

UNIVERSITY OF TWENTE.

The significance of social closeness:

A study on Social support, Strength use, and Subjective Well-being in Young
Adults

MASTER THESIS

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Abstract

Positive psychology focuses on the strengths that enables individuals and communities to thrive. Earlier research has shown that strengths, and their use, are significantly associated with well-being and vitality. If people have the impression that their social network is a resource of support, this will have a positive effect on their subjective well-being. Though there is little research about the influence of strength use on the relation between perceived social support and subjective well-being specifically. Based on this background this study examined if an individual's strength use explains how perceived social support influences one's satisfaction with life and being happy. This cross-sectional study examines the relations between perceived social support and subjective well-being (consisting of the facets: life satisfaction, positive affect and negative affect) in the context of strength use. This research is a secondary analysis of existing datasets. The participants consisted of 156 young adults between the age of 18 and 30 who completed a set of self-report instruments about well-being and social support. Mediation analysis of the data revealed significant positive relations between perceived social support, strength use, life satisfaction and positive affect. Additionally, it showed that strength use mediates the relation between perceived social support and life satisfaction and positive affect. This suggests that when people perceive more social support, they will make more use of their strength, which positively influences life satisfaction and positive affect. Although the mediation effect was small, which suggest that there could be other more significant mediators in the relation between perceived social support and subjective well-being. This study showed that the amount an individual perceives social support and strength use are significant factors in maintaining well-being and that these variables are correlated. During times like these where social distancing is one of the preventive measures against COVID-19 this study shows the importance of assessing and maintaining social contact. In the future similar studies could be conducted with different populations, also more longitudinal studies on this subject should be realized to give more insight in the relationship between social support and well-being, this to investigate causality. This study supports previous findings that limiting social resources can negatively affect well-being and the significance of getting more insight in how an individual can find strength in their social network. Concluded, perceived social support during COVID social distancing times increases life satisfaction and positive affect in young adults, via an improved use of their existing strengths.

Samenvatting

Positieve psychologie is een stroming binnen de psychologie die zich met name richt op zaken waar mensen en maatschappijen kracht uithalen. Eerdere studies lieten zien dat de sterke kanten van mensen en het gebruik maken hiervan gerelateerd zijn aan welzijn en vitaliteit. Hiernaast is de mate waarin iemand zijn/haar sociale netwerk als bron van steun ervaart positief gerelateerd aan subjectief welzijn. Toch is er weinig literatuur te vinden over de invloed van het gebruik van je krachten op de relatie tussen waargenomen sociale steun en subjectief welzijn. Gebaseerd op deze vindingen richt deze studie zich op of het gebruik van krachten verklaart waarom waargenomen sociale steun van invloed is op subjectief welzijn. Dit cross-sectioneel onderzoek exploreert de relaties tussen waargenomen sociale steun en subjectief welzijn in de context van het gebruik van krachten. In dit onderzoek wordt er gebruik gemaakt van secundaire analyses van bestaande datasets. The participanten waren 156 jongvolwassenen tussen de 18 en 30 jaar. Deze participanten hebben verschillende zelf-rapportage vragenlijsten ingevuld over krachten, welzijn en sociale steun. Mediatie analyse liet zien dat waargenomen sociale steun, het gebruik van krachten, levenstevredenheid en positief affect significant positief gerelateerd zijn. Hiernaast werd gevonden dat het gebruik van krachten de relatie tussen waargenomen sociale steun en subjectief welzijn deels medieert. Dit betekent dat de positieve relatie tussen sociale steun ervaren en subjectief welzijn deels verklaard wordt via de mediator gebruik van de eigen krachten. Het ervaren van meer sociale steun zorgt ervoor dat mensen beter gebruik kunnen maken van hun eigen krachten, wat vervolgens zorgt voor een hoger welzijn. Maar het gevonden effect was klein, wat betekend dat er waarschijnlijk andere belangrijke factoren een mediërende rol spelen in de relatie tussen ervaren sociale steun en subjectief welzijn. Vooral in deze tijden waarin sociale onthouding wordt gebruikt als een preventieve maatregel tegen COVID-19 is het van belang om meer inzicht te krijgen in wat sociale processen doen met onze gezondheid. In de toekomst kunnen er gelijke onderzoeken gedaan worden bij verschillende populaties en kunnen longitudinale onderzoeken gedaan worden om causaliteit te testen. Dit onderzoek ondersteund eerder gevonden bevindingen dat het beperken van sociale contacten van negatieve invloed kan zijn op onze gezondheid en dat mensen kracht kunnen vinden in hun sociale netwerk. Samengevat laat dit onderzoek zien dat ervaren sociale steun in tijden van sociale distantieëring door COVID, een positief effect heeft op levenstevredenheid en positief affect in jongvolwassenen. Dit deels door toename in het gebruik van krachten.

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Introduction

At the moment we are living in a time which revolves around COVID-19, a contagious disease caused by the SARS-CoV-2 virus. The symptoms from COVID-19 can vary from tiredness and a fever to more severe symptoms such as difficulty breathing, pain in the chest and loss of speech and movement. As of today in March 2021 the number of registered deaths due to COVID-19 since the outbreak of the virus in the beginning of 2020 is 16.396 in the Netherlands alone (RIVM, 2021). Not surprisingly, the global impact of the virus has been enormous. The contagiousness of the disease has specifically led to pressure on healthcare systems and the fear for the disease and restrictions in moving to different locations lead to patients not receiving the health care they need (Menting, Schelven, & Boeijs, 2020).

The government had to take serious measures to limit the negative outcomes of the virus. One of the main preventive measures is social distancing. Social distancing, also called physical distancing, is maintaining a safe distance between you and other people who are not from your household in both indoor and outdoor spaces (CDC, 2020). Social distancing helps limit possibilities for a person to get in contact with contaminated surfaces or infected people outside their home. Social distancing on the other hand has potential implications on mental health. Restrictions in social contact can lead to depression and anxiety, whereas those with pre-existing mental illnesses can suffer from limited interpersonal contact which are central around their management (Venkatesh, & Edirappuli, 2020). Social distancing can also lead to social isolation and loneliness. Social isolation is conceptualized as the objective lack of social contact with other, such as the absence of a live-in partner or limited contact with others (Pantell, 2020). Independent from background, like origin, culture or religion, humans are social beings and maintaining social isolation for a longer period of time can increase fear, anxiety symptoms, loneliness, and depressed mood (Carvalho Aguiar Melo & de Sousa Soares, 2020). In addition, people experience more (financial) stress when working from home (El-Zoghby & Soltan, 2020).

The pandemic can also lead to more mental health problem cases in young adults, because of the unique combination of the public health crisis, social isolation, and economic recession. Economic downturns can affect adult unemployment and mental health (Golberstein, Wen, & Miller, 2020). Lee, Cadigan & Rhew (2020) found that especially young adults, who have greater disruptions in their social lives, should be targeted for intervention strategies, as they are at risk for feelings of loneliness and perceiving less social support. Young adults can also experience more mental problems during the pandemic as they

have more academic stress (Glozah, 2013). Another risk for mental health problems in young adults is job insecurity and worrying about future employment (Ganson, Tsai, Weiser, Benabou, & Nagata, 2021).

