The Association of Mental Resilience and Social Support with Students' Mental Well-Being, while Recovering from the Negative Effects of the COVID-19 Pandemic

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ABSTRACT

The COVID-19 pandemic and the measures that had to be implemented generated concerning psychological consequences to which especially students seemed to be vulnerable. It has been shown that both mental resilience and social support are protective factors regarding people's mental well-being. Therefore, in this study, it was hypothesized that students who experience higher levels of mental resilience experience higher levels of mental well-being. Secondly, it was expected that social support moderated the relationship between mental resilience and mental well-being. A cross-sectional survey study was conducted. The participants (n = 108) consisted of mainly Dutch and German students between 19 and 30 years old. On the measurement scales of mental resilience, social support, and mental well-being, the students scored moderate to high. A significant positive relationship was found between mental resilience and mental well-being ($p < .001$). However, there was no significant relationship found between mental resilience and mental well-being, with social support as moderator (p = .53). Concluding, it has been shown that mental resilience is associated with the well-being of students, while recovering from the pandemic's negative consequences. Additionally, there might be other factors that are associated with mental well-being after lifting the restrictions. Further research is recommended to obtain more knowledge about the factors associated with mental well-being and to be able to be better prepared for support during recovery processes after future crises.

Keywords: COVID-19, Mental Resilience, Social Support, Mental Well-Being, Students, Cross-Sectional Survey Study

The Association of Mental Resilience and Social Support on Students' Mental Well-Being, while Recovering from the Negative Effects of the COVID-19 Pandemic

For the past two years, the world has suffered from a pandemic which has been induced by the spread of the coronavirus. Many people are mentally affected by the measures that were taken to reduce the spread of COVID-19; especially students seemed to be negatively influenced by it (Fiorenzato, 2021). Mental resilience was found to be a protective factor against the negative impact of the pandemic and the measures on people's mental well-being (Li et al., 2021). Additionally, the social support people perceive seems to be indirectly related to the relationship between people's mental resilience and mental well-being during the pandemic (Li et al., 2021). However, it is unclear what the effect of mental resilience is on students' well-being now that the regulations have been lifted, in addition to the possible effect of social support on this relationship. Therefore, this study focused on the association between mental resilience and mental well-being now that the COVID-19 pandemic seems to come to an end. Furthermore, the possible indirect effect of social support on the relationship between mental resilience and the mental well-being of students during the recovery from the pandemic and the associated measures and regulations was investigated.

The COVID-19 pandemic

COVID-19 has been spreading through society for two years now. The virus was shown to cause a variety of physical symptoms. According to Çalıca Utku et al., 2020, these symptoms may include coughing, having a runny nose, flu symptoms, and feeling weak. In addition, shortness of breath is a commonly seen symptom of the virus, which has resulted in many people being hospitalized or even being admitted to the intensive care (Çalıca Utku et al., 2020; Chopra et al., 2020). Eventually, COVID-19 can lead to devastating consequences: research from Chopra et al. (2020) shows that one third of the people that have been hospitalized did not survive the severe consequences of the virus, with a mortality rate of over 63% for people that were admitted to the intensive care unit. So far, over 6 million deaths are reported by the World Health Organization (2022, March 17).

Mental well-being

Besides the physical consequences, the pandemic also seemed to be negatively related to people's mental well-being. Mental well-being can be defined as the way people perceive and evaluate their life, in addition to the evaluation and perception of how well they function in life (Keyes, 2005). According to Keyes (2002), mental well-being comprises of three

dimensions: psychological-, social-, and emotional well-being. Psychological well-being is described as the degree to which people value themselves, experience confidential, affectional, and compassionate relations with others, and experience growth as a person. Additionally, social well-being includes people's view of society and its contribution to them as a person, their own contribution to society, and their sense of belonging and acceptance in the communities they are part of. Lastly, emotional well-being is about whether or not someone experiences positive feelings regarding life (Keyes, 2002).

During the pandemic, several studies have been conducted into the negative consequences of the pandemic that might have affected people's mental well-being. According to Smith et al. (2020), people worried not only about themselves being affected by COVID-19, but also about their friends and family contracting the virus. Additionally, they suggest that the attention that has been paid to the media about the pandemic also might have caused an increase in worries among people. These worries might have negatively been associated with people's mental well-being and psychological state (Smith et al., 2020). For example, Zacher, and Rudolph (2021) identified that people were less satisfied with their lives.

