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Hochschule Düsseldorf
University of Applied Sciences

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Fachbereich Sozial- und Kulturwissenschaften
Faculty of Social Sciences and Cultural Studies

Prokrastination, Stressempfinden und -bewältigung
Eine quantitative Analyse einer Onlinebefragung mit Studierenden

Masterthesis zur Erlangung des akademischen Grades

Master of Arts

Soziale Arbeit und Pädagogik mit Schwerpunkt Psychosoziale Beratung

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Vollversion der Masterthesis

SPSS Dataset

SPSS Syntax

SPSS Output (als pdf-Datei und spv-Datei)

G*Power Output: Pearson's Correlation

G*Power Output: Mediation analysis

Online-Quellen: Zeitungsartikel Gordon-Smith (2021) & Lieberman (2019)

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Abkürzungsverzeichnis

| | |
|--------|---|
| APA | American Psychological Association |
| CISS | Coping Inventory for Stressful Situations |
| GPS-K | German short version of the General Procrastination Scale |
| HSD | Hochschule Düsseldorf (University of Applied Sciences Düsseldorf) |
| PSS-10 | German version of the Perceived Stress Scale |

Vorbemerkung zur englischen Masterthesis

Diese Arbeit wurde in Anlehnung an die internationale Forschung zum Thema Prokrastination in englischer Sprache verfasst und soll sich so einer möglichen Veröffentlichung annähern.

Die Fachzeitschriften, an deren Formatvorlagen sich die vorliegende Arbeit grob orientiert, sind das *Journal of College Student Development*, das *College Student Journal*, das *International Journal of Stress Management* und das *European Journal of Personality*. In Ergänzung zu den Erfordernissen seitens der Fachzeitschriften wurden die von diesen referenzierten und zugrunde gelegten Manuskriptvorgaben der American Psychological Association (APA) zur Gestaltung des Texts genutzt.

Schließlich ist es wichtig zu beachten, dass die Arbeit als Masterthesis verfasst wurde und somit in erster Linie den Vorgaben dieser Prüfungsleistung Rechnung tragen muss. Daher können nicht alle Vorgaben und Eingrenzungen, die durch die Fachzeitschriften und die APA gefordert wurden, eingehalten werden.

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Procrastination, Perceived Stress and Coping
A quantitative analysis of an online survey with German university students

A thesis submitted in fulfillment of the requirements for the degree of

Master of Arts

Soziale Arbeit und Pädagogik mit Schwerpunkt Psychosoziale Beratung

by

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Abstract (deutsch)

Prokrastination, das freiwillige Aufschieben von aversiven, aber wichtigen Aufgaben, im Wissen um mögliche negative Konsequenzen, stellt ein häufiges Verhalten dar, welches einen Höhepunkt während des Studiums erreicht (Beutel et al., 2016; Höcker et al., 2017, p. 9 ff.; Steel, 2007; van Eerde, 2003). Der Zusammenhang zwischen Prokrastination und dem Stressempfinden konnte wiederholt gezeigt werden (Kuftyak, 2022; Sirois & Kitner, 2015). Beide Konstrukte haben belastende Folgen, die alle Lebensbereiche betreffen (e.g., Höcker et al., 2017, p. 9, 2022, pp. 1, 7 f.). Copingstrategien als Mediatoren wurden bereits untersucht, aber lediglich maladaptive Strategien konnten als Mediatoren identifiziert werden (Sirois & Kitner, 2015).

In einer Querschnittsstudie werden die bereits gefundenen Zusammenhänge und die genauere Differenzierung der mediierenden Copingstrategien betrachtet. Eine Stichprobe von deutschen Studierenden ($n = 429$) bearbeitete die deutsche Kurzform der General Procrastination Scale (GPS-K), die deutsche Kurzform der Perceived Stress Scale (PSS-10) und die deutsche Übersetzung des Coping Inventory for Stressful Situations (CISS) mit dem Fokus auf der vorhergehenden Prüfungsphase.

Die Datenanalyse zeigt, dass der positive Zusammenhang zwischen Prokrastination und Stressempfinden erneut bestätigt wird. Diese Studie führte zu dem neuen Ergebnis, dass emotionsorientiertes Coping als einziger Mediator den Zusammenhang zwischen Prokrastination und Stressempfinden mediiert. Es ist wichtig anzumerken, dass die Stichprobe extrem hohe Werte im Bereich des Stressempfindens aufweist; ein möglicher Einflussfaktor kann im Erhebungszeitraum während der COVID-19 Pandemie liegen. Weitere Ergebnisse, Limitationen und Implikationen für Therapie und Beratung, sowie für weitere Forschung werden diskutiert.