During the current COVID-19 pandemic, where social distancing is negatively influencing mental health, it is important to not only assess these negative influences, but also explore how people can enhance or maintain their well-being. Until recently clinical psychology has been mainly concerned with deviant or maladaptive mental states. In mental health care the dominant focus in measuring treatment success has been on reduction of mental disorders and symptoms of psychopathology (Bohlmeijer & Westerhof, in press). However, the definition of health or well-being according to the World Health Organization (WHO, n.d.) is ‘a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’. This definition of well-being states that a person will not automatically feel healthy or experience better well-being in the absence of physical or mental problems. The two-continua model also describes the distinction between the two dimensions: mental illness and mental health (Westerhof, & Keyes, 2010). Keeping this distinction in mind this paper focuses on mental health by investigating measures of enhancing well-being. Relevant concepts in measuring global well-being are happiness and satisfaction with life-as-a-whole or life as general. Subjective well-being (SWB) involves the focus on global well-being but also specific life concerns. It is the psychological sum up of the quality of an individual’s life in society (Andrews & Robinson, 1991). SWB consists of two components, the affective component based on Diener and Emmons positive and negative affect, and the cognitive component about the individuals satisfaction with live. Higher SWB has been related with good health, longer and better social relationships, work performance and creativity (Diener, Oishi, & Tay, 2018). A broader approach of mental health is hereby very important, in which not only the study of psychopathology is dominant, but also finding ways of enhancing SWB.

Strength use and well-being

Positive psychology is not only the study of positive feelings and happy moments but also the study of positive traits and positive institutions (Biswas-Diener, 2010). One of the main focuses of positive psychology is the study of psychological strengths and positive emotions. Linley (2008) offers the following definition of a generic strength: “a strength is a pre-existing capacity for a particular way of behaving, thinking, or feeling that is authentic

and energizing to the user, and enables optimal functioning, development and performance” (p. 9). The Values in Action (VIA) classification-scheme of the character strengths proposed 24 different character strengths, such as creativity and fairness (Peterson & Seligman, 2004). The different kind of strengths have been shown to be predictors of SWB (Martínez-Martí, & Ruch, 2017). All 24 character strengths are also positively correlated with life-satisfaction and with a higher magnitude of correlations for college students than adults (Lounsbury, Fisher, Levy, & Welsh, 2009).

Where the character strengths seem like a central part of the personality, the use of these character strengths induce a feeling of purpose and fulfilment (The VIA Institute of Character, 2020). Strength use is an important longitudinal predictor of well-being and can lead to less stress and greater self-esteem (Wood, Linley, Maultby, Kashdan & Hurling, 2011). It is not only positively associated but it also predicts the variance of SWB between people (Govindji & Linley, 2007). Earlier study showed that daily strengths use was positively related to positive affect and work engagement (Bakker, Hetland, Olsen, & Espevik, 2018). However, how the character strengths are used are important in these associations. Although strengths are trait-like, how they are used depends on context, values and interests (Biswas-Diener, Kashdan, & Minhas, 2011). The underuse and overuse of different strengths were associated with negative outcomes, like anxiety symptoms while optimal use was related to positive outcomes. This finding suggest that strengths are multifaceted and that strengths can be used ‘incorrectly’ (Freidlin, Littman-Ovadia, & Niemiec, 2017). The optimal use of character strengths provides a pathway for individual well-being and life satisfaction as well as management of problems (Littman-Ovadia & Seger, 2010).

There are several explanations as to why strength use is associated with well-being. First, Peterson & Seligman (2004) proposed that according to the VIA, strengths use is largely intrinsically motivated. Signature strengths are the strengths that one considers to be very much their own. The use of these strengths are concordant with ones intrinsic interests and values. Using these strengths also fulfils the basic psychological needs: competence, autonomy and relatedness which serve well-being. Another explanation as to why strength use is related to well-being is that strength use influences well-being both through goal progress and through the psychological need of fulfilment (Govindji & Linley, 2007). Another research found that the use of specific strengths can be protective factors against depression and suicidality (Kim, & et al, 2018). Other research support these findings, they

found that endorsing strengths was related to meaning, while both endorsing and deploying strengths were related to well-being (Littman-Ovadia & Steger, 2010).

Social support and well-being

Besides the character strengths and their use earlier research suggests that social-support also has a positive effect on life-satisfaction and SWB. According to Cobb (in Gülaçti, 2009) “social support is defined as information leading the subject to believe that he or she is loved, esteemed, and belongs to a network of mutual obligation”. Literature distinguishes two types of social support, the social support one receives and the social support one perceives. Receiving social support is conceptualized as social and psychological support obtained from the individual’s environment (Gülaçti, 2010). In this paper the definition of perceived social support will be used, which is: “the existence of support resources when they are needed, and it can be identified in subjective qualitative perspectives and be measured” (Gülaçti, 2009, p.3845). The difference with perceiving social support is that it is not about the actual receiving of social support, like receiving help, advise or supporting actions, but if a person experience these actions as supportive (Freeman & Rees, 2010). Perceived and received social support are considered distinct constructs (Dunkel-Schetter and Bennett, 1990, cited in Freeman & Rees, 2010). It is reported that perceived social support is more determinative than received social support on mental health (Gülaçti, 2010). Research found that perceived social support is positively related with life satisfaction (Sahin, Özer & Yanardag, 2019). In a study based on survey data collected from 574 college students they found that perceived social support consistently predicted well-being outcomes (Lee, Chung & Park, 2018). Perceived social support can also act as a buffer against the effects of academic stress on psychological well-being (Glozah, 2013). This was also found by Kleiman & Riskind (2012) who suggested that perceived social support buffers against suicide ideation through utilization of social support and increase in self-esteem. A different study also suggests that the relationship between perceived social support and subjective well-being is mediated by self-esteem (Tian, Liu, Huang & Huebner, 2013). When a person perceives more social support, they experience more self-esteem which in turn positively influence well-being. Another explanation could be that positive relations which are connected with more perceived social support are paired with experiencing more positive emotions. Experiencing these positive emotions can result in portraying one’s life more positive and satisfactory (Gülaçti, 2010). Gülaçti (2009) found that perceived social support

received from family is a significant predictor of subjective well-being but perceived social support received from a special person or a friend are not significant predictors of subjective well-being. As described above, perceived social support influences SWB in different ways.

Inverse, lower perceived social support has a negative impact on well-being. Low perceived social support can contribute significantly and independently to poor mental health for men and women (Rigby, 2000). This is also supported by a study that compared married, widowed, and divorced participants. Findings showed that the widowed and divorced group who perceived less social support, showed lower levels of psychological health (Soulsby & Bennett, 2015). The lack of perceived social support is also a significant predictor of depressive symptoms (Alsubaie, Stain, Webster, & Wadman, 2019). People with depression who perceive their social support as poorer have worse outcomes in terms of symptoms, recovery and social functioning (Wang, Mann, Lloyd-Evans, Ma & Johnson, 2018).

Despite all the evidence that shows the influence perceived social support has on well-being, one of the major preventive measures for reducing the spread of COVID-19 involves social distancing (Saltzman, Hansel & Bordnick, 2020). The interventions most essential for limiting the spreading of the virus are disrupting the social processes that facilitates mental health, including social support availability (Marroquin, Vine, & Morgan, 2020). Individuals experiencing self-isolation during the pandemic have significantly higher rates of depression, irritability and loneliness compared to those who were not. The risk of elevated levels of depression symptoms was 63% higher in individuals who perceive lower levels of social support (Grey et al., 2020). Another study in China indicates that there is a higher prevalence of mental health problems among adolescent with medium and low levels of social support during the outbreak of COVID-19 (Qi et al., 2020). Therefore it is important to investigate the relations between social support and mental health during the pandemic.

