

**The Relation between Perseverance, Life Satisfaction and Psychological Well-Being
moderated by Extracurricular Activities**

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Abstract

The concept of positive psychology, which focuses on improving a person's strengths and abilities, has been used to define and measure character strengths, such as perseverance, using the Values in Action (VIA) Classification of Strengths. Past research has shown that perseverance can positively affect a person's well-being, but other findings suggest that in some cases, perseverance (referred to as maladaptive perseverance) can have a negative impact on a person's well-being. This study aims to investigate the relationship between perseverance and well-being in students, with a focus on life satisfaction and psychological well-being, by examining the potential moderating effect of extracurricular activities on these relationships. Therefore, the research questions 'To what extent does extracurricular activity moderate the relationship between the character strength perseverance and the life satisfaction of students?' and 'To what extent does extracurricular activity moderate the relationship the character strength perseverance and the psychological well-being of students?' were created. Two multiple linear regression analyses were performed and the data of 85 university students (57 females, 29 males, and 1 non-binary, aged from 18 to 31 years) was analysed. The results showed that extracurricular activities have a non-significant effect on both of these relationships as a moderator ($H1: p = .384$, $H2: p = .389$). For future studies, it is recommended to measure grit instead of perseverance and study the relationship between grit and perseverance. Furthermore, qualitative research is recommended to identify possible other moderators who are associated with these relationships.

Keywords: Perseverance, VIA character strengths, life satisfaction, psychological well-being, extracurricular activities

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The Relation between Perseverance, Life Satisfaction and Psychological Well-Being moderated by Extracurricular Activities

Every human possesses specific character strengths that are related to the well-being and life satisfaction of a person (Park, Peterson, & Seligman, 2004). Those character strengths are one of the central concerns of Positive Psychology and are defined as the reflection of the feelings, behaviors, and thoughts of a person (Park, Peterson, & Seligman, 2004). To measure these character strengths, the Values in Action (VIA) Classification of Strengths was developed. The VIA names six core virtues (Wisdom, Courage, Love, Justice, Temperance, and Transcendence) which are made out of a total of 24 character traits (Peterson & Seligman, 2006). Past research has shown that these character strengths can positively affect the well-being of a person (Hausler et al., 2017). A study by Peterson et al. (2007) showed that perseverance was one of the most robust predictors for the level of life satisfaction among the Swiss sample.

Perseverance

Perseverance is defined according to the VIA Institute on Character as being hardworking and finishing what one has started. People who possess this strength experience pleasure by completing projects and tasks (VIA Institute on Character, 2022a). The result by Peterson et al. (2007), that perseverance is positively correlated to life satisfaction, is in line with the concept of self-concordance theory and the definition of perseverance. Self-concordance theory argues that by striving and attaining goals, which are in accordance with personal interests and personal values, a person experiences an increase in life satisfaction (Smith et al., 2011).

On the other hand, Perseverance has also shown to negatively impact the well-being of students in another study (Czerwiński et al., 2022). Czerwiński et al. (2022) state that

among uprising musicians who regularly practice and are determined to reach their personal goals many are experiencing or are at risk of study addiction. Meaning that instead of experiencing happiness and good health, these students are less productive, experience stress, and are more likely to experience burnouts or a decrease in their mental health. They are experiencing a lack of life satisfaction due to their perseverance to be successful in their musical career and to reach their set goal (Czerwiński et al., 2022). These students suffering from ‘maladaptive perseverance’ often study intensively to avoid negative emotions and the feeling of loneliness (Czerwiński et al., 2022). Another study by Niemic (2019) also found that character strengths can be overused and turn into negative habits or traits, in the case of perseverance people can become stubborn and struggle to let go. An example of the over-usage of perseverance could be, that a person with a high level of perseverance may become determined to finish a project and is unable to let it go, even though their teammates have come to the conclusion that it cannot be completed. This will have a negative impact on the person and the team around them and may lead to social dissatisfaction, a decrease in life satisfaction, and greater depression (Niemic, 2019).