Schlüsselbegriffe:

Prokrastination, Stressempfinden, Coping, Stressbewältigung, emotionsorientiertes Coping, Studierende

Abstract

Procrastination, the voluntary delay of aversive but important tasks while knowing of probable adverse consequences, is a frequent behavior reaching a climax during university (Beutel et al., 2016; Höcker et al., 2017, p. 9 ff.; Steel, 2007; van Eerde, 2003). A relation between procrastination and perceived stress has been reported repeatedly (Kuftyak, 2022; Sirois & Kitner, 2015). Both constructs have taxing consequences affecting all areas of life (e.g., Höcker et al., 2017, p. 9, 2022, pp. 1, 7 f.). Past research examined the mediating role of coping strategies within a meta-analysis, but only maladaptive coping was shown to be a mediator (Sirois & Kitner, 2015).

The aim of the conducted cross-sectional study is to further explore the found relations and to differentiate between mediating coping strategies. A sample of German university students ($n = 429$) completed the German short form of the general Procrastination Scale (GPS-K), the German short form of the perceived stress scale (PSS-10) and the German version of the coping inventory for stressful situations (CISS) with focus on the previous exam period.

The resulting analysis shows that the positive correlation between procrastination and perceived stress can be confirmed. This relation's mediation by emotion-oriented coping as the single mediator is a new finding of this study. Interestingly, the sample reaches extremely high scores of perceived stress. This might be due to the timing of the study during the COVID-19 pandemic. Further results, limitations and implications for therapy and counseling as well as prospective research questions are discussed.

Keywords: procrastination, perceived stress, coping, emotion-oriented coping, students

1. Introduction

When thinking about exams and papers at university and the deadlines that go along with them, a behavior that directly comes to mind is the delay of studying and writing until the very last minute. Before that, everything else seems to be more important and comfortable than getting to work. But what comes along with this behavior is often a bad conscience about what should have already been done. Exam periods are often filled with high stress, panic-driven last-minute studying and writing, even all night through. This well-known practice of delaying tasks, which is common concerning people also in many other phases and parts of life, is called *procrastination*, and can be shortly defined as the conscious and unnecessary delay of tasks, while knowing of probable adverse consequences (Höcker et al., 2017, pp. 9–11; Rustemeyer & Callies, 2013, pp. 11–13; Steel, 2007; van Eerde, 2003). It is in fact so prevalent and at the same time straining on the person procrastinating, that the topic is not only subject to scientific research, professional counseling and even therapy, but also found as topics and advertisements on social media and in many popular magazines (Gordon-Smith, 2021; Höcker et al., 2017, 2022, p. 4; Lieberman, 2019). When looking at the consequences following procrastination, it appears logical that so many people are desperate to tackle their procrastination. The most common effects that procrastinators feel, involve almost all parts of life such as performance at work and school or university, personal relationships and even mental and physical health (Höcker et al., 2017, p. 9, 2022, pp. 1, 7 f.). It is even related to college-dropout intentions (Bäulke et al., 2018). So, it seems obvious why procrastination can be taxing on the individual and their surroundings.

When reading about these particular consequences of procrastination, an alert reader might immediately be reminded of another construct, which can be as, if not even more, taxing and serious as procrastination, and that is stress. Stress can be shortly characterized as “a relationship with the environment that the person appraises as significant for his or her well-being and in which the demands tax or exceed available coping resources” (Lazarus & Folkman, 1986, p. 63). As previously implied, continuous and chronic stress has an array of consequences which are also found in all areas of life and are not limited to mental health issues (Habermann-Horstmeier, 2017, pp. 43–59; Heinrichs et al., 2015, p. 6).

The evidence of the connection between stress and procrastination has repeatedly been shown in research, and is often characterized as reciprocal (e.g., Amin, 2019; Beleaua & Cocoradă, 2016; Burka & Yuen, 2008, p. 93; Cahill, 2013; Ferrari & Diaz-Morales, 2014; Kuftyak, 2022). However, some studies show evidence that either procrastination leads to higher stress or vice versa (Fincham & May, 2021; Sirois & Kitner, 2015). The importance of this connection and its further examination is especially crucial since stress is shown to mediate the relationship between procrastination and poor mental health as well as poor general health (Ferrari & Diaz-Morales, 2014; Sirois, 2007; Sirois et al., 2003). This connection goes as far as suspecting procrastination to be “a vulnerability factor for any chronic health condition for which stress and poor health behaviors are etiological and/or disease-management factors” (Sirois, 2016, p. 87). From another perspective, the negative connection between stress and academic performance can be mediated via procrastination (Qian & Fuqiang, 2018). Going further, research indicates that the relationship between procrastination and stress is mediated by different psychological concepts like self-compassion or peer influence resistance (Malik & Ashraf, 2019; Sirois, 2014). Finally, there is evidence that classic interventions dealing with stress are proficient in reducing procrastination (Balkis & Duru, 2007). This only underlines the scope in which procrastination and stress are linked.

When talking about stress, the concept which is inevitably associated with it and even found in the short definition of stress stated before is *coping*, which can be defined “as constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). Importantly, it is through coping strategies that the threat posed by chronic stress can be modified (Apgar & Cadmus, 2021; Koperski et al., 2015; Matheny et al., 2002). Additionally, perceived stress and available coping resources seem to predict life satisfaction (Matheny et al., 2002). The relevance of coping could not be esteemed higher.