Extending the current domain

During the pandemic where social contact is limited it is important to assess through which mechanisms perceived social support positively influences SWB. Research have shown that strength use and perceived social support are predictors of well-being. In spite of these findings, little to no research can be found about the relation between these two predictors. What earlier studies have found is that the relationship between SWB, strength use, and social support can be mediated by different factors. For example, goal progress and self-esteem can better explain the relation between strength use and SWB (Govindji & Linley, 2007). Less

research could be found about ‘perceived’ social support and strength use which are key variables in this study. As Gülaçti (2010) found that not receiving, but perceiving social support is more determinative in mental health, it is important to focus on how one perceives their social support. What has been found is that perceived social support indirectly influences SWB through its direct effect on self-esteem (Muhlenkamp & Sayles, 1986).

As perceived social support and strength use are both predictors it is important to investigate if there are significant associations between these two variables in relation to SWB. Research on the effect of social support and strength use on well-being is important as findings can be used as foundation for preventive measures to maintain mental health. In the context of the prevention of mental illnesses, social support and strength use could function as a buffer against mental illnesses (Glozah, 2013). Especially at the moment during the pandemic in which social contact decreases, which make people more at risk for mental health problems, it is important to look at ways how awareness for existing social support could be created to enhance well-being (Grey et al., 2020).

Against this background the aim of this study is to assess the role of strength use in the relation between social support and SWB in young adults. In line with earlier research this study expects to find a positive relation between perceived social support and SWB. Additionally, expectations are to find positive relations between perceived social support and strength use, and strength use and SWB. Lastly, this study expect to find that when people perceive more social support, they will make more use of their strengths, which in turn enhance subjective well-being. That perceiving social support will enhance strength use, is supported by research from Lavy, Littman-Ovadia, and Boiman-Meshita (2017). However the opposite effect had also been found in earlier studies, which suggests that enhancing strength use will enhance perceiving social support (Gillham, at al., 2010). Based on earlier research it could be assumed that there exists a reciprocal relation between perceived social support and strength use. The current study will investigate the first. The relation is partially explained, as findings have shown that the relation between perceived social support and subjective well-being can also be explained by other variables like self-esteem. Based on the literature the following hypotheses could be made. The hypothesized model is displayed in figure 1.

H₁: Perceived social support is significantly correlated to subjective well-being (positively to life satisfaction and positive affect, negatively to negative affect).

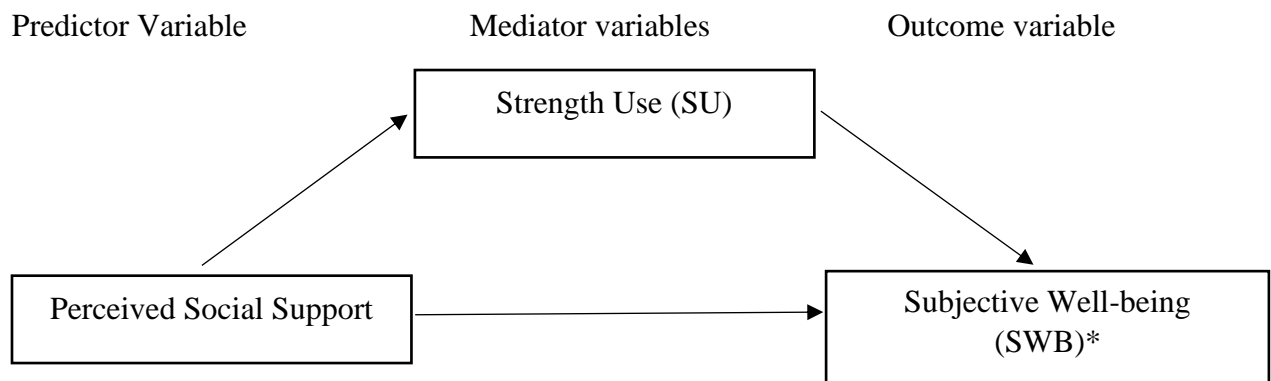
H₂: Perceived social support is significantly positively correlated to strength use.

H₃: Strength use is significantly correlated to subjective well-being (positively to life satisfaction and positive affect, negatively to negative affect).

H₄: Strength use partially mediates the relation between perceived social support and (all aspects of) subjective well-being.

Figure 1

Hypothesized relations between perceived social support, strength use and subjective well-being.



**Note:* Subjective well-being is a multifaceted variable, it contains of: ‘Life satisfaction’, ‘Positive affect’, and ‘Negative affect’.

Methods

Design

This research is a secondary analysis of existing datasets on character strengths and well-being which was obtained in April 2020 (Bechler, 2020). This primary study used a cross-sectional survey design where the participants had to fill in online questionnaires. The current study looks deeper into the associations between perceived social support, subjective well-being, and strength use. Other aspects measured in the primary study will not be discussed.

Participants and procedure

The pre-existing study was designed to investigate character strengths and well-being and had a sample of 181 young adults between the age of 17 and 32 years. The current study used a sample consisting of the participants who sufficiently completed the items pertaining to the three variables from the current study and gave consent. 21 individuals did not meet these criteria and were removed from the data set. This study focused on young adults, which means that participants younger than 18 or older than 35 were also excluded (4 participants). The final sample consisted of 156 participants with a mean age of 22.3. The sociodemographic characteristics are displayed in Table 1.

Table 1

Sociodemographic characteristics of the participants

		N(156)	Percentage(%)
Age	Mean	22.3	
Gender	Male	57	36.5
	Female	98	62.8
	Other	1	0.6
Nationality	Dutch	4	2.6
	German	135	86.5
	Other	17	10.9
Occupation	Employed	22	14.1
	Self-employed	1	0.6
	Student	132	84.6
	Other	1	0.6

Materials

The data for this study was obtained using the datasets of a broader study on strengths and well-being. Different reasons can be found that these data is a good fit for the current study. First the data from this pre-existing study is obtained between April and May 2020, during which global lockdowns were in place. In this way, the data set is appropriate for examining well-being during the COVID-19 pandemic. Second the three variables which were assessed during this study were measured in the pre-existing study. There were four questionnaires

based on pre-existing questionnaires and scales in the broader study which were of use for the current study. These questionnaires are scientifically validated and have shown to have good to excellent psychometric characteristics. Lastly, the sample consisted of young adults which is the target group.

Demographics

Different socio-demographics characteristics were assessed. These characteristics were age, gender, nationality, occupation and study level.

Perceived social support

Perceived social support was measured by using the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS is a self-report questionnaire that consists of 12 items which can be rated on a seven-point Likert scale (0= very strongly disagree, to 7= very strongly agree). The items could be divided in three subscales based on the source of the social support, namely family, friends or significant other. For example, one item from the subscale significant other is: 'There is a special person who is around when I am in need.' To calculate the outcome score of the MSPSS the meanscore of the 12 items have to be taken. The scores for the subscales can be calculated by taking the means of the corresponding items. The sum score can vary between 1 and 12 as the scores for the subscales can vary between 1 and 4. Higher means on the MSPSS equals higher experience of perceived social support. Earlier research demonstrated good to excellent reliability with a Cronbach's alpha range from .81 to .98 (Wongpakaran, Wongpakaran, & Ruktrakul, 2011). During this study $\alpha=.93$ was found which indicates an excellent internal consistency.

Strength use

Strength use was measured by using the Strength Use Scale (SUS) (Govindji, & Linley, 2007). The SUS is a self-report questionnaire that consists of 14 items which can be rated on a five-point Likert scale (0= strongly disagree, to 5= strongly agree). The respondents rate in what extent the statements apply to themselves. One item from the SUS is: 'I achieve what I want by using my strengths'. The SUS is expressed in a total sum score (range 14-70), with higher scores indicating more use of strengths. Earlier research showed that the SUS has excellent psychometric characteristics with a reliability that varies between $\alpha= .94$ to .97 (Wood et al., 2011)(Huber, Webb, & Höfer, 2017). The current study has found $\alpha=.91$ which indicates an excellent internal consistency.