These different findings suggest that the relationship between perseverance and well-being has not been studied sufficiently enough and thus this study aims to investigate this relationship further. Creating a deeper understanding of this relationship might lead to an understanding of how to help people who show a high level of perseverance and still experience low levels of well-being. Furthermore, the results of this study may provide information for the development of interventions on how to help people who overuse their character strength and perseverance and therefore experience a decrease in well-being. In the long run, understanding the relationship may help people who have high levels of perseverance to experience an increase in well-being.

Life Satisfaction

Life satisfaction is one of three elements of subjective well-being, which can be understood as perceived quality of life. Out of these three components, life satisfaction is the one that is used most frequently in studies due to its stability (Suldo et al., 2006). The term life satisfaction 'is defined as a cognitive, global appraisal that people make when considering their contentment with their life as a whole or in regard to specific domains of life such as family, environment, friends and self' (Suldo et al., 2006). In the study by Czerwiński et al. (2022) the students experience a lack of life satisfaction due to their perseverance to reach a set goal. Niemiec (2019) also states that people who overuse their character strengths perseverance experience a decrease in life satisfaction. Based on these studies, perseverance seems to have an effect on life satisfaction.

Psychological Well-Being

Psychological well-being describes not only the absence of negative elements but also the presence of positive elements. Examples of positive elements would be positive emotions as well as healthy relationships while negative elements would be anxiety or depression which have disabling effects on a person (Ura, 2017). The students from the study by Czerwiński et al. (2022) are experiencing a decrease in mental health as well as a feeling of loneliness which they try to cover up by excessive studying. Furthermore, Niemiec (2019) describes depression as one of the consequences of the overuse of perseverance. A decrease in mental health, loneliness, and depression are all negative elements that belong to psychological well-being. Based on these studies, perseverance seems to also have an effect on psychological well-being.

Extracurricular Activities

A moderator that may be related to the effect of perseverance on life satisfaction and psychological well-being of students is extracurricular activity. Extracurricular activities are activities for which one does not receive academic credit. These activities take place outside of academic courses and can belong to a variety of fields like athletics or arts (Top Hat, 2019). Extracurricular activities may include artwork, sports, clubs or leadership activities or any other activities that engage the students actively and productively outside of the courses (Yintore & Lekule, 2022). This kind of activity has been shown to be related to increased mental health in adolescents (Oberle et al., 2020). Furthermore, a study in 2019 by Hossan et al. explored the psychological well-being of students based on their involvement in extracurricular activities and their results show that the duration of involvement in an extracurricular activity is a predictor for psychological well-being while the type of extracurricular activity is not. Additionally, the number of hours spent on extracurricular activities has not only been shown to have an impact on the psychological well-being but also the life satisfaction of students (Adeyemi & Farayola, 2014).

Extracurricular Activities are also linked to perseverance. By participating in extracurricular activities students experience motivation and are encouraged to follow-through with their education and also learn new skills and knowledge which they would otherwise not have obtained. Furthermore, by participating in extracurricular studies they develop bonds with other students and their educational facility, which leads them to show perseverance in their academic journey.

Extracurricular activities, as well as perseverance, have been shown to affect life satisfaction and psychological well-being (Czerwiński et al., 2022; Niemiec, 2019; Hossan, 2019; Adeyemi & Farayola, 2014). While high levels of perseverance may seem to have a negative effect on well-being, extracurricular activities have been shown to have a positive effect on well-being.

Therefore, this study theorizes that extracurricular activities act as a buffer between perseverance and well-being. In other words, this study theorizes that if a student participates in a lot of extracurricular activities, there will be a positive association between perseverance and well-being. For example, students who have high levels of perseverance and suffer from maladaptive perseverance often experience loneliness and a decrease in well-being stress (Czerwiński et al., 2022). By participating in extracurricular activities these students have the opportunity to bond with other students and therefore decrease their feeling of loneliness which has a positive effect on their well-being. Furthermore, students suffering from maladaptive perseverance often experience stress (Czerwiński et al., 2022) which can negatively affect their well-being while extracurricular activities can be used as a coping tool to handle high levels of stress (Winstone et al., 2020) Therefore, this study theorizes that extracurricular activity is a moderator between the relationship of perseverance and life satisfaction and the relationship between perseverance and psychological well-being.

