suicide Ideation and Parasuicide: A Population-Wide Study. *Suicide and Life-Threatening Behavior*, *31*(1), 32-40. 10.1521/suli.31.1.32.21312

Stuart, J., O'Donnell, K., O'Donnell, A., Scott, R., & Barber, B. (2021). Online Social Connection as a Buffer of Health Anxiety and Isolation during COVID-19. *Cyberpsychology, Behavior, and Social Networking*, *24*(8), 521-525. 10.1089/cyber.2020.0645

van Bavel, J. J., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., Crockett, M. J., Crum, A. J., Douglas, K. M., Druckman, J. N., Drury, J., Dube, O., Ellemers, N., Finkel, E. J., Fowler, J. H., Gelfand, M., Han, S., Haslam, S. A. Jetten, J., … & Willer, R. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour*, *4*(5), 460-471. 10.1038/s41562-020-0884-z

Vardoulakis, S., Sheel, M., Lal, A., & Gray, D. (2020). COVID-19 environmental transmission and preventive public health measures. *Australian and New Zealand Journal of Public Health*, *44*(5), 333-335. 10.1111/1753-6405.13033

Victor, C. R., & Yang, K. (2012). The prevalence of loneliness among adults: A case study of the United Kingdom. *Journal of Psychology: Interdisciplinary and Applied*, *146*(1-2). 85-104. 10.1080/00223980.2011.613875

Wang, C., Horby, P. W., Hayden, F. G., & Gao, G. F. (2020). A novel coronavirus outbreak of global health concern. *The Lancet*. *359*(10223), 470-473. https://doi.org/10.1016/S0140-6736(20)30185-9

Wang, Y., Jing, X., Han, W., Jing, Y., & Xu, L. (2020). Positive and negative affect of university and college students during COVID-19 outbreak: a network-based survey. *International Journal of Public Health*, *65*(8), 1437-1443. 10.1007/s00038-020-01483-3

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063-1070. 10.1051/epjconf/201714006017

Westerneng, M. (2021). The relation between positive emotions and strength use and their association with college students' mental well-being: modeling the mediation of study engagement (Bachelor Thesis). University of Twente, Enschede. http://purl.utwente.nl/essays/85575

Wood, A. M., Linley, P. A., Maltby, J., Kashdan, T. B., & Hurling, R. (2011). Using personal and psychological strengths leads to increases in well-being over time: a longitudinal study and the development of the strengths use questionnaire. *Personality and Individual Differences*, *50*(1), 15-19. 10.1016/j.paid.2010.08.004

World Health Organisation. (2020a). *WHO Director-General's statement on IHR Emergency Committee on Novel Coronavirus (2019-nCoV)*. https://www.who.int/director-general/speeches/detail/who-director-general-s-statement-on-ihr-emergency-committee-on-novel-coronavirus-(2019-ncov)

World Health Organisation. (2020b, February 16-24). *Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)*. https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf

World Health Organisation. (2020c, December 13). *Coronavirus disease (COVID-19): How is it transmitted?*. https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-how-is-it-transmitted

World Health Organisation. (2020d, April 14). *Covid-19 Strategy Update*. https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf?sfvrsn=29da3ba0_19

World Health Organisation. (2020e, December 31). *Coronavirus disease (COVID-19): Herd immunity, lockdowns and COVID-19*. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/herd-immunity-lockdowns-and-covid-19

World Health Organisation. (2020f, October 12). *Coronavirus disease (COVID-19)*. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19

World Health Organisation. (n.d.). *Timeline: WHO's COVID-19 response*. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline#!

Wu, R., Huebner, E. S., Zhou, J., & Tian, L. (2021). Relations among positivity, positive affect in school, and learning flow in elementary school students: A longitudinal mediation model. *British Journal of Educational Psychology*, 1-23. 10.1111/bjep.12418

Yang, C. C., Tsai, J. Y., & Pan, S. (2020). Discrimination and well-being among Asians/Asian Americans during COVID-19: The role of social media. *Cyberpsychology, Behavior, and Social Networking*, *23*(1), 865-870. 10.1089/cyber.2020.0394

Zacher, H., & Rudolph, C. W. (2021). Individual differences and changes in subjective well-being during the early stages of the COVID-19 pandemic. *American Psychologist*, *76*(1), 50-62. 10.1037/amp0000702

Zautra, A. J., Johnson, L. M., & Davis, M. C. (2005). Positive affect as a source of resilience for women in chronic pain. *Journal of Consulting and Clinical Psychology*, *73*(2), 212–220. 10.1037/0022-006X.73.2.212

Zhang, Y., & Chen, M. (2018). Character strengths, strengths use, future self-continuity and subjective well-being among Chinese University Students. *Frontiers in Psychology*, *9*, 1040. 10.3389/fpsyg.2018.01040