Coming back to procrastination and looking at the short definition of coping, it is not surprising that procrastination can be seen as a form of maladaptive coping or in detail a form of avoidant coping (Blunt & Pychyl, 2000; Pychyl & Sirois, 2016, p. 170; Sirois & Kitner, 2015; Verešová, 2013). This emphasizes the need to examine coping strategies and their impact in conglomeration with procrastination and stress. When looking at current research, there are

indications that students are not using conducive coping strategies to deal with everyday stressors in university (Alexander & Onwuegbuzie, 2007). Therefore, procrastination might be a simple, yet maladaptive solution (ibid.). This makes especially sense for students procrastinating, since procrastination can be characterized as self-regulatory failure (Ferrari & Diaz-Morales, 2014). As mentioned above, procrastination could often, but not always, be connected to avoidance coping (Beleau & Cocoradă, 2016; Burns et al., 2012; Shamel & Nayeri, 2021; Sirois & Kitner, 2015). In contrast, when task-oriented coping is used, procrastination, as would be expected, seems to occur less (Deniz, 2006; Sepehrian & Hosseinzadeh, 2011; Ulya et al., 2020; Verešová, 2013). Other classifications of coping styles show that procrastination is linked positively to maladaptive and negatively to adaptive coping (Sirois & Kitner, 2015). Furthermore, coping styles (e.g., task-oriented coping) seem to mediate the relationship between procrastination and academic performance or perfectionism (Gareau et al., 2019; Siah et al., 2021).

It is then surprising to see that the topic of stress and coping in the context of procrastination has not been researched extensively, although the connection between the constructs seems obvious and a first meta-analysis proved the connection of the three (Sirois & Kitner, 2015). This makes the further examination of the connections between the three constructs even more relevant. When looking at the mediated connection between procrastination and perceived stress through coping, it can be shown that only maladaptive coping and not adaptive coping can explain the relation (Sirois & Kitner, 2015). It is even suspected that through this relation, the connection between procrastination and well-being might be indirectly influenced (Pychyl & Sirois, 2016).

The findings and theoretical constructs listed before underline the importance of further examining the relation of procrastination, stress and coping. The findings have to be clarified as well as replicated. The importance strikes even more looking at current times and problems, and the challenges of the last few years. The pandemic had and still has a “profound effect on all aspects of society, including mental health” and also one that research cannot fully understand yet (Apgar & Cadmus, 2021). High perceived stress scores were measured when examining students during the pandemic, especially regarding risk groups (Aslan et al., 2020; Husky et al., 2020; Mækkelæ et al., 2021; Quervain et al., 2021; Zimmer et al., 2021). This underlines the importance of successful stress-relieving coping concerning the COVID-19-

Pandemic (Freyhofer et al., 2021). However, some researchers cannot report higher stress scores than before the pandemic (Benham, 2021; Zimmer et al., 2021). Regarding coping-strategies, avoidance coping mechanisms did not seem to have increased at the beginning of the pandemic (Apgar & Cadmus, 2021). It is concerning to see that life-satisfaction and mental health seemed to decline during the pandemic restrictions alongside elevated perceived stress levels (Aslan et al., 2020; Bhattacharjee & Ghosh, 2022; Maia & Dias, 2020). At the same time there are indications that the fear of COVID-19 is magnifying procrastination through intolerance of uncertainty (Doğanülkü et al., 2021). One research group even pinpointed that the pandemic and its consequences are especially straining on people already procrastinating (Melgaard et al., 2021). It is essential to keep in mind that all the studies reported here were conducted in early stages of the pandemic. This should be taken into consideration when comparing possible results. At the same time this stresses the importance of investigation into the present situation when restrictions of the pandemic are being lifted.

In general, it is compelling to see that through digitalization and the growing usage of smartphones, internet and social media, the probability and temptation to procrastinate are much higher, and stress levels are rising as well (Akinci, 2021; Alblwi et al., 2019; Reif et al., 2021, pp. 184–185; Reinecke et al., 2018; Wartberg et al., 2021). Procrastination also plays a mediating part in the connection between stress and internet addiction (Gong et al., 2021). Regarding coping strategies, smartphones tend to be viewed as ambiguous (Flynn et al., 2020).

Altogether, it is apparent that procrastination is a frequent behavior entailing various negative consequences. It is tightly connected with stress and coping. The connection between procrastination and stress makes the topic even more dire. The relevance is underlined when looking at the pandemic as well as digitalization. Since the relations between the concepts of procrastination, stress and coping have not been clearly researched yet, although they are apparently very relevant, it is pressing to further examine this field.