Present Study

This present study aims to investigate extracurricular activities as a moderator on the relationship between perseverance and life satisfaction and psychological well-being. This study theorizes that the relationships between perseverance and these two indicators of well-being are different for students who have a lot of extracurricular activities than those who rarely spend their time on extracurricular activities because extracurricular activities act as a buffer. In other words, students with high levels of perseverance experience greater life satisfaction and psychological well-being by spending more time on extracurricular activities than students who spend less time on extracurricular activities. Therefore, this paper will aim to answer the research questions ‘To what extent does extracurricular activity moderate the relationship between the

character strength perseverance and the life satisfaction of students?’ and ‘To what extent does extracurricular activity moderate the relationship between the character strength perseverance and the psychological well-being of students?’. The hypothesis ‘Extracurricular activities moderate the relationship between the character strength perseverance and the life satisfaction of students’ and ‘Extracurricular activities moderate the relationship between the character strength perseverance and the psychological well-being of students’ were created.

Methods

Design

To answer the two research questions formulated above, a cross-sectional questionnaire survey design was employed. There is one independent, numerical variable which is ‘Perseverance’ and the dependent, numerical variables are ‘Psychological Well-Being’ and ‘Satisfaction with Life’. Another variable that is measured is the numerical moderator ‘Extracurricular Activities’.

Participants & Procedure

The ethics committee of the University of Twente was contacted to receive approval for this study (approval number: 221217). After receiving approval, Qualtrics was used to create the questionnaire. The participants were recruited via the SONA System and as an incentive for participating, the participants were rewarded with SONA points (0.25 points) for finishing the questionnaire. Students need to gather a certain amount of these points during their study program to graduate (University of Twente, 2017). The invites for participating in the study were sent by the researchers via WhatsApp and email to friends and acquaintances with the request to distribute it among students who fit the inclusion criteria. The inclusion criteria for being able to

participate in this study were: being a University student, being fluent in English and being at least 18 years old. Before the students participated in the questionnaire, they had to give their informed consent (Appendix A). The questionnaire which had a duration of 30 minutes consisted of multiple questionnaires and single questions which the participant had to answer. The first 3 questions were of demographic nature and were asking for the participant's nationality, age and gender (Appendix B). Afterward, the participants had to answer multiple questionnaires which have been implemented by multiple researchers for different studies. Lastly, the participants were given the contact information of the researchers and were thanked for their participation.

Overall 108 answers were recorded. After applying the exclusion criteria to the data set, the data of 85 participants remained. Exclusion criteria were unfinished questionnaires or non-agreement with informed consent, answering the questionnaire before or after its publication timespan and giving an unspecific answer in the open questions. Of the 85 participants, whose data were analyzed, 57 were female, (67.06%) 27 were male (32.56%) and one was non-binary (1.18%). 57 of the participants indicated that they were German (67.06%), 13 indicated that they were Dutch (15.29%) and 15 (17.65%) of the participants named other nationalities. The participants had a mean age of 21.55 years with a standard deviation of 0.58.

Materials

The questionnaire which was filled out by the participants consisted of multiple, independent questionnaires, parts of independent questionnaires and questions which were created by the researchers. The complete questionnaire was written in English and multiple researchers worked together to create the questionnaire while focusing on their individual research questions. However, only the questionnaires and questions which are relevant to answer the research questions of this study are mentioned below.

VIA-120 Questionnaire

The VIA-120 is the short version of the originally 240- item VIA questionnaire (VIA-IS). The VIA-IS has shown to have satisfactory psychometric properties and has been used for the last few years, however, it takes 40 minutes to complete the questionnaire (Ruch et al., 2014). To increase the likelihood of participants finishing the questionnaire, the shorter version, namely the VIA-120, was chosen for this study. The VIA-120 ‘has shown to be substantially equivalent to the original English long form (VIA- 240) in reliability, validity, and factor structure’ (Ruch et al., 2014).