Governments all around the world implemented measures and regulations that had to be taken, which people had to adhere to in order to reduce the spread of COVID-19 (Fiorenzato, 2021). For instance, people had to isolate themselves from others and had to work from home. These measures were found to be related to an increase in feelings of loneliness (Groarke et al., 2020). The negative feelings of loneliness in turn caused people to experience more psychological distress (Achdut & Refaeli, 2020). Self-isolation also affected people's relationships and connections. Namely, results from Meo et al. (2020) indicate that medical students felt disconnected to their friends and family members. This negatively impacted their work- and study behaviour and caused them to feel discouraged (Meo et al., 2020).

The study of Grey at al. (2020) indicates that besides a rise in feelings of loneliness, symptoms of depression and petulance were also elevated in people who had to stay in self-isolation compared to people who did not. Research from Song et al. (2021) confirmed this by showing a rise in reports of anxious and depressive feelings. Additionally, similar results were found by Rahman et al. (2021), who state that 24% of their participants were sincerely afraid of COVID-19. Furthermore, 69% of their participants experienced mental distress, with levels varying from medium to very high. The pandemic also caused many people to lose their jobs or to be temporarily unable to perform their jobs. Being unemployed has also been found to

have negative effects on people's well-being, including experiencing higher levels of distress which were even higher when unemployed people additionally experienced feelings of loneliness (Achdut & Refaeli, 2020). In conclusion, throughout the pandemic and phases of strict regulations, an increase in symptoms of loneliness, depression, anxiety, mental distress, petulance, and discouragement were found, together with a decrease in life satisfaction and feeling disconnected to family and friends.

Mental resilience and social support

Mental resilience

There are factors that are found to be protective against the negative impact the pandemic might have had on people's well-being. One of these factors is mental resilience, as suggested by Paredes et al. (2021). Mental resilience can be seen as being able to overcome or recover from adverse events, and thus experiencing positivity despite the negative occurrence (Vella & Pai, 2019). Paredes et al. (2021) found that people who were more mentally resilient were better able to cope with the negative effects of the COVID-19 pandemic and were thus less prone to a decrease in mental well-being. Similar results were found by Rahman et al. (2021), who concluded that people who said to have a good to very good mental well-being were found to have a higher level of resilience and were better able to deal with the negative consequences of the pandemic. Furthermore, research from Liu et al. (2020) and Paredes et al. (2021) suggested the importance of mental resilience and its effect on decreasing anxiety regarding the future. Additionally, Song et al. (2021) state that people with higher levels of mental resilience were less vulnerable to experiencing depressive symptoms. In conclusion, research showed the importance of mental resilience and its relation to people's well-being, especially regarding the negative impact of the COVID-19 pandemic.

Social support

Another protective factor might be social support, which is defined by Lin et al. (1979) as "support accessible to an individual through social ties to other individuals, groups, and the larger community" (p. 109). Li et al. (2021) found that the social support people experienced protected their mental health. Furthermore, Groarke et al. (2020) discovered that experiencing social support or living with others prevented feelings of loneliness (Groarke et al., 2020). This means that a lack of social support could have potentially increased perceived levels of loneliness for those people who usually experience high levels of social support. Additionally, people who did not receive any social support were affected by the negative consequences of

the pandemic the most (Szkody et al., 2021). Following this, high levels of social support were found to be connected to a higher state of mental well-being (Szkody et al., 2021). Grey et al. (2021) showed that people who experienced higher levels of social support had a 63% reduced risk of symptoms of depression and a 52% reduced risk of low quality of sleep, in comparison to people who perceived low levels of social support.