Thereupon, this research endeavor wants to further differentiate the findings about procrastination, perceived stress and coping strategies as its main aim. While the study is similar to the meta-analysis conducted by Sirois and Kitner (2015) and can be classified as a *systematic replication*, it goes further and differentiates between forms of coping (Döring & Bortz, 2016, p. 189). The aim of this is to shed light on their isolated impact on the relation between procrastination and perceived stress. Additionally, it is a more current examination of

the connections between the described constructs and provides information within a non-Anglo-American German student sample. Lastly, it is important to state that, as mentioned above, the research concerning this topic is still sparse and must be further supplemented to have a reliable knowledge of how the three constructs influence each other.

For this endeavor to be successful, the theoretical constructs must be summarized in further detail before paying attention to the study conducted.

2. Theoretical Background

2.1 Procrastination

In the scientific world, procrastination is a relatively young object of research only reaching back to the end of the last century and growing has been ever since (Höcker et al., 2017, p. 10; Rustemeyer & Callies, 2013, p. 13). Most of the research done until today is found in Anglo-American areas and has only in recent years been growing as a more international field of research (Höcker et al., 2017, p. 10; Rustemeyer & Callies, 2013, p. 9). Additionally, most research has been done regarding academic procrastination, especially concerning university students (Höcker et al., 2017, p. 10). The construct of procrastination in its current form dates back to industrialization, when set timelines, punctuality and efficiency became important (Milgram et al., 1992; Steel, 2007). The term itself can be traced back to ancient Rome, where the Latin words *procrastinatio* or *procrastinare*, which mean delay or postponement or (to) delay or (to) postpone, were mostly used as something positive to plan or evaluate an act better (Rustemeyer & Callies, 2013, p. 11). So, the term procrastination and its implications today are quite juxtaposed to its first meaning in former times.

After a short look at the etymology of the word *procrastination*, it is essential to inspect the scientific definition of procrastination more closely. It is important to state in advance that there is not yet one specific definition agreed upon by all scientists but rather a conglomerate of definitions (Rustemeyer & Callies, 2013, p. 23). The existence of multiple different definitions of procrastination complicates transparent research with a clear construct. This makes the construction of a definition for this research paper even more binding. As stated above, the main aspect of procrastination is the delay of an activity or task that the individual assesses as aversive but at the same time important to meet their goals (Höcker et al., 2022, p. 6; Schouwenburg, 1995, p. 72; Solomon & Rothblum, 1984; Steel, 2007; van Eerde, 2003).

Secondly, the person delays the task knowing that this could lead to negative or disadvantageous consequences and is often feeling bad or uncomfortable while procrastinating and about the decision to procrastinate (Höcker et al., 2022, p. 21; Rustemeyer & Callies, 2013, p. 11; Steel, 2007). So, there is a conflict of interest between what the individual originally intended to do and what is done instead (Höcker et al., 2022, p. 21). This can be called the *intention-action-gap* and is indicative of procrastination (Steel, 2007). It is also essential to differentiate between procrastination and the delay caused by a workload that is too big to be finished on time (Höcker et al., 2022, p. 8). When an individual is procrastinating, there has been enough time to tackle the pressing task, but it was still postponed (ibid.). Hence, procrastination is always done “needlessly” (Schouwenburg, 1995, p. 72) or “voluntarily” (Steel, 2007, p. 7), while time would be available. Instead, the person often tackles a more agreeable task or one that can be accomplished faster (Rustemeyer & Callies, 2013, p. 12). Another central aspect is the frequency of delaying tasks. Most people can recount situations in which they delayed a task, as the definition above explains, but procrastination describes repeated and habitual delay, sometimes chronic, that leads to impairment and suffering (Höcker et al., 2017, p. 10, 2022, p. 6 f.). It can also be seen that people procrastinating are often aware of their behavior and are motivated to reduce it (Höcker et al., 2022, p. 12). However, they often fail in this endeavor (ibid.).

Procrastination in general can be classified as a disorder of the working behavior and as a problem concerning self-regulation and self-control (Balkis & Duru, 2016; Fydrich, 2009; Höcker et al., 2022, pp. 1, 7; Rist et al., 2006; Rustemeyer & Callies, 2013, p. 12). In addition, procrastination must be described as a complex behavior which contains behavioral, cognitive, affective and motivational-volitional factors (Höcker et al., 2017, p. 10; Solomon & Rothblum, 1984).

It is not surprising that typical tasks which are primarily procrastinated are complex and can be described as task which are intricate and are completed over a long period of time (Höcker et al., 2022, p. 6; Rustemeyer & Callies, 2013, p. 64). These tasks put more strain on the self-regulation of a person and are therefore predestined to harbor a high risk of procrastination (ibid.). Additionally, the tasks are often important for the individual or relevant for one’s self-esteem and/or goals (Höcker et al., 2022, p. 6; Özer, 2011; Steel, 2007; van Eerde, 2003). It becomes clear that especially tasks in college or university are prone to be delayed,

due to high requirements concerning self-regulation. Additionally, the environment in which the task should be worked on has an influence on procrastination, e.g., distracting or calm and quiet environments (Nordby et al., 2017; Svartdal et al., 2020).