To measure perseverance, 5 statements from the Values In Action-120 (VIA-120) were used (Institute on Character, 2022b, Appendix C). For example the statements ‘I always finish what I start’ and ‘I finish things despite obstacles in the way’ were used to measure perseverance in the participant. The participants had to indicate on a 5-point Likert-type scale if they can identify themselves with the statements. The items were scored from 1 (very much unlike me) to 5 (very much like me). Total scores were created for the participants by adding the scores of the five items. The higher the total score of Perseverance, the more developed the character trait was in the participant. The total score reached from 7 to 25 with a mean of 17.12. Perseverance in the VIA-120 has shown to have a Cronbach’s α of 0.87 (Peterson, & Seligman, 2004), which can be interpreted as good (George, & Mallery, 2003). In the current study, the five statements showed a Cronbach’s α of 0.85 which is good (George et al., 2003). *Extracurricular Activities*

To measure the moderator variable of extracurricular activities, the open question ‘How many hours per week do you spend on extracurricular activities?’ was created. To increase and assimilate the participants understanding of the term ‘extracurricular activity’ the definition: ‘extracurricular activities are activities which don't fall within the scope of the regular curriculum,

which are usually organized student activities, which are connected to the University and which carry no academic credit and examples' as well as the examples 'sports and participating in an association' were added. The moderator variable 'Extracurricular activities' was not the object of any changes. The variable's score reached from 0 to 40 hours with a mean of 6.4.

Satisfaction with Life Scale

To measure life satisfaction in the participants the Satisfaction with Life Scale (SWLS; Appendix D) was used (Diener et al., 1985). The SWLS was used to measure personal life satisfaction as perceived by the participant. The SWLS consisted of 5 items, e.g. 'The conditions of my life are excellent', and the participant had to indicate on a 7-point Likert-type scale if they agree or disagree with the statements. The items were scored from 1 (strongly disagree) to 7 (strongly agree). Total scores were created for the participants by adding the scores of the five items and the higher the score, the higher the life satisfaction of the participant. The total score for Satisfaction with Life reached from 9 between five to 34 with a mean of 22.92. The SWLS has high reliability as shown in a study by Adler and Fagley in 2004 with a Cronbach's α of 0.87 which is considered good (George et al., 2003). In this study, the SWLS also showed a good Cronbach's α of 0.87 independently (George et al., 2003).

Psychological Well-Being Scale

For measuring the psychological well-being of the participants the shortened Psychological Well-Being Scale (PWBS; Appendix E) was used (Ryff & Keyes, 1995; Ryff et al., 2007). The scale consisted of 18 items, including for example the statements 'I like most parts of my personality' and 'Some people wander aimlessly through life but I am not one of them'. The items were rated on a 7-item Likert-type scale by the participant. The scale reached from 1 (strongly

agree) to 7 (strongly disagree)'. To create the total score for the variable Psychological Well-Being the statements 1,2,3,8,9,11,12,13,17 and 18 had to be reverse-coded and then scores were added. The total scores reached from 32 to 114 with a mean of 87.31. The PWBS is a measuring instrument that has been widely used over the years and has shown to have high test-retest reliability (Le et al., 2020). For instance, a study in 2020 had a Cronbach's α of 0.83, which is rated good (George et al., 2003), for their sample of 105 college-attending participants (Le et al., 2020). The PWBS showed a Cronbach's α of 0.88 in this study which is also rated as good (George et al., 2003).

Data Analysis

The gathered data was analysed using the program SPSS (Version 27). The data of 108 participants was screened and 23 participants were excluded. The exclusion criteria were unfinished questionnaires or non-agreement with informed consent ($n=13$), answering the questionnaire before or after its publication timespan ($n=3$), and giving unspecific answers to the open questions ($n=7$). The data of 85 participants remained. Descriptive statistics, including mean, minimum, maximum and standard deviation, were calculated for the demographic questions and for all four variables. Using SPSS, the pearson correlations of the four variables were analyzed and reliability analyses were performed to compute the Cronbach's alpha for the questionnaires measuring Perseverance, Life Satisfaction and Psychological Well-Being.