Unfortunately, self-isolation during the pandemic made it harder to receive or even perceive social support from others. For example, Li et al. (2021) found a decrease in the social support people perceived during the pandemic, except from perceived familial support. According to El-Zoghby et al. (2020), people turned to their family members during the pandemic for sharing their own feelings and paid more attention to the feelings of their family members. The fact that people did not experience a lack in perceived familial support is also in line with findings of Groarke et al. (2020), who stated that people who live with others experienced more social support. Experiencing familial support might have been factors that protect against negative feelings of loneliness (Groarke et al., 2020). It can be concluded that social support is an important factor regarding people's mental well-being and was showed to be protective against the before-mentioned negative effects of COVID-19. Although there are many sources of social support, this present study focused on social support from family, friends, and significant others.

Mental resilience and social support

Besides the individual effects of both social support and mental resilience on people's mental well-being during the pandemic, there also seemed to be an interactive effect of both the variables mental resilience and social support on people's mental well-being. For example, Bozdağ and Ergün (2021) found a positive correlation between resilience and perceived social support among healthcare workers during the COVID-19 pandemic. Simon et al. (2021) discovered similar results in their study into the social support, mental health, and well-being that people in Austria experienced during the lockdown, which was implemented by their government because of the pandemic.

Additionally, research from Li et al. (2021) showed that social support had an indirect effect on the relationship between mental resilience and well-being. This indicates that social support may have acted as a buffer against a decrease in mental well-being in case people experienced low levels of mental resilience during the pandemic. Therefore, people who had low levels of mental resilience, but high levels of perceived social support, were less likely to suffer from the negative effects of the pandemic (Li et al., 2021). Similar results were found

earlier by Khan and Husain (2010), who stated that social support moderated the relationship between positive psychological strengths (among which mental resilience) and subjective well-being. Concluding, both mental resilience and social support were found to be associated with mental well-being during the COVID-19 pandemic, with social support appearing to potentially indirectly affect the relationship between mental resilience and mental well-being.

Target group

Besides the protective factors, there were factors that caused people to be more at risk for the negative impact of COVID-19. One of the groups that was at risk for the negative mental consequences of the pandemic seemed to be young adults. Research from Song et al. (2021) showed that participants aged 18 to 55 years old more often reported feelings of depression and anxiety than people aged 55 or older. This finding has been supported by Salari et al. (2020), who found that people aged between 21 and 40 years old were more stressed, anxious, and showed more symptoms of depression than older people. Smith et al. (2020) found similar results, stating that younger people reported to have a poorer mental well-being. Furthermore, Rahman et al. (2021) also found young adults between 18 and 29 years old to be more prone to feelings of loneliness during the pandemic. The majority of young adults that participated in the study of Liu et al. (2020) indicated to have low levels of mental resilience, resulting in a lower ability to cope with the distress of the pandemic.

Within the group of young adults, students seemed to be especially vulnerable to the consequences of the COVID-19 pandemic. For example, Son et al. (2020) found that 77% of the students felt more stressed and anxious because of COVID-19 and the measures that had to be taken. An alarming number of 44% of the respondents reported an increase in depressive symptoms. A reduced ability to concentrate, poor sleep patterns, worrying about themselves and the people they love, and a reduction in social contacts were seen as stress factors that may have caused these negative consequences (Son et al, 2020). From the outcomes of several studies, it can be concluded that young adults, and especially students, were more prone to the negative impact that the pandemic and the implemented measures had on their mental well-being. For this reason, this present study investigated students as the target group.

The present study

Now that the regulations are lifted, the way people are affected by the pandemic changes and society is recovering from the negative impact that COVID-19 pandemic had. It has been found that, while the economy is recovering after lifting the regulations to prevent