Subjective well-being

Subjective well-being was measured by using two different instruments, Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985) and the positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988).

The SWLS is a self-report questionnaire that consists of 5 items which can be rated on a five-point Likert scale (1= Strongly disagree to 7=Strongly agree). It measures life satisfaction and respondents have to rate to what extent the different statements apply to them. For example, one item of the SWLS is, 'In most ways my life is close to my ideal'. The SWLS is expressed in a total sum score (range 5-35), with higher scores indicating more satisfaction with life. The internal consistency found in earlier research varies from .78 to .83 which can be considered good (Neto, 1993) (Bayani, Koocheky, & Goodarzi, 2007). In the current study, a crohnbach's alpha of $\alpha=.84$ was found, which indicates a good internal consistency.

The PANAS consists of two 10-item scales to measure both positive affect (PA) through positive emotions and negative affect (NA) through negative emotions. The PANAS measures the affective component of SWB. The items are rated on a five-point Likert scale (1= very slightly or not at all, 5= extremely). The respondent had to indicate the extent he/she has felt different emotions over the past week. One item for example from the PA scale is 'interested'. 'Distressed' is for example an item from the NA scale. From the PANAS two scores could be derived, the PA score and the NA score. The sum of the PA and NA items need to be calculated to get the PA and NA score. The total score for both scales can vary from 5 to 50. The scores on the scales indicate to which extent respondents experience positive and negative affect. Both subscales of the PANAS have shown good internal consistencies in earlier research with a $\alpha=.83$ in the PA scale and $\alpha=.86$ in the NA scale. The current study have found $\alpha=.81$ and $\alpha=.85$ respectively for the PA and NA scale, which indicates a good internal consistency.

Data analysis

Data analysis were conducted using the Statistical Package for Social Sciences (IBM SPSS Statistics 26). There were two exclusion criteria. First the data was checked on missing values. Data from participants which are incomplete were excluded using listwise deletions. This also included data of participants who confirmed that they were (ever) diagnosed with a serious mental illness, as the broader study excluded them from filling in the rest of the

questionnaires. After this the data from the respondent younger than 18, and older than 35 were excluded. For the different analyses an $\alpha=.05$ has been used to test significance.

Descriptive statistics

To get a clear overview of the variables the descriptive statistics were calculated. The mean age was calculated plus the frequencies of gender, nationality and occupation. The mean and the standard deviation were calculated for the variables: perceived social support, strength use, life satisfaction, positive affect and negative affect. Expectations are to see normality in the data of these variables, so a Shapiro-Wilk test was conducted to explore the distribution of the data.

Correlation analysis

To test H₁, H₂, and H₃, the correlations between the variables were explored using Pearson's correlation coefficient. The Pearson's correlations were conducted for the different variables per hypothesis. For H₁ it was tested if perceived social support had a significant positive correlation with life satisfaction and positive affect. Inverse of this it was tested if perceived social support had a significant negative correlation with negative affect. For H₂ the correlation between perceived social support and strength use was tested. Next for H₃ the correlations between strength use and subjective well-being was tested.

Mediation analysis

To test H₄, linear regression analyses were conducted to assess the mediation of strength use on the relationship between perceived social support and subjective well-being. In the first step the total effect between perceived social support and life satisfaction was estimated using bivariate regression analysis. In the next step the direct effect of the predictor on the mediator was estimated. A bivariate regression analysis was conducted to assess the effect of perceived social support on strength use. In the following step a multiple regression analysis was conducted to assess the direct effect of the predictor and the mediator on the outcome variable. So the multiple regression analyses will be used with perceived social support and strength use as predictors of life satisfaction. In the last step the indirect effect of perceived social support on life satisfaction was assessed using the bootstrapping method on 5000 samples. The mediation effect was significant if the 95% confidence interval did not contain zero. These analyses were repeated for the other two facets of subjective well-being: positive affect and negative affect.

Results

An overview of the descriptive statistics and correlations between the variables, perceived social support, strength use, life satisfaction, positive affect, and negative affect is presented in table 2. Significant relations were found between perceived social support, strength use, life satisfaction and positive affect. The variables were normally distributed as can be seen in appendix 1. The distribution of strength use was slightly skewed but after analysing the raw data, no abnormal outliers or patterns were found (appendix 2).

Table 2

Descriptive statistics and correlations

	Descriptive statistics		Pearson's correlations				
	M	SD	1	2	3	4	5
1. Perceived social support	5.84	.97	-	.29**	.64**	.28**	-.08
2. Strength use	70.15	10.91	.29**	-	.35**	.38**	-.18*
3. Life satisfaction	5.12	1.09	.64**	.35**	-	.29**	-.26**
4. Positive affect	32.01	6.50	.28**	.38**	.29**	-	.08
5. Negative affect	20.80	7.31	-.08	-.18*	-.26**	.14	-

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

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

Mediation analyses

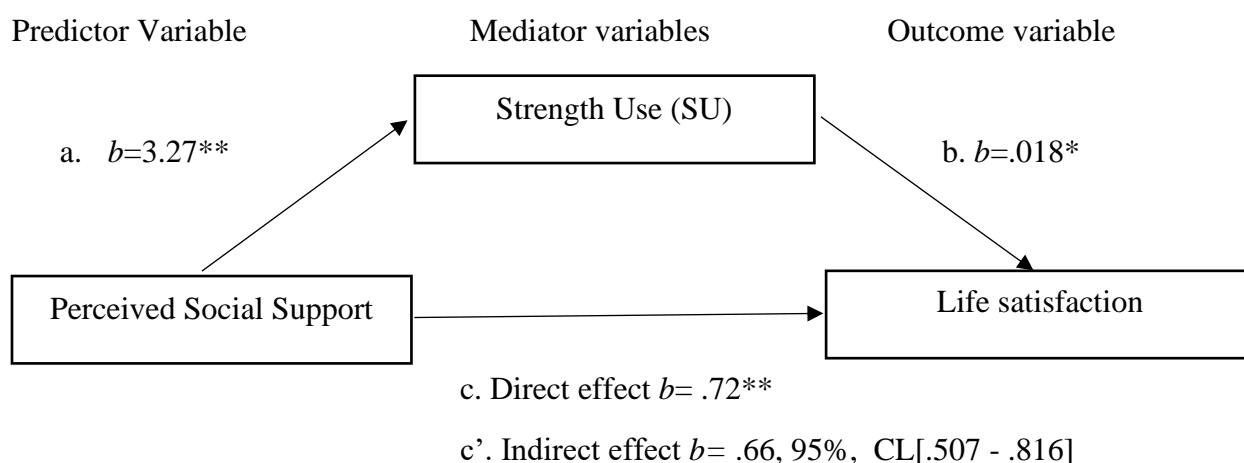
Perceived social support predicts life satisfaction through strength use

The relationship between perceived social support and life satisfaction was mediated by strength use. The total effect of perceived social support on life satisfaction was significant ($b = .72$, $t(155) = 10.42$, $p < 0.01$). Figure 3 illustrates that the standardized regression coefficients between perceived social support and strength use was statistically significant, as was the standardized coefficient between strength use and life satisfaction. The standardized indirect effect was $b = 0.06$, 95%, CL[0.012-0.136]. The significance of this indirect effect was tested using the bootstrapping method. Unstandardized indirect effects were computed for each of the 5000 samples. The bootstrapped indirect effect was also significant ($b = .66$, 95%, CL[.507 - .816]). This constitutes a partial mediation effect as a significant direct effect

between perceived social support and life satisfaction remains. Based on these results this study found that the relationship between perceived social support and life satisfaction can be partially explained by strength use.