After looking at tasks that are procrastinated it is important to look at people procrastinating. Since there is not one fixed definition of procrastination yet, there is an array of operationalizations and scales measuring procrastination (Höcker et al., 2022, p. 12). This leads to very different frequencies of procrastination in the population, which internationally might range between 7 % and over 90 % in total (He, 2017; Höcker et al., 2022, p. 12). In general, an exceptionally high frequency of procrastination can be found with students (Beleaua & Cocoradă, 2016; Beutel et al., 2016; Höcker et al., 2022, p. 12; Özer, 2011). Concerning this topic, it is interesting that actually almost all students delay the bulk of their work to the last possible time (Dewitte & Schouwenburg, 2002). Regarding students, frequencies up to 50 % are observed among students who report problems during their studies resulting from procrastination (Day et al., 2000). German students have been found to procrastinate on a chronic level around 7 % to 14.6 % (Höcker et al., 2017, p. 12). No differences have been identified between students that study full- or parttime (Quinn, 2019). In the non-academic context, numbers of approximately 20 % of people procrastinating and realizing negative consequences can be seen (Harriott & Ferrari, 1996). During the study of Beutel and colleagues (2016), it was found out that men procrastinated a little more than women, and that the procrastination score was declining at a small rate with age. This result could be replicated in another big investigation (Gröpel & Steel, 2008). The effect of gender on procrastination is inconsistent as some studies cannot report a significant difference, but men possibly tend to procrastinate more (Beutel et al., 2016; Lu et al., 2022; Solomon & Rothblum, 1984; van Eerde, 2003).

It is also important to shine a light on general correlates of procrastination that are important within the context of the study at hand, to understand procrastination better and to be aware of problems that are associated with procrastination. A lot of studies and also a few meta-analyses scrutinized procrastination with regard to personality traits and other correlates, which cannot be fully illustrated here (e.g., Höcker et al., 2022, p. 13; Steel, 2007; van Eerde, 2003). Several studies found that procrastination occurs in conglomeration with higher scores of neuroticism, distractibility, rating anxiety, fear of failure and impulsivity as well as lower

scores of conscientiousness and self-regulation (Bäulke et al., 2019; Höcker et al., 2022, p. 13; Steel, 2007; Steel & Klingsieck, 2016; van Eerde, 2003). Additionally, connections to self-worth, self-esteem, self-efficacy, interest and self-regulated learning could be shown repeatedly (Athulya et al., 2016; Steel, 2007; van Eerde, 2003; Wolters, 2003). Finally, procrastination is not linked to intelligence, so there is no difference concerning the requirements of a person procrastinating and one not procrastinating but concerning the actual execution of the task (Höcker et al., 2022, p. 14). Along these lines it is important to note that the relation between procrastination and performance is not shown consequently (Rustemeyer & Callies, 2013, p. 14), but as an example the meta-analysis by Steel (2007) confirms a negative connection.

As mentioned in the beginning, there are important consequences of procrastination, which can increase the suffering a person might feel from procrastination. Those consequences can be psychological or mental health related, like tension, anxiety, depression, burnout, anger, guilt, dissatisfaction, shame, and the central consequence for the study at hand: stress (Argiropoulou & Vlachopanou, 2020; Beleaua & Cocoradă, 2016; Beutel et al., 2016; Ferrari & Diaz-Morales, 2014; Hall et al., 2019; Höcker et al., 2022, pp. 7–8; X. Shi et al., 2019; Tice & Baumeister, 1997). Additionally, there are physical consequences resulting from procrastination such as insomnia, stomach issues, tension or chronic muscle tensions and inner agitation (Höcker et al., 2022, pp. 7–8; Tice & Baumeister, 1997). These consequences are especially interesting for the study at hand since they can all be related to stress (Rozental et al., 2022). Of course, there are consequences which are located in the daily life of the affected individual, such as not being able to enjoy free time, reduction in performance, not making important due-dates or not trying at all and therefore missing personal goals, developing a reduced self-efficacy, developing fear of failure and/or less and less hope for improvement/success as well as even moral decline (Grunschel et al., 2021, p. 49; Höcker et al., 2017, p. 9, 2022, p. 7; Kim & Seo, 2015). But the consequences might also be existential in case of severe financial problems (Höcker et al., 2022, p. 7 f.). Regarding significant relationships, procrastination can often be straining on a relationship level, which can be professional as well as private or romantic (ibid.).

It has become clear that procrastination leads to serious consequences in all areas of life even if it does not reach a pathological level. Thus, it has a high relevance for therapy and

counseling (Höcker et al., 2022, p. 9). It is important to keep in mind that, while scientists around the world are discussing procrastination as not only being a symptom in combination with other psychiatric disorders but in some cases even a disorder by itself, procrastination is not a classified diagnosis in used diagnostic manuals like the DSM or the ICD (Höcker et al., 2022, pp. 1, 9). Nevertheless, procrastination can in some cases cause psychiatric symptoms and disorders (Höcker et al., 2022, p. 8). A formal indication for psychotherapy will not be given, if there is not another underlying disorder diagnosed (Höcker et al., 2022, p. 11). This does not diminish the relevance for interventions, but the missing indication for psychotherapy stresses the relevance of counseling for affected individuals and professionals.