SPSS macro PROCESS 4.2 (Hayes, 2018) was used to conduct two moderation analyses. Model 1 of PROCESS was used for the moderation analyses (Hayes, 2018). The moderation model was tested by performing 5,000 bootstraps resamples and using a 95% confidence interval. The independent variable was Perseverance, the dependent variables were Life

Satisfaction and Psychological Well-Being and the moderator variable was Extracurricular Activities.

Results

Descriptive statistics

The data of 85 participants was analysed. The demographics of the sample and the mean, minimum, maximum, and standard deviation of the four variables Perseverance, Life Satisfaction, Psychological Well-Being and Extracurricular Activity are displayed in table 1. Out of the 85 participants more than two thirds of the participants were female ($n=57$, 67.06%) and more than two thirds were German ($n=57$, 67.06%).

Table 1

Demographics including the Mean, Minimum, Maximum and Standard Deviation of the four variables Perseverance, Life Satisfaction, Psychological Well-Being and Extracurricular Activities

Item	n	%	<i>M</i>	Minimum	Maximum	SD
Age	85		21.55	18	31	0.58
Gender						
Female	57	67.06				
Male	27	31.76				
Non-Binary	1	1.18				
Nationality						
German	57	67.06				
Dutch	13	15.29				

Other	15	17.65			
TotalScore Perseverance	85	17.12	7	25	4.10
TotalScore Life Satisfaction	85	22.92	9	34	6.12
TotalScore Psychological Well-Being	85	87.31	32	114	16.95
Extracurricular Activity	85	6.40	0	40	8.13

Life Satisfaction

Using PROCESS, a moderation analysis was run to determine whether the interaction between extracurricular activity and perseverance significantly predicts life satisfaction (Table 2). The analysis showed that overall model was non-significant ($F(3, 81) = 1.47, p = .229$), predicting 5.17% of the variance. The moderation analysis did not show that extracurricular activity moderated the effect between perseverance and life satisfaction significantly ($\Delta R^2 = 0.9\%$, $F(1, 81) = 0.77, p = .384$, 95% CI[-0.054, 0.021]). Therefore, the first hypothesis ‘Extracurricular activities moderate the relationship between the character strength perseverance and the life satisfaction of students’ has to be rejected. This means that students with high levels of perseverance do not experience greater life satisfaction by spending more time on extracurricular activities compared to students with low levels of perseverance.

Table 2

Moderation analysis between Perseverance, Extracurricular Activity, and Life Satisfaction as the dependent variable (n=85)

95% Confidence Interval

Parameter	Coefficient	Std. Error	p	Lower Bound	Upper Bound
Constant	15.9	3.58	.000	8.88	23.01
Perseverance	.42	.21	.042	.02	.83
Extracurricular Activity	.27	.38	.478	-.49	1.03
Interaction	-.02	.02	.384	-.05	.02

Psychological Well-Being

Using PROCESS a second moderation analysis was run to determine whether the interaction between extracurricular activity and perseverance significantly predicts psychological well-being (Table 3). The overall model was non-significant ($F(3, 81) = 1.39, p = .253$) predicting 4.88% of the variance. The moderation analysis did not show that extracurricular activity moderated the effect between perseverance and psychological well-being significant ($\Delta R^2 = 0.88\%$, $F(1, 81) = 0.75, p = .389, 95\% \text{ CI}[-0.149, 0.059]$). Therefore, the second hypothesis 'Extracurricular activities moderate the relationship between the character strength perseverance and the psychological well-being of students' has to be rejected as well. This means that students with high levels of perseverance do not experience greater psychological well-being by spending more time on extracurricular activities compared to students with low levels of perseverance.