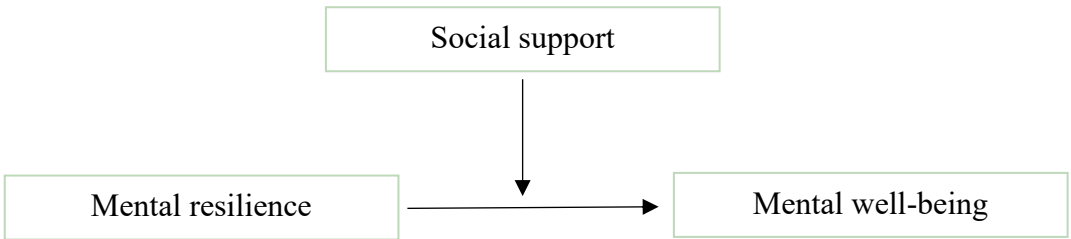
the spread of COVID-19, there is still little improvement in people's mental health (Durizzo et al., 2022). Since social support and mental resilience were found to be protective factors against the negative psychological consequences during the pandemic, it might be helpful to investigate the role of these factors on the recovery of people's mental well-being post-pandemic. Additionally, because being a student appeared to be a risk factor for the negative impact of the pandemic, this research focuses on students. It appeared that there is no extensive literature yet on perceived social support and its association with the relationship between students' mental resilience and mental well-being during the recovery from the challenging pandemic measures. However, the fact that many students experienced decreases in mental health and even had suicidal thoughts, especially when having few social connections, stressed the importance of conducting research into the well-being of students now that the pandemic's measures have been lifted (Jones et al., 2022). Therefore, the emphasis of this research was on the relationship between mental resilience, social support, and mental well-being now that the regulations have been lifted and people recover from the pandemic's negative effects. To find out to what extent mental resilience contributes to the well-being of students, and what the role of social support is on this relationship, a survey study was conducted. The following research question was central: *"What is the association of the mental resilience and social support of students with their mental well-being after the COVID-19 pandemic?"* Based on this, the following hypotheses are derived:

- Hypothesis 1: Students who experience higher levels of mental resilience experience higher levels of mental well-being.
- Hypothesis 2: It is expected that social support moderates the relationship between mental resilience and mental well-being.

A schematic representation of the study design can be found in Figure 1.

Figure 1

The relationship between mental resilience (IV) and mental well-being (DV), with social support as moderating variable



Method

Study design

To study the relationship between mental resilience and mental well-being and the potentially indirect effect of social support, an online survey study is held among students. In the study design, mental resilience represented the independent variable, mental well-being represented the dependent variable, and social support was the moderating variable.

Participants

All participants were students, and were either pursuing a bachelor's, master's, or PhD. The participants were gathered via non-probability sampling, by using convenience sampling. The convenience sampling was conducted via social media, via personal contacts, and via the SONA system of the University of Twente on which the study was published. In addition to convenience sampling, snowball sampling was used for gathering participants. A minimum age of 18 and the ability to understand the English language were requirements for participation.

In Table 1, the frequencies for the age, gender, nationality, and study level of the participants are shown. From the results, it can be concluded that more than half of the respondents were aged between 22 and 25 years old (55.8%). The minimum and maximum age were 19 and 30 years old, respectively, with a mean age of 22.6 (SD = 2.3). In addition, more than two-thirds of the respondents were female (71.3%) and most of them were studying at bachelor-level (82.4%). Furthermore, more than half of the participants had German nationality (53.7%), followed by 38.9% of the respondents having Dutch nationality, with only 7.4% representing people from other countries.

Table 1

Frequency Table for Age, Gender, Nationality, and Study Level

Demographic Variables	*n*	*%*
Age (*M* = 22.6)		
18-21	38	35.2
22-25	59	54.6
>26	11	10.2
Gender		
Male	30	27.8
Female	77	71.3
Non-binary / third gender	1	0.9
Nationality		
Dutch	42	38.9
German	58	53.7
Other	8	7.4
Study level		
Bachelor	89	82.4
Master	18	16.7
PhD	1	0.9

Note. N=108

Materials

Besides demographical questions, the survey consisted of three existing measurement scales that measured mental resilience, social support, and mental well-being.

Mental resilience

To measure mental resilience, the Connor-Davidson resilience scale with 10 items (CD-RISC-10) was used. The CD-RISC-10 consists of 10 statements of which the respondents had to indicate on what level they experienced these statements to be true. For example, the statement 'I can deal with whatever comes' was presented to the respondents. A 5-point Likert scale was used to answer the statements, with answering possibilities ranging from *not true at all* to *true nearly all of the time*. The minimum score of the CD-RISC-10 was 10, with a maximum score of 50. The score represented someone's level of mental resilience: the higher the score, the higher was the level of resilience (Kuiper et al., 2019). Research of

Kuiper et al. (2019) showed that the validity of the scale was good. From the three versions of the CD-RISC (with 2, 10, and 25 items), the CD-RISC with 10 items seemed to have the best psychometric properties and was therefore chosen as measurement scale for the present study (Kuiper et al., 2019). Reliability analysis showed that the internal consistency was high (α=.81).