When trying to concisely explain the genesis of procrastination it is important to note that there is evidence of psychological models, but concerning biographic factors there is but little evidence yet (Höcker et al., 2022, p. 20). The only exception is research on the conditions to develop self-control (ibid.). There are indications that procrastination is developing within the educational environment (Ames & Archer, 1988; Katz et al., 2014). Typical explanatory theories for procrastination are cognitive-behavioral theories, i.e., learning theories or, first of all, operant conditioning and cognitions, and, in addition to that, motivational-volitional theories (Höcker et al., 2022, p. 21).

Most common and well researched is the behavioral perspective on procrastination. Basic operant conditioning can explain procrastination aptly. The act of procrastination is reinforced twice (Höcker et al., 2022, p. 22). Firstly, right after stopping the task at hand or not starting it, through short-term negative reinforcement, i.e., stopping or reducing negative affect, and secondly, through positive reinforcement after starting or finishing another activity which is most likely easier, quicker to finish, more agreeable than the original task, or even enjoyable in itself (Höcker et al., 2022, pp. 21–22). Feelings of a bad conscience or guilt, which might be perceived directly, as well as long-term consequences which are most disagreeable, can be left out, since they are not as behaviorally steering (Höcker et al., 2022, p. 21; Rustemeyer & Callies, 2013, p. 64). As these unpleasant consequences show themselves only in the long run, they have a low impact on modifying the behavior (Höcker et al., 2022, p. 22). On top, the task, which is procrastinated, can often be characterized as more long-term with due dates far in the future or even unclear consequences should it not be finished in time (Höcker et al., 2022, p.

6). To overcome this problematic behavior a lot of self-control and self-management is needed (ibid.).

Likewise, this behavioral concept is the basis of another approach to explain procrastination which is *mood regulation* or *mood repair* (Höcker et al., 2022, p. 21; Pychyl & Sirois, 2016, p. 171; Sirois & Pychyl, 2013). This concept interprets the short-term suppression of the negative emotions towards the task or the aversive state from procrastinating the task for a long time as emotional regulation (ibid.). This also works short-term, since negative emotions will fall back on the individual in the long run creating a vicious circle (Höcker et al., 2017, pp. 31–32, 2022, p. 21; Pychyl & Sirois, 2016, p. 183; Sirois & Pychyl, 2013; Wypych et al., 2018).

Another approach explaining procrastination focuses on cognitions; it puts forward the existence of permitting and procrastination-conducive cognitions e.g., negative self-talk or cognitions that involve a low frustration tolerance, as well as self-handicapping to conserve self-worth (Balkis & Duru, 2007; Höcker et al., 2022, p. 22; Steel, 2007; van Eerde, 2003).

As introduced above, procrastination also has a motivational-volitional aspect, which deepens the understanding of it. The *Rubicon model of action phases* (Achtziger & Gollwitzer, 2009) describes the process of realizing an intention in four phases and illustrates and explains procrastination on a motivational-volitional level (Höcker et al., 2022, p. 25). Similarly, the temporal motivational theory for which Steel (2007) presented an equation which is comparable to the *expectancy-value-model* proposed by general motivation theory is also often used to explain and understand procrastination (Eccles & Wigfield, 2002).

2.2 Stress and Coping

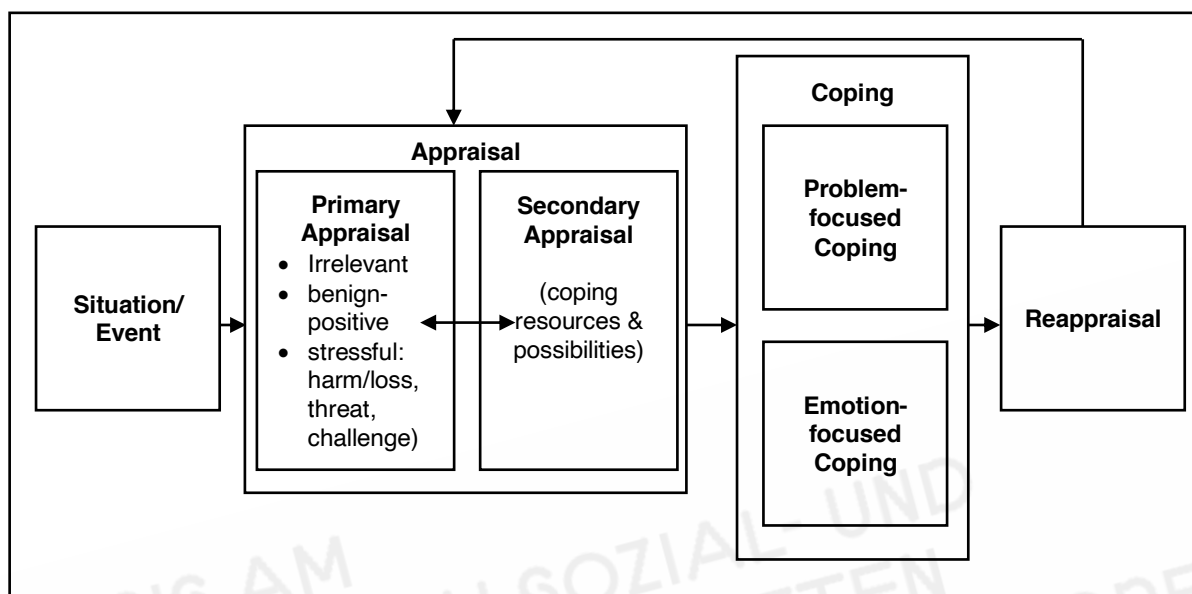
After examining procrastination more closely, it is as essential to also delve into the concepts of stress and coping more deeply, as a backdrop for the study at hand. There is almost no word which is used as frequently in everyday life as well as in professional health contexts as the term *stress* (Heinrichs et al., 2015, p. 4). Similar to procrastination, there is also not one fixed definition, when looking at current research (Heinrichs et al., 2015, p. 5).