Figure 3

Mediating effect of strength use on the relationship between perceived social support and subjective well-being.



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

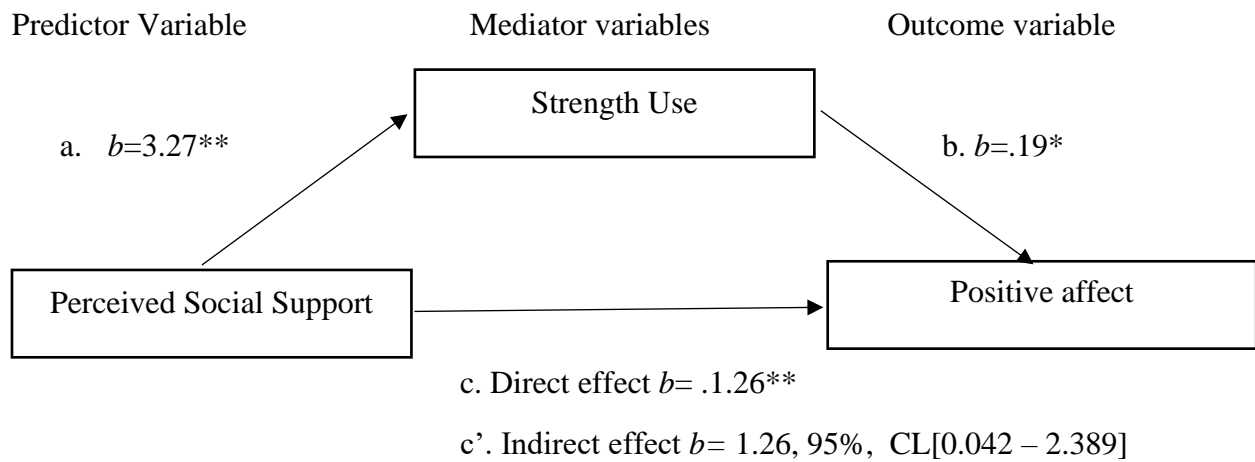
**. Correlation is significant at the 0.01 level (2-tailed)

Perceived social support predicts positive affect through strength use

The relationship between perceived social support and positive affect was mediated by strength use. The total effect of perceived social support on positive affect was significant ($b = 1.88$, $t(155) = 3.64$, $p < 0.01$). Figure 4 illustrates that the standardized regression coefficients between perceived social support and strength use was statistically significant, as was the standardized coefficient between strength use and positive affect. The standardized indirect effect was $b = 0.09$, 95%, CL[0.038-0.173]. The significance of this indirect effect was tested using the bootstrapping method. Unstandardized indirect effects were computed for each of the 5000 samples. The bootstrapped indirect effect was significant ($b = 1.26$, 95%, CL[0.042 – 2.389]). This mediation effect was partial as there is a significant direct effect between perceived social support and life satisfaction. Based on these results this study found that the relationship between perceived social support and positive affect can be partially explained by strength use.

Figure 4

Mediating effect of strength use on the relationship between perceived social support and positive affect.



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

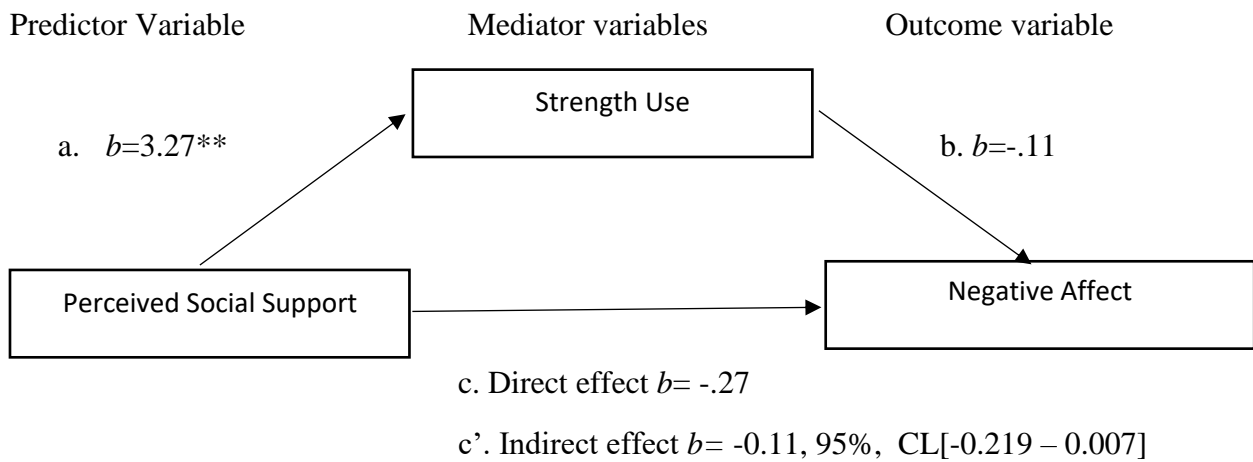
**. Correlation is significant at the 0.01 level (2-tailed)

Perceived social support predicts negative affect through strength use

The total effect of perceived social support on negative affect was not significant ($b= -0.63$, $t(155)= -1.04$, $p=.300$). So, no mediation effect could be found. The results of the analysis could be found in figure 5.

Figure 5

Mediating effect of strength use on the relationship between perceived social support and negative affect.



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

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

Discussion

The purpose of this research was to investigate the relationship between perceived social support and subjective well-being in the context of strength use in a sample of young adults during the pandemic of COVID-19. One aim during this study was to examine if perceived social support, strength use and subjective well-being are related. Perceived social support was significantly positively related to the facets life satisfaction and positive affect of subjective well-being, with a stronger relation to life satisfaction. This is in concordance with findings from earlier studies (Gülaçti, 2010; Sahin, Özer & Yanardag, 2019). No significant relation was found between perceived social support and the facet negative affect. These findings confirm that when a person perceives more social support they feel more satisfaction with life and experience more positive emotions or vice versa. However, people who perceive more social support do not seem to experience less negative affect. Against this background H1 can be partly accepted.

Explanation for these findings can be found in Ryan & Deci's (2004) self-determination theory. According to the self-determination theory human have three universal psychological needs. These three needs are: competence, autonomy, and relatedness. By perceiving social support one could feel satisfied in their need of relatedness. Perceiving

social support can fulfil this need as interaction with other people can enhance feelings of connectedness. By perceiving social support, people can also feel as if they have healthy relationships with family and friends which makes them more satisfied with their life overall. This is also in line with the definition of Cobb (in Gülaçti, 2009), by perceiving social support a person can feel loved, esteemed and belonging to a network. Another explanation could be that when a person experience that they receive support, they feel recognized in their cognitive evaluations of their life circumstances (Diener, Suh, & Oishi, 1997). Feeling social connectedness and belonging to a network can make the person feel loved and make them experience more positive feelings.

In this study results showed that perceiving social support does not affect one's experience of negative emotions. This seems to contradict with what has been found in earlier studies which suggests that low perceived social support can contribute to poor mental health, and that it predicts depressive symptoms (Rigby, 2000; Soulsby & Bennett, 2015; Alsubaie et al., 2019). So expectations were to find that perceiving social support will relieve the experience of negative emotions. An explanation for not finding any association could be that social support not directly influences negative affect, but that it buffers against negative influence of stress on mental health. This is in concordance with findings from Oh, Ozkaya & LaRose (2014). Research from Glozah (2013) supports this explanation as they found that perceived social support can act as a buffer against the effects of academic stress on psychological well-being. Perceived social support can also act as a buffer against suicide ideation (Kleiman & Riskind, 2012). Assumptions based on these findings are that perceiving less or no social support at all is not directly related to experiencing more negative feelings. But that experiencing stressful situations will link perceived social support to negative affect. This finding once again supports that negative affect and positive affect are unrelated constructs, as the current study found a relation between perceived social support and positive affect, but not negative affect (Diener and Emmons (1984). Supposing that when people feel more positive emotions when they perceive more social support does not mean that they will also feel less negative emotions.