Social support

For measuring social support, the Multidimensional Scale of Perceived Social Support (MSPSS) was used. The MSPSS consists of 12 statements. The respondents were asked to indicate how much they agreed or disagreed with every statement. An example of a statement that measured the subscale 'Support from a Significant Other' was 'There is a special person who is around when I am in need'. For measuring the subscale 'Family Support', the statement 'My family really tries to help me' was presented to the respondents, among others. 'I can count on my friends when things go wrong' is one of the statements that belonged to the subscale 'Support from Friends'. For measurement purposes within the present study, the Likert scale of the MSPSS was changed from a 7-point Likert scale to a 5-point Likert scale, with answering possibilities ranging from *strongly disagree* to *strongly agree*. The minimum score was 12, with a maximum score of 60 points. The higher people scored on the MSPSS, the higher the level of perceived support was that they experienced, with a low score indicating low levels of perceived support (Ermis-Demitras et al., 2018). Research from Ermis-Demitras et al. (2018) showed that the MSPSS was a valid measurement scale to measure social support. Reliability analysis proved that the MSPSS had a high level of internal consistency (α=.89) for the total scale. The reliability for the individual subscales 'Support from a Significant Other, 'Family Support', and 'Support from Friends' was .96, .91, and .92, respectively, which also indicated high levels of internal consistency.

Mental well-being

Finally, to measure mental well-being, the Mental Health Continuum – Short Form (MHC-SF) was integrated in the survey. The respondents were asked to answer 14 questions about how they felt regarding their well-being during the past month. Examples of the questions are 'During the past month, how often did you feel happy?', 'During the past month, how often did you feel that you had something important to contribute to society?', and 'During the past month, how often did you feel that you had warm and trusting relationships with others?' for Emotional Well-being, Social Well-being, and Psychological

Well-being, respectively. For the equalization of the response options, the Likert scale of the MHC-SF was converted from a 6-point Likert scale into a 5-point Likert scale, with answering possibilities ranging from *never* to *everyday*. The minimum score on the MHC-SF was 14, with a maximum score of 70. High scores on the MHC-SF indicated high levels of well-being, whereas low scores indicated low levels of well-being. In addition, the scores on the MHC-SF can be used to classify people to different subgroups, namely 'flourishing' (when indicating the answering possibilities 'almost every day' or 'every day' multiple times), 'languishing' (when indicating the answering possibilities 'once or twice' or 'never' multiple times), and 'moderate mentally healthy' (when someone is neither 'flourishing' nor 'languishing') (Luijten et al., 2019). From reliability analysis, it was shown that the overall internal consistency of the MHC-SF was good (α=.87). For the subscales Emotional Well-being, Social Well-being, and Psychological Well-being, the reliability was .82, .79, and .75, which indicated good to high levels of internal consistency. Furthermore, the MHC-SF has been shown to be a valid instrument for measuring well-being (Lamers et al., 2011; Luijten et al., 2019).

Procedure

For developing and distributing the online survey, the website 'Qualtrics' was used. Before conducting the survey, the research was reviewed and approved by the BMS ethics committee (request number 220434). After obtaining the permission to conduct the study, the participants were recruited. The participants received a link to the online Qualtrics survey, which was available from the 14th of April until the 21st of May. First, the participants were given information about the study, the researchers' expectations, and their rights as participants, after which they were asked to give consent to participate in the study. Following the informed consent, demographic questions were asked regarding the participants' age, gender, nationality, and study level. Thereafter, the measurement scales regarding mental resilience, social support, and mental well-being were presented about which the respondents had to answer multiple statements and questions. When finished answering all questions and statements, the participants were thanked for their participation. Additionally, the contact details of the researcher were provided, which gave the participants the opportunity to ask questions about the study or their participation.