Table 3

Moderation analysis between Perseverance, Extracurricular Activity, and Psychological Well-Being as the dependent variable (n=85)

Parameter	Coefficient	Std. Error	p	95% Confidence Interval	
				Lower Bound	Upper Bound
Constant	68.08	9.93	.000	48.33	87.83
Perseverance	1.09	.57	.059	-.04	2.22
Extracurricular Activity	.93	1.06	.385	-1.18	3.03
Interaction	-.05	.05	.389	-.15	.06

Correlations

A Pearson correlation coefficient analysis (Table 4) was performed to evaluate the relationships between the variables Perseverance, Life Satisfaction, Psychological Well-Being and Extracurricular Activities. Two significant, positive relationships were found using the Pearson correlation coefficient analysis. The analysis showed that there was a significant weak positive relationship between Perseverance and Extracurricular Activity, $r(83) = .27$, $p = .012$. There was also significant moderate positive relationship between Life Satisfaction and Psychological Well-Being, $r(83) = .23$, $p = .031$.

Table 4

Correlation Matrix

Variable	1	2	3	4
1. Perseverance	-			
2. Life Satisfaction	,195	-		
3. Psychological Well-Being	,200	,234*	-	

4. Extracurricular Activities	,272*	,013	,068	-
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* Correlation is significant at the 0.05 level (2-tailed).

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

Discussion

This study aimed to investigate the moderation effect of Extracurricular Activities on the relationship between Perseverance and Life Satisfaction and on the relationship between Perseverance and Psychological Well-Being in students. A cross-sectional survey questionnaire survey design was employed and the data from 85 participants was analyzed. The results showed that the moderation effect of Extracurricular Activity on both relationships is non-significant and therefore both hypotheses had to be rejected. This means that the amount of hours spent on extracurricular activities does not act as a buffer on a potential decrease in well-being when a student has high levels of perseverance. The results also showed that Perseverance and Extracurricular Activities have a weak, positive correlation which means that people who get higher scores on the perseverance-measuring questions also spend more time on extracurricular activities. Life Satisfaction and Psychological Well-Being also showed a moderate, positive correlation in the results, which means that people who are satisfied with their lives also tend to have higher levels of psychological well-being.

Both findings were contradictory to the expectations. An alternative explanation for both of these findings may be that the number of hours spent on extracurricular activities could not be exactly measured by the questionnaire and solely relied on the self-reported numbers of the participants. Therefore, the data gathered on this variable may not be in accordance with the actual values. Self-report questionnaires are often affected by inaccurate recalls or the social desirability bias (Leggett et al., 2016), therefore participants may have wrongly reported the number of hours

they spent on extracurricular activities. Furthermore, there is also the possibility that different participants have different ideas on what extracurricular activities include (even though a definition was added) and therefore some participants may have included activities in their answers that other did not and the other way around.

Another possible explanation for the non-significant results may be that perseverance by itself does not affect well-being. Instead, it has to be combined with passion for long-term goals to affect different forms of well-being. One of the papers this study is based on is the study of Czerwiński et al. (2022) which focuses on the trait grit. In their paper the authors define grit as ‘perseverance and passion for long-term goals’ and their results show that grit is a predictor of well-being and life satisfaction. To measure the trait grit, they used the Short Grit Scale (Czerwiński et al., 2022). However, this study focused on the trait perseverance and used questions from the VIA-120 questionnaire. Another study by Salles et al. (2014) also found grit to be a predictor of poor psychological well-being. This indicates that not taking passion for long-term goals into account and not measuring it accordingly may be a possible explanation for the non-significant results which were found in this study.

Another possible explanation for the unexpected, non-significant results of this study may be the participants. In this study, the participants were general university students, while in the study of Czerwiński et al. (2022) the participants were all students of music performance. Students of music performance tend to experience more difficulties with psychological well-being, like anxiety, depression (Kenny et al., 2012), eating disorders (Kapsetaki & Easmon, 2019), and insomnia (Vaag et al., 2015) than the general population. Therefore, the major of the students may have a strong effect on the relationship between perseverance and different forms of well-being.