As stress can be looked at in many different contexts, it is therefore necessary to state that for this study, stress is viewed in the psychological context without considering pathogenetic, physiological or consequential views or models. This must not imply that these

views or models are not relevant. The focus here will lie on the cognitive aspects of stress and thus the transactional model of stress by Lazarus and Folkman (1984) (see figure 1).

Figure 1

The Transactional Stress Model by Lazarus and Folkman (1984).



Note. This figure demonstrates the transactional stress model by Lazarus and Folkman (1984) and is an adaptation of the figure shown by Heinrichs et al. (2015).

This model is especially fitting since it illustrates stress and coping from an individual perspective on the experience of stress and includes coping strategies as part of the theory. During this study, the term of stress that is used is also always drawn from the perception of the individual, i.e., *perceived stress*. The model therein focuses on the appraisal of different situations experienced. Appraisal is needed because first every person, environment and situation is different and can be evaluated differently (ibid., p. 22-23). Hence the model is divided into first and second appraisal which follow the situations witnessed. Primary appraisal covers the individual evaluation of the situation itself, considering relevance and possible threat, i.e., if a situation is “(1) irrelevant, (2) benign-positive, and (3) stressful” (Lazarus & Folkman, 1984, p. 32). The evaluation of a situation as stressful can be divided into three categories: “harm/loss, threat and challenge” (Lazarus & Folkman, 1984, p. 32). Subsequently, the secondary appraisal provides the evaluation of coping resources and possibilities (ibid., p.