Data analysis

The obtained data was analysed using IBM SPSS 28. Before the analyses, the responses were filtered based on completeness of answers. After removing cases that did not meet the mentioned inclusion criteria, a participant sample of 108 respondents remained. First, descriptive statistics were used to provide insight into the descriptives of the individual measurement scales that measured mental resilience, social support, and mental well-being. Thereafter, correlation analysis and inferential statistics were performed to test the hypotheses. Before starting these analyses, all items that measure mental resilience were combined in one variable, after which the same was done for the items measuring social support and the items measuring mental well-being. Correlation analysis was used to check the strength of the correlations between the variables. Next, the inferential statistics were performed. For all analyses, a significance level of α=.05 was used. First, a linear regression analysis was executed to test the relationship between mental resilience as independent variable and the well-being of students as dependent variable. For this regression analysis, the assumptions of normality, homoscedasticity, and linearity were checked and fulfilled. The analysis was used to check the first hypothesis: 'Students who experience higher levels of mental resilience experience higher levels of mental well-being'.

Second, the version 4.0 of the PROCESS macro extension by Andrew Hayes (Hayes, n.d.) was used to check the potential moderating effect of Social Support on the relationship between Mental Resilience and Mental Well-Being. The outcome of this analysis was used to check the second hypothesis: 'It is expected that social support moderates the relationship between mental resilience and mental well-being'. To investigate the possibility of the demographic variables of age, gender, nationality, and study level as covariates in the correlation between mental resilience and mental well-being, with social support as moderating variable, another PROCESS macro analysis by Andrew Hayes (n.d.) was carried out. First, correlational analysis was used to check which demographic variables correlated with the independent and dependent variables in the model, after which the variable that showed a significant correlation was inserted as a covariate in the PROCESS macro analysis. The outcomes of both the linear regression analysis and the moderation testing were used to answer the research question: *"What is the association of the mental resilience and social support of students with their mental well-being after the COVID-19 pandemic?"*.

Results

Descriptives

First, descriptive analyses were performed to describe the results of the participants on the CD-RISC-10, MSPSS, and MHC-SF. The results are shown in Table 2. When looking at the results of the CD-RISC-10, it is shown that the respondents had a moderate to high level of mental resilience (M = 36.9, SD = 5.3). From the descriptives of the MSPSS, it can be seen that the mean score of the students was high (M = 51.4, SD = 8.2). Looking at the results of the MHC-SF, it can be concluded that the respondents scored moderate to high on average (M = 49.9, SD = 8.7).

Table 2

Descriptives of the CD-RISC-10, MSPSS, and MHC-SF

Variable	*M*	*SD*
Mental resilience	36.9	5.3
Social support	51.4	8.2
Mental well-being	49.9	8.7

Note. N=108

Correlations

Furthermore, the strength of the correlations between the between the independent and dependent variables were checked. The analysis showed that there was a moderate correlation between the variables mental resilience and mental well-being (r = .54, p < .001). For the variables social support and mental resilience, a low to moderate correlation was found (r = .37, p < .001). Between mental resilience and social support, a Pearson's correlation of .11 was found, which was not significant (p = .252). The Pearson's correlation coefficients of the variables can be found in Table 3.

Table 3

Pearson's Correlations of Variables

Variable	1	2	3	4
1. Mental resilience,	.	.111	.540**	-.164
2. Social support	.111	.	.368**	.246*
3. Mental well-being	.540**	.368**	.	-.076
4. Gender	-.164	.246*	-.076	.

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Inferential analyses

Table 4 shows the results of the regression analysis with mental resilience as independent variable and mental well-being as dependent variable. Confidence intervals of 95% were used. From the regression analysis, it can be concluded that the overall model is significant. There is a significant effect of mental resilience on mental well-being (R^2 = .29, $F(1, 106) = 43.55$, $p < .001$). A moderate positive correlation was found between the two variables (b = .45). Therefore, hypothesis 1: 'Students who experience higher levels of mental resilience experience higher levels of mental well-being' can be accepted.