This study also confirmed that a significant positive relation exists between perceived social support and strength use, so H2 can be accepted. This means that when a person experience more social support they will make more use of their strengths or vice versa. This is in line with findings in earlier studies which suggest that perceiving social support can enhance people's daily use of strengths (Bakker & Woerkm, 2018). An explanation could be

that by experiencing social support people can feel more assured in their capacities and therefore make more use of their strengths. Results also showed that strength use is related to subjective well-being. Strength use is positively related to the facets life satisfaction and positive affect, and negatively related to negative affect. This suggests that when people make more use of their strengths, they feel more satisfied with life and experience more positive emotions, or vice versa. Additionally it suggests that when people make more use of their strengths they feel less negative emotions or vice versa. This is in line with findings from earlier studies which suggest that strength use is an important longitudinal predictor of well-being (Wood, et al., 2011; Govindji & Linly, 2007). Against this background H3 could also be confirmed. In contrary to these findings, Freidlin, Littman-Ovadia and Niemiec (2017) found that the underuse and overuse of character strengths are related to negative outcomes as depressive symptoms. The current study has found linear relationships between strength use and the facets of subjective well-being. This means that when strength use increases, corresponding, life satisfaction and positive affect will also increase, and negative affect will decrease. An assumption could be that in the studied sample the people did underuse their strengths but not overuse them. Or it can mean that overusing the strengths does not occur in this sample.

This research also sought to investigate whether the amount of strength a person uses mediates the relation between perceived social support and subjective well-being. Analysis in this study showed a small partial mediating effect of strength use on the relation between perceived social support and the facets life satisfaction and positive affect. Therefore H4 can be partially accepted. This finding means that the amount of social support an individual perceives influences subjective well-being, but partially via its effect on strength use. Although, the mediating effects that were found were small compared to the other effects in the mediation models. This suggests that strength use is not the most significant mediator in the relation between perceived social support and subjective well-being. An explanation as to why only a small mediating effect of strength use was found in the current study could be that during this time of pandemic, people maybe will rely on other resources for using their strengths because of the limitations of social contact. That strength use partially mediates the relationship is in line with research from Kong, Zhao and You (2013) and Tian, Liu, Huang and Huebner (2013) who found that the relationship between perceived social support and SWB is mediated by different factors, for example through self-esteem.

A strength of this study is that it confirms earlier found relations between perceived social support, strength use and subjective well-being and that it gives a better understanding in how perceived social support influences subjective well-being. Earlier studies already found that perceiving social support is positively related to life satisfaction (Sahin, Özer & Yanardag, 2019). And that it can also buffer against the effects of stress on psychological well-being. This study gives better insight in how exactly social support can influence well-being. And this is partially through its positive effect on an individual's strength use. Although the effect that has been found was small, this indicates that there could be other variables which play more significant roles in the relation between perceived social support and subjective well-being. In the current environment where perceived social support is reduced by social distancing, and people experiencing psychological problems due these measures, these findings can be used to extend knowledge in how people maintain their well-being. Different techniques could be stimulated for people to maintain social contact with significant others and how to get the best out of these contacts. Furthermore, the improved understanding of the relation between perceived social support and well-being shows that the use of one's character strengths is very relevant during these times. Findings from this research can contribute as to how social support can be optimized. A consideration should be that improving social support and strength use do not improve negative affect.

Limitations of this study were that the sample was obtained through the convenience sampling method. The sample consisted mainly of German, female university students so any generalizing should be done with caution. For example, it could be that Germany in comparison with other countries had other measures against COVID-19 during this research, which can influence the outcome of the results. Other measures could lead to more or less limitation in social contact, which also can effect perceived social support. Earlier research found that in March 2020 the implementations of measures differed between countries and that for example Italy had the most stringent lockdown measures (Meier, et al., 2020). However, findings in this study were consisted with earlier findings. Additionally, while normalcy was assumed for the variable 'strength use' there was a significant skewed effect in the data set which may have influenced the results. The last limitation for this study is that causality could not be established between the variables as mediation analyses have been done with data collected in a single timepoint. This study cannot show if one variable causes the other. This leaves room for alternative explanations of the results, for example it could be that the social support an individual perceives enhances their use of strengths, which was tested in the current study. This is in line with research from Lavy, Littman-Ovadia, and Boiman-

Meshita (2017). But it could also be the that when people make more use of their strengths, they will also perceive more social support (Gillham, et al., 2011; Xie, et al., 2020). Based on the findings in the current study and earlier literature it could be assumed that their exist a reciprocal relation between perceived social support and strength use.

Future research can investigate if these findings hold in different target groups. For example, a similar study could be used to investigate if perceived social support also plays a significant role in subjective well-being with people older than this sample and if strength use still mediates this relation. Earlier research found that people older then 70 reported more feelings of social isolation and loneliness due to COVID-19, as they get their social contact from grocery shopping, attending community groups and places of worship and other day-today activities. Due the restrictions of the COVID-19 measures these activities could not take place (Brooke & Jackson, 2020). While other populations like young adults who have more access to the internet can for example maintain social contact online (Pantell, 2020). Also as mentioned before this study did not investigate the causality between the variables. Getting more insight in the causality strengthens the insights of these study. Future research can make use of interventions to make people aware of the social support from their network, the difference before and after the intervention can give more insight in the causality. For example, universities can inform their students about which social contact still remains during COVID-19 and make them aware of their resources. Future research could also focus on the difference between received social support and perceived social support. As these are two are considered distinct constructions (Dunkel-Schetter and Bennett, 1990, cited in Freeman & Rees, 2010) it will be significant during times of COVID-19 to investigate if receiving less social support also results in perceiving less social support. And if enhancing social support really will make a difference in subjective well-being, or that people ‘will make do with what they have’. This way enhancing social support can be taken into account in preventive interventions to enhance well-being. At last, the mediation effect that has been found, was small in comparison to the other effects in the mediation model. Future research can focus on different mediators in the relation between perceived social support and subjective wellbeing.

In conclusion this study found that perceived social support during COVID social distancing times increases life satisfaction and positive affect in young adults, via an improved use of their existing strength. Moreover strength use is one of the pathways as to how perceived social support influences subjective well-being. Findings in this study underline the significance of social support in experienced well-being. Especially during

times where physical social contact is limited due the preventive measures and social support could be impaired, it is important to understand these working mechanisms and promote social contact and support.