Strengths and limitations

One of the strengths of this research is the choice of questionnaires. First of all, the questionnaires used or to which some of the questions belonged to, all show good internal consistency with the Cronbach's alpha reaching from .83 to .87 in the original questionnaires. The questions used in this study for the variables Perseverance, Life Satisfaction, and Psychological Well-Being also all show a good Cronbach's alpha above .85. The Cronbach's Alpha is used to measure the internal consistency of the items in a test. In other words, it is used to measure to which extent the items used measure the same construct and if the items are correlated to each other. The Cronbach's Alpha is a commonly used measure that indicates the test reliability and its score is always between zero and one. The higher the Cronbach's Alpha, the higher the internal consistency of the items and therefore the higher the validity of the used test. The acceptable range for the Cronbach's Alpha is 0.7 to 0.95 (Tavakol & Dennick, 2011). Another strength of this study is that its sample is a good representation of university students because it entails data from students aged from 18 to 31 with a mean age of 21.55, as well as data from both female (67.06%) and male students (31.76%), even though it is not perfectly balanced.

A limitation of this study was that the participants were recruited by convenience sampling. This means that not every member of the target population had an equal chance of participating in this study (Stratton, 2021). In this case, participants were recruited via the SONA System, which is only used by specific academic disciplines at the University of Twente. Furthermore, acquaintances and friends of the researchers acted as distributors of the questionnaire. Therefore, this sample cannot be seen as an accurate representation of the general population.

Directions for Future Research

Future studies may study the relationship between grit and life satisfaction, the relationship between grit and psychological well-being, and the moderation effect of extracurricular activities on these relationships. In this study, the hypotheses had to be rejected because of non-significant findings and the results showed non-significant correlations between perseverance and life satisfaction, and perseverance and psychological well-being. By replacing the perseverance-related questions from the VIA-120 with the Short Grit Scale, as it was used by Czerwiński et al. (2022), a correlation between the independent variable and the dependent variables may be established and the moderator Extracurricular Activities can be looked onto again. Additionally, it may be of interest to study the correlation between perseverance and grit because they seem to have different effects on well-being, even though perseverance is used in the definition of grit. For future research, it may also be of interest to find another way to recruit and distribute the questionnaire instead of using friends and acquaintances of the researchers. This will help to avoid convenience sampling and therefore make the study data more representative of the general population.

Based on the finding that the variable ‘extracurricular activities’ did not have a significant moderation effect on either both of the relationships, identifying other potential moderators could be of interest to find possibilities on how to help students who suffer from maladaptive perseverance. To identify possible moderators, qualitative research can be used. Qualitative research is used to understand certain human behavior and to understand the reasons for certain behavior (Clissett, 2008). Afterward, quantitative research can be applied which is used to test the theorized relationships (Clissett, 2008). One possibility could be to create focus groups and ask them about their experience with perseverance, well-being, and potential variables that could have

an interaction effect on the relationship between these two. Afterward, potential moderators who were found during the qualitative research can be tested.

Conclusion

The current study investigated the moderation effect of extracurricular activities on the relationship between perseverance and life satisfaction of students as well as on the relationship between perseverance and psychological well-being of students. Both hypotheses had to be rejected because the results showed that extracurricular activities had no significant interaction effect on either of these relationships. Additionally, perseverance showed no significant correlation to either life satisfaction or psychological well-being. This may be because perseverance by itself does not affect well-being. Instead, it has to be combined with passion for long-term goals to affect well-being. Another possible reason could be that extracurricular activities were not measured accurately by the questionnaire. Future research could explore the relationships between grit and different forms of well-being, as well as the moderation effect of extracurricular activities on these relationships. Additionally, future research could also look into the relationship between perseverance and grit. In conclusion, neither a moderation effect of extracurricular activities on the relationship between perseverance and life satisfaction nor on the relationship between perseverance and psychological well-being could be found in this study.