Table 4

Regression Analysis of the Relationship Between Mental Resilience (IV) and Mental Well-Being (DV)

						95% Confidence Interval	
	b	*r*	R^2	*F*	*p*	Lower bound	Upper bound
Mental resilience	.45	.54	.29	43.55	<.001	.619	1.151

Note. Dependent variable: Mental well-being

To check if social support moderates the relationship between mental resilience and mental well-being, the PROCESS macro analysis by Andrew Hayes (n.d.) was carried out. It was expected that social support positively moderated the relationship between mental resilience and mental well-being: as the level of perceived social support increased, the

relationship between mental resilience and mental well-being was expected to increase. The results showed that the overall model was significant (R^2 = .39, F(3, 104) = 22.12), p < .001). However, from the PROCESS macro analysis, it can be confirmed that the interaction effect of social support on the relationship between mental resilience and mental well-being was not significant (F(1, 104) = .40), p = .53). The results of the PROCESS macro analysis can be found in Table 5.

Table 5

Predicting Mental Well-Being from Mental Resilience and Social Support

					95% Confidence Interval	
	b	*se*	*t*	*p*	Lower bound	Upper bound
Mental Resilience * Social Support	.01	.01	.63	.53	-.0195	.0375
Mental Resilience * Social Support * Gender	-1.6	1.5	.74	.46	-4.537	1.435

Note. Dependent variable: Mental well-being

To investigate the possibility of the demographical factors of age, gender, nationality, and study level as covariates in the correlation between mental resilience and mental well-being with social support as moderating variable, another PROCESS macro analysis by Andrew Hayes (n.d.) was carried out. Only the demographic variable gender showed a significant correlation, namely with the variable social support (r = .246, p = .01). From the PROCESS macro analysis, it was shown that the overall model was significant (R^2 = .40, F(4, 103) = 16.86), p < .001). However, as shown in Table 5, there is no significant interaction effect found of social support on the relationship between mental resilience and mental well-being, with the demographic variable gender as covariate (F(1, 103) = .54), p = .46). Therefore, the second hypothesis: 'It is expected that social support moderates the relationship between mental resilience and mental well-being' cannot be accepted.

Discussion

This study investigated the well-being of students while recovering from the negative mental consequences, which were caused by the COVID-19 pandemic and the associated measures such as the lockdowns that had to be implemented. As students were found to be at risk for these negative mental consequences, students were chosen to be the target group (Son et al., 2020). There are different factors that might have been related to their well-being after the COVID-19 pandemic. In this study, the focus was on the effect of mental resilience on student's well-being. Additionally, the possibility of a moderation effect of social support on this relationship was tested. Previous studies showed the possibility of both factors being associated to well-being, including a conceivable moderation effect. However, most research was aimed at investigating these variables during the COVID-19 pandemic, while little research is done yet into people's well-being now that most of the restrictions have been lifted. Therefore, interest was raised into the possibility of both mental resilience and social support as factors that might be positively related to student's well-being during their recovery from the pandemic's negative consequences.

Implications

Interesting results have been found by conducting descriptive analyses regarding the three measurement scales of mental resilience, social support, and mental well-being. It can be concluded that the respondents show high levels of social support. This is in line with findings of Fried et al. (2021), who state that students still had social contacts despite the restrictions that were implemented. However, the moderate to high scores on the two other measurement scales indicate the fact that that there is room for improvement regarding student's mental resilience and their mental well-being after lifting the COVID-19 restrictions. These findings are in line with results of Durizzo et al. (2022), who found that there is little improvement in people's mental health since lifting the restrictions.

Regarding the first hypothesis, it was expected that students who experience higher levels of mental resilience experience higher levels of mental well-being. The outcomes of the linear regression analysis confirm this hypothesis. In this study, it is shown that the higher the level of mental resilience, the higher the level of mental well-being of students was during the recovery of the pandemic's negative consequences. This outcome is in line with previous results from studies of Paredes et al. (2021) and Rahman et al. (2021), in which mental resilience was already found to be positively related to people's well-being.

The second hypothesis, in which it was expected that social support moderates the relationship between mental resilience and mental well-being, cannot be confirmed. No significant moderation effect was found of social support on the relationship between mental resilience and mental well-being. Therefore, there might be other factors that are associated with the relationship between mental resilience and mental well-being. For example, Bustamante et al. (2022) found that engagement in nature positively contributed to people's well-being during the pandemic. The area where someone lives (rural or urban) may therefore play a role on people's well-being in addition to mental resilience. Additionally, research of Neelam (2021) shows that people with pre-existing psychological problems experienced a bigger decrease in mental health than people without pre-existing mental health problems. This indicates that pre-existing mental health problems might also be a factor that is associated with mental well-being.