References

- Alsubaie, M. M., Stain, H. J., Webster, L. A., & Wadman, R. (2019). The role of sources of social support on depression and quality of life for university students. *International Journal of Adolescence and Youth*, 24(4), 484-496. Doi: 10.1080/02673843.2019.1568887
- Andrews, F. M., & Robinson, J. P. (1991). *Measures of subjective well-being*. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of social psychological attitudes, Vol. 1. Measures of personality and social psychological attitudes* (p. 61–114). Academic Press. Doi: 10.4236/psych.2016.713163
- 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. Doi: 10.1111/joop.12243
- Bakker, A. B., & van Woerkom, M. (2018). Strengths use in organizations: A positive approach of occupational health. *Canadian Psychology/psychologie canadienne*, 59(1), 38. Doi: 10.1037/cap0000120
- Bayani, A. A., Koocheky, A. M., & Goodarzi, H. (2007). The reliability and validity of the satisfaction with life scale. *Journal of Iranian psychologists*, 3(11), 259-60.
- Bechler, L. (2020). Character Strengths, Strength Use and Subjective Well-being in Young Adults. Retrieved from: http://essay.utwente.nl/81816/1/Bechler_BA_BMS.pdf
- Biswas-Diener, R. (2010). The Practice of Positive Psychology Coaching. *Practicing Positive Psychology Coaching: Assessment, Activities, and Strategies for Success*, 145-151. Doi: 10.1080/17439760.2010.545429
- Biswas-Diener, R., Kashdan, T. B., & Minhas, G. (2011). A dynamic approach to psychological strength development and intervention. *The Journal of Positive Psychology*, 6(2), 106-118. Doi: 10.1080/17439760.2010.545429
- Bohlmeijer, E.T., Westerhof, G.J. (in press). A new model for sustainable mental health, Integrating into psychological treatment. J. Kirby & P. Gilbert (Eds) *Making an Impact on Mental Health and Illness*. London: Routledge.
- Brdar, I., & Kashdan, T. B. (2010). Character strengths and in Croatia: An empirical investigation of structure and correlates. *Journal of Research in Personality*, 44(1), 151-154. Doi: 10.1016/j.jrp.2009.12.001
- Brooke, J., & Jackson, D. (2020). Older people and COVID-19: Isolation, risk and ageism.

- Carvalho Aguiar Melo, M., & de Sousa Soares, D. (2020). Impact of social distancing on mental health during the COVID-19 pandemic: An urgent discussion. *International Journal of Social Psychiatry*, 0020764020927047. Doi: 10.1177/0020764020927047
- Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: positive emotions increase life satisfaction by building resilience. *Emotion*, 9(3), 361. Doi: 10.1037/a0015952
- Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of personality and social psychology*, 47(5), 1105. Doi: 10.1037//0022-3514.47.5.1105
- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment*, 49(1), 71-75. Doi: 10.1207/s15327752jpa4901_13
- Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective research. *Nature Human Behaviour*, 2(4), 253-260. Doi: 10.1038/s41562-018-0307-6
- Diener, E., Suh, E., & Oishi, S. (1997). Recent findings on subjective . *Indian journal of clinical psychology*, 24, 25-41. Doi: 10.1007/978-94-007-0753-5_2905
- El-Zoghby, S. M., Soltan, E. M., & Salama, H. M. (2020). Impact of the COVID-19 pandemic on mental health and social support among adult Egyptians. *Journal of community health*, 45, 689-695. Doi: 10.1007/s10900-020-00853-5
- Ganson, K. T., Tsai, A. C., Weiser, S. D., Benabou, S. E., & Nagata, J. M. (2021). Job insecurity and symptoms of anxiety and depression among US young adults during COVID-19. *Journal of Adolescent Health*, 68(1), 53-56. Doi: 10.1016/j.jadohealth.2020.10.008
- Gillham, J., Adams-Deutsch, Z., Werner, J., Reivich, K., Coulter-Heindl, V., Linkins, M., ... & Seligman, M. E. (2011). Character strengths predict subjective during adolescence. *The Journal of Positive Psychology*, 6(1), 31-44. Doi: 10.1080/17439760.2010.536773
- Glozah, F. N. (2013). Effects of academic stress and perceived social support on the psychological well-being of adolescents in Ghana. *Open Journal of Medical Psychology*, 2013. Doi: 10.4236/ojmp.2013.24022
- Golberstein, E., Wen, H., & Miller, B. F. (2020). Coronavirus disease 2019 (COVID-19) and mental health for children and adolescents. *JAMA pediatrics*, 174(9), 819-820. Doi: 10.1001/jamapediatrics.2020.1456

- Govindji, R., & Linley, P. A. (2007). Strengths use, self-concordance and : Implications for strengths coaching and coaching psychologists. *International Coaching Psychology Review*, 2(2), 143-153. Retrieved from: https://www.researchgate.net/publication/238769943_Strengths_use_self_concordance_and_wellbeing_Implications_for_Strengths_Coaching_and_Coaching_Psychologists
- Grey, I., Arora, T., Thomas, J., Saneh, A., Tohme, P., & Abi-Habib, R. (2020). The role of perceived social support on depression and sleep during the COVID-19 pandemic. *Psychiatry research*, 293, 113452. Doi: 10.1016/j.psychres.2020.113452
- Gülaçtı, F. (2010). The effect of perceived social support on subjective . *Procedia-Social and Behavioral Sciences*, 2(2), 3844-3849. Doi: 10.1016/j.sbspro.2010.03.602
- Freeman, P., and Rees, T. (2010). Perceived social support from team-mates: direct and stress-buffering effects on self-confidence. *Eur. J. Sport Sci.* 10, 59–67. Doi: 10.1080/17461390903049998
- Freidlin, P., Littman-Ovadia, H., & Niemiec, R. M. (2017). Positive psychopathology: Social anxiety via character strengths underuse and overuse. *Personality and Individual Differences*, 108, 50-54. Doi: 10.1016/j.paid.2016.12.003
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.
- Huber, A., Webb, D., & Höfer, S. (2017). The German version of the strengths use scale: the relation of using individual strengths and . *Frontiers in psychology*, 8, 637. Doi: 10.3389/fpsyg.2017.00637
- Kim, H. R., Kim, S. M., Hong, J. S., Han, D. H., Yoo, S. K., Min, K. J., & Lee, Y. S. (2018). Character strengths as protective factors against depression and suicidality among male and female employees. *BMC public health*, 18(1), 1-11. Doi: 10.1186/s12889-018-5997-1
- Kleiman, E. M., & Riskind, J. H. (2013). Utilized social support and self-esteem mediate the relationship between perceived social support and suicide ideation. *Crisis*. Doi: 10.1027/0227-5910/a000159
- Kong, F., Zhao, J., & You, X. (2013). Self-esteem as mediator and moderator of the relationship between social support and subjective among Chinese university students. *Social Indicators Research*, 112(1), 151-161. Doi: 10.1007/s11205-012-0044-6

- Larsen, R. J., Diener, E. D., & Emmons, R. A. (1985). An evaluation of subjective measures. *Social indicators research*, 17(1), 1-17. Retrieved from: https://emmons.faculty.ucdavis.edu/wp-content/uploads/sites/90/2015/08/1985_4-eval-opf-swbmeasures.pdf
- 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. Doi: 10.1016/j.jadohealth.2020.08.009.
- Lee, S., Chung, J. E., & Park, N. (2018). Network environments and : An examination of personal network structure, social capital, and perceived social support. *Health communication*, 33(1), 22-31. 10.1080/10410236.2016.1242032
- Lavy, S., Littman-Ovadia, H., & Boiman-Meshita, M. (2017). The wind beneath my wings: Effects of social support on daily use of character strengths at work. *Journal of Career Assessment*, 25(4), 703-714. Doi: 10.1177/1069072716665861
- Linley, P. A., Nielsen, K. M., Gillett, R., & Biswas-Diener, R. (2010). Using signature strengths in pursuit of goals: Effects on goal progress, need satisfaction, and , and implications for coaching psychologists. *International Coaching Psychology Review*, 5(1), 6-15. Retrieved from: https://www.researchgate.net/publication/281424792_Using_signature_strengths_in_pursuit_of_goals_Effects_on_goal_progress_need_satisfaction_and_well-being_and_implications_for_coaching_psychologists
- Littman-Ovadia, H., & Steger, M. (2010). Character strengths and among volunteers and employees: Toward an integrative model. *The Journal of Positive Psychology*, 5(6), 419-430. Doi: 10.1080/17439760.2010.516765
- Lounsbury, J. W., Fisher, L. A., Levy, J. J., & Welsh, D. P. (2009). An investigation of character strengths in relation to the academic success of college students. *Individual differences research*, 7(1). Retrieved from: <https://www.semanticscholar.org/paper/An-Investigation-of-Character-Strengths-in-Relation-Lounsbury-Fisher/9818c10fa8dd8dae31ae4f36d1af97411d1315cd>
- Marroquín, B., Vine, V., & Morgan, R. (2020). Mental health during the COVID-19 pandemic: Effects of stay-at-home policies, social distancing behavior, and social resources. *Psychiatry research*, 293, 113419. Doi: 10.1016/j.psychres.2020.113419