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Appendix A

Informed Consent

The purpose of this research study is to investigate the effect of character strengths on well-being. For this reason, you will be asked to fill out the provided questionnaire. The questionnaire includes questions regarding your well-being and your character strengths such as spirituality, hope, perseverance, and hardiness. The questionnaire takes approximately 30 minutes to fill out. The data will be used for our report only and will not be shared for any other purpose. Your responses will be saved and stored to properly analyze your answers. However, after analyzing your answers all the data that has been collected will be deleted. The deletion of your data will be no later than the 27th of February 2023. Lastly, in the individual reports of this research, all data will be anonymized.

By giving consent you indicate that you:

- have read and understood the study information dated.
- voluntarily participate in this study.
- understand that you can refuse to answer questions and that you can withdraw from the study at any time, without having to give a reason.
- understand that taking part in the study involves answering questions related to the topic of character strengths and well-being,
- understand that the information you provide will be used for quantitative research in the context of a university project.
- understand that the data that is collected will be stored for the purpose of analysis.
- understand that the stored data is archived until no later than the 27th of February, 2023.
- understand that the information you provide in this survey will not be shared beyond the study team and the study teams' supervisor.

Study contact details.

Names of Students: Cedric Middendorf, Chiara Stegemann, Gijs Smid, Jérôme Zablotny

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Contact Information for Questions about Your Rights as a Research Participant.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee/domain Humanities Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl.

Appendix B

Demographic Questionnaire

1. What is your nationality?
 - Dutch
 - German
 - Other: _____
2. How would you describe your gender?
 - Male
 - Female
 - Non-binary / third gender
 - Other: _____
 - Prefer not to say
3. What is your age?
 - _____

Appendix C

Values In Action-120 (VIA-120) questionnaire (Sub-category: Perseverance)

Please choose one option in response to each statement. Many of the questions reflect statements that many people would find desirable, but we want you to **answer only in terms of whether the statement describes what you are like.**

	Very much unlike me	Unlike me	Neutral	Like me	Very much like me
I never quit a task before it is done.					
I always finish what I start.					
I finish things despite obstacles in the way.					
I do not give up.					
I stick with whatever I decide to do.					

Appendix D

Satisfaction with Life Scale (SWLS)

Below are five statements about how satisfied you are with your life that you may agree or disagree with. Using the 1 - 7 scale below, **indicate your agreement with each item** by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

	Strongly disagree	Somewhat disagree	A little disagree	Neither agree nor disagree	A little agree	Somewhat agree	Strongly agree
In most ways my life is close to my ideal.							
The conditions of my life are excellent.							
I am satisfied with my life.							
So far I have gotten the important things I want in life.							
If I could live my life over, I would change almost nothing.							

Appendix E

Psychological Well-Being (PWB, 18 items)

Below are eighteen statements that you may agree or disagree with. Using the answering options on top, please **indicate your response to each of these statements by ticking the appropriate option.**

	Strongly agree	Somewhat agree	A little agree	Neither agree nor disagree	A little disagree	Somewhat disagree	Strongly disagree
I like most parts of my personality.							
When I look at the story of my life, I am pleased with how things have turned out so far.							
Some people wander aimlessly through life, but I am not one of them.							
The demands of everyday life often get me down.							
In many ways I feel disappointed about my achievements in life.							
Maintaining close relationships has been difficult and							

frustrating for me.							
I live life one day at a time and don't really think about the future.							
In general, I feel I am in charge of the situation in which I live.							
I am good at managing the responsibilities of daily life.							
I sometimes feel as if I've done all there is to do in life.							
For me, life has been a continuous process of learning, changing, and growth.							
I think it is important to have new experiences that challenge how I think about myself and the world.							
People would describe me as a giving person, willing to share my time with others.							

I gave up trying to make big improvements or changes in my life a long time ago.							
I tend to be influenced by people with strong opinions.							
I have not experienced many warm and trusting relationships with others.							
I have confidence in my own opinions, even if they are different from the way most other people think.							
I judge myself by what I think is important, not by the values of what others think is important.							