The results of the non-significant interaction of social support on the relationship between mental resilience and mental well-being are opposite to results of studies that have previously been conducted into this relationship, in which social support was found to play an interacting role in the relationship between mental resilience and mental well-being (Khan & Husain, 2010; Li et al., 2021). However, since not much research has been done on the role of social support in the relationship between mental resilience and mental well-being after the restrictions have been lifted, other factors such as the abovementioned factors of living area and pre-existing psychological problems, which were indicated to be important factors regarding people's well-being during the pandemic, may play a role as well in the post-COVID-19 context.

Strengths and limitations

This study shows several strengths that ensure its importance. First, the measurement scales that are used during the study are valid, reliable, and widely used. This provides these scales to be very suitable for measuring mental resilience, social support, and mental well-being. Regarding the sample, it is shown that there is an almost equal distribution between Dutch and German students. This makes it possible to make inferences about students from both nationalities. Furthermore, this study is focused on the post-COVID-19 context. Since most studies that have previously been conducted focused on mental well-being during the COVID-19 pandemic, this research provides interesting new information about the mental resilience, social support, and mental well-being of students now that the restrictions have been lifted.

Besides the strong points of this study, there are also some limitations that must be considered. First, looking at the gender of the participants, it can be concluded that this study contained more female than male participants. Additionally, only one person identified themselves to be non-binary / third gender. This ensures that inferences regarding people's gender should be made with caution, especially with regard to non-binary people.

Secondly, the design of the study is possibly limiting its outcomes. The cross-sectional design does not include a pre- and post-test. As a result, no inferences can be made regarding the changes in mental resilience, perceived social support, and mental well-being, from during the pandemic in comparison to the post-COVID-19 context. This makes it impossible to indicate if the level of mental resilience, perceived social support, and mental well-being of the students increased, decreased, or remained equal after lifting the pandemic's restrictions. Only tentative conclusions can be drawn, based on comparing the results of previous research during the COVID-19 pandemic with the findings of the present study. Additionally, because of having only one measurement moment in which self-reports are used, biases cannot be avoided. For example, the respondents might have given socially desirable answers instead of being completely honest. Additionally, they might have interpreted questions and statements differently than intended. It is therefore possible that certain factors influenced the respondents during the completion of the survey, because of which the results may show deviations.

Implications for further research

This research provided useful insights into the mental resilience, social support, and mental well-being of students after lifting the COVID-19 restrictions. It also calls for further research into the topic. First, the non-significance of the moderation effect raises the question which factors are associated with the relationship between mental resilience and mental well-being. By conducting more research into this topic, more can be learned about the factors that might be associated with the well-being of students in the post-COVID-19 context, such as the area where people live or experiencing pre-existing psychological problems. Additionally, to see how the well-being of students has evolved now compared to during the pandemic might give insight into the level of recovery that students experienced so far after two years of COVID-19 pandemic and lockdowns. This would give insight into the progress so far and the steps that still need to be taken to further improve students' mental well-being. Lastly, the fact that this study included only one person that identifies themselves as non-binary stresses the need to include non-binary / third gender populations in future research to investigate their

mental well-being. In conclusion, this study provides several starting points for further research. Further research into these topics will not only contribute to an increase in knowledge, it will also provide better preparation for support during the recovery processes after future crises.

Conclusion

The COVID-19 pandemic and the restrictions that had to be implemented have touched everyone. In addition to the physical effects of COVID-19, many negative psychological consequences emerged from the pandemic. Especially students seem to be negatively influenced by the pandemic and its restrictions (Son et al., 2020). This present study focused on students' recovery after lifting most of the measures that were implemented during the COVID-19 pandemic, which might have caused these many negative psychological consequences. The results confirmed that students' mental resilience is associated with their well-being. However, no significant effect was found of social support as a moderator in the relationship between mental resilience and social support. Nevertheless, this study proved the need for further research to obtain more knowledge and to be better prepared for similar crisis and recovery processes in the future.

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