- Martínez-Martí, M. L., & Ruch, W. (2017). Character strengths predict resilience over and above positive affect, self-efficacy, optimism, social support, self-esteem, and life satisfaction. *The Journal of Positive Psychology*, 12(2), 110-119. Doi: 10.1080/17439760.2016.1163403
- McGrath, R. E. (2015). Character strengths in 75 nations: An update. *The Journal of Positive Psychology*, 10(1), 41-52. Doi: 10.1080/17439760.2014.888580
- Meier, K., Glatz, T., Guijt, M. C., Piccininni, M., Van Der Meulen, M., Atmar, K., ... A. H. Zamanipoor Najafabadi COVID-19 Survey Study group. (2020). Public perspectives on protective measures during the COVID-19 pandemic in the Netherlands, Germany and Italy: A survey study. *PloS one*, 15(8), e0236917. Doi: 10.1371/journal.pone.0236917
- Neto, F. (1993). The satisfaction with life scale: Psychometrics properties in an adolescent sample. *Journal of youth and adolescence*, 22(2), 125-134. Doi: 10.1007/s11205-013-0451-3
- Oh, H. J., Ozkaya, E., & LaRose, R. (2014). How does online social networking enhance life satisfaction? The relationships among online supportive interaction, affect, perceived social support, sense of community, and life satisfaction. *Computers in Human Behavior*, 30, 69-78. Doi: 10.1016/j.chb.2013.07.053
- Niemiec, R. M. (2013). VIA character strengths: Research and practice (The first 10 years). In *and cultures* (pp. 11-29). Springer, Dordrecht.
- Pantell, M. S. (2020). Maintaining social connections in the setting of COVID-19 social distancing: A call to action. *American Journal of Public Health*, 110(9), 1367-1368. Doi: 10.2105/AJPH.2020.305844
- Peterson, C., Ruch, W., Beermann, U., Park, N., & Seligman, M. E. (2007). Strengths of character, orientations to happiness, and life satisfaction. *The journal of positive psychology*, 2(3), 149-156. Doi: 10.1080/17439760701228938
- Peterson, C., & Seligman, M. E. (2004). *Character strengths and virtues: A handbook and classification* (Vol. 1). Oxford University Press.
- Peterson, C., & Seligman, M. E. (2006). The values in action (VIA) classification of strengths. *A life worth living: Contributions to positive psychology*, 29-48. Doi: 10.1016/j.newideapsych.2013.12.001
- Proctor, C., Maltby, J., & Linley, P. A. (2011). Strengths use as a predictor of and health-related quality of life. *Journal of Happiness Studies*, 12(1), 153-169. Doi: 10.1007/s10902-009-9181-2

- Rigby, K. E. N. (2000). Effects of peer victimization in schools and perceived social support on adolescent . *Journal of adolescence*, 23(1), 57-68. Doi: 10.1006/jado.1999.0289
- Şahin, D. S., Özer, Ö., & Yanardağ, M. Z. (2019). Perceived social support, quality of life and satisfaction with life in elderly people. *Educational Gerontology*, 45(1), 69-77. Doi: 10.1080/03601277.2019.1585065
- Saltzman, L. Y., Hansel, T. C., & Bordnick, P. S. (2020). Loneliness, isolation, and social support factors in post-COVID-19 mental health. *Psychological Trauma: Theory, Research, Practice, and Policy*. Doi: 10.1037/tra0000703
- Soulsby, L. K., & Bennett, K. M. (2015). Marriage and psychological well-being: The role of social support. *Psychology*, 6(11), 1349-1359. Doi: 10.4236/psych.2015.611132
- The VIA Institute on Character (2020a). Character Strengths and Virtues: A Handbook and Classification. Retrieved from: <https://www.viacharacter.org/character-strengths-andvirtues>
- Tian, L., Liu, B., Huang, S., & Huebner, E. S. (2013). Perceived social support and school well-being among Chinese early and middle adolescents: The mediational role of self-esteem. *Social indicators research*, 113(3), 991-1008. Doi: 10.1007/s11205-012-0123-8
- Qi, M., Zhou, S. J., Guo, Z. C., Zhang, L. G., Min, H. J., Li, X. M., & Chen, J. X. (2020). The effect of social support on mental health in Chinese adolescents during the outbreak of COVID-19. *Journal of Adolescent Health*, 67(4), 514-518. Doi: 10.1016/j.jadohealth.2020.07.001
- Venkatesh, A., & Edirappuli, S. (2020). Social distancing in covid-19: what are the mental health implications?. *Bmj*, 369. Doi: 10.1136/bmj.m1379.
- Wang, J., Mann, F., Lloyd-Evans, B., Ma, R., & Johnson, S. (2018). Associations between loneliness and perceived social support and outcomes of mental health problems: a systematic review. *BMC psychiatry*, 18(1), 1-16. Doi: 10.1186/s12888-018-1736-5
- 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. Doi: 10.1037/0022-3514.54.6.1063
- Westerhof, G. J., & Keyes, C. L. (2010). Mental illness and mental health: The two continua model across the lifespan. *Journal of adult development*, 17(2), 110-119. Doi: 10.1007/s10804-009-9082-y

- Wongpakaran, T., Wongpakaran, N., & Ruktrakul, R. (2011). Reliability and validity of the multidimensional scale of perceived social support (MSPSS): Thai version. *Clinical practice and epidemiology in mental health: CP & EMH*, 7, 161. Doi: 10.2174/1745017901107010161
- Wood, A. M., Linley, P. A., Maltby, J., Kashdan, T. B., & Hurling, R. (2011). Using personal and psychological strengths leads to increases in over time: A longitudinal study and the development of the strengths use questionnaire. *Personality and Individual Differences*, 50(1), 15-19. Doi: 10.1016/j.paid.2010.08.004
- World Health Organization (WHO). (n.d.) *What is the WHO definition of health?*. Retrieved from: <https://www.who.int/about/who-we-are/frequently-asked-questions>
- Xie, J., Liu, M., Zhong, Z., Zhang, Q., Zhou, J., Wang, L., ... & Cheng, A. S. (2020). Relationships Among Character Strengths, Self-efficacy, Social Support, Depression, and Psychological of Hospital Nurses. *Asian Nursing Research*, 14(3), 150-157. Doi: 10.1016/j.anr.2020.06.002
- Zeidner, M., Matthews, G., & Shemesh, D. O. (2016). Cognitive-social sources of well-being: Differentiating the roles of coping style, social support and emotional intelligence. *Journal of Happiness Studies*, 17(6), 2481-2501. Doi: 10.1007/s10902-015-9703-z
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of personality assessment*, 52(1), 30-41. Doi: 10.1207/s15327752jpa5201_2

Appendix 1

Test of normality

Test of normality (Shapiro Wilk)		
	W	p
1. Perceived social support	.86	.00*
2. Strength use	.99	.47
3. Life satisfaction	.93	.00*
4. Positive affect	.98	.01*
5. Negative affect	.95	.00*

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

Appendix 2

Distribution of 'Strength use' scores