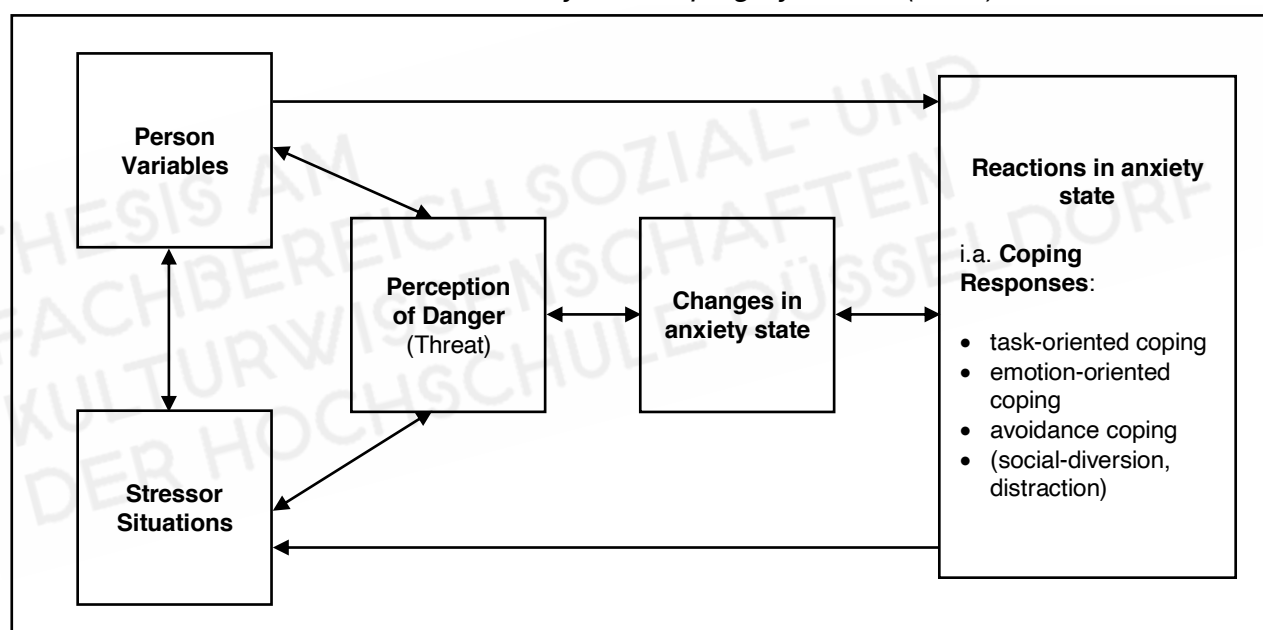
35). Both appraisal processes are equally important and, while displayed and named as if they were in a set order, they should not be interpreted that way (Heinrichs et al., 2015, p. 25). The authors go even further in saying that the two appraisals are relevant independently and can also happen at the same time or in a different sequence (Lazarus & Folkman, 1984). The appraisal is then followed by the choice of coping mechanisms from which a person can choose. This choice is preconditioned by the outcome of the appraisal process but also by the success of previous coping attempts (Lazarus & Folkman, 1984). Coping is understood as everything that is done to adapt to the situation or to change the situation itself (Lazarus & Folkman, 1984, p. 141). When looking at this definition more closely it is easy to see that rather than being static, it is “process-oriented” (Lazarus & Folkman, 1984, p. 141) and therefore adapting to the specific situation and time. So even coping styles can change from situation to situation (Lazarus & Folkman, 1984, p. 142). And secondly, the definition does not take automatized or physiological reactions to stress into consideration and is therefore limited to psychological stress (ibid., p. 142). The last important implication that is included in this definition and reflected in the model, is the open outcome of the coping process (ibid.). Coping does not need to be successful to be coping (ibid.). Equivalently, coping covers many different ways that are dealing with the situation and should not only be viewed as a way of “mastery” (ibid.). Finally, Lazarus and Folkman (1984) describe two coping styles: firstly, emotion-focused coping, which can be defined as inner ways by means of which an individual lessens or magnifies the distress caused by the situation, and which most likely occurs when the situation itself is not adjustable; and secondly, problem-focused coping, which can be described as focusing the problem itself when dealing with the distress it causes (Lazarus & Folkman, 1984, pp. 150–153). Logically after the inspection of the two appraisals involved in the transactional-stress-model, the secondary appraisal needs resources to decide what can be done about the distressing situation at hand (ibid., p. 157). These resources can be physical, like health and energy, cognitive, like positive beliefs, as well as skills, like problem-solving or social skills. Naturally, environmental factors as well as material resources, e.g., the space a person might be in and the supplies available, also play a role (ibid., p. 158). Nevertheless, it is important to keep in mind that not everything that falls under the categories above is a coping resource (ibid., p. 160, p. 165 - 167). Some can also be classified as inhibitors or restraining agents in the coping process (ibid., p. 160).

Afterwards a reappraisal takes place to evaluate the effectiveness of the used coping strategy. If this reappraisal cannot be considered relieving, the experienced stress will remain (Heinrichs et al., 2015, p. 26).

In addition to the classical transactional stress model, it is essential to consider a model which expands on the model by Lazarus and Folkman (1984): the interaction model of stress anxiety and coping by Endler (1997) (see figure 2). Many used concepts are very similar to the approach by Lazarus and Folkman (1984) but were changed a little by weighing the different concepts, leaving terms out and titling concepts with different terms, e.g., stress is labeled anxiety (Endler, 1997; Kälin & Semmer, 2020, p. 11).

Figure 2

The Interaction Model of Stress, Anxiety and Coping by Endler (1997).



Note. This figure demonstrates the interaction model of stress, anxiety and coping by Endler (1997) and is adapted from the figure shown by Endler (1997).

This model is especially important in the context of procrastination since it adds the concept of avoidance coping (Endler, 1997; Endler & Parker, 1990b; Kälin & Semmer, 2020, p. 13). Through this new strategy, which can be divided into *person-oriented coping (social-diversion)* and *task-oriented coping (distraction)*, the model has a clear differentiation between

task-oriented coping styles (task-oriented coping and distraction-oriented coping) and person-oriented coping (emotion-oriented coping and social-diversion-oriented coping) (Kälin & Semmer, 2020, p. 13). As a whole, task-oriented coping can be classified as adaptive coping, i.e., reducing stress (Endler & Parker, 1990a; Flett et al., 1995; Kälin & Semmer, 2020, p. 27). Social-diversion-oriented coping as a facet of avoidance coping, is sometimes added to adaptive coping as a form of social support (Kälin & Semmer, 2020, p. 27). Emotion-oriented and avoidance coping, i.e., distraction-oriented coping, can be seen under the umbrella of maladaptive coping and is therefore magnifying stress (Endler & Parker, 1990a; Flett et al., 1995, p. 164; Kälin & Semmer, 2020, p. 27). Concerning the concept of procrastination, the addition of avoidance coping seems to be especially fitting and important. At the same time, the model not only seems to capture the topic of procrastination better but is also used with the same theoretical background within the scale used to measure coping strategies (Kälin & Semmer, 2020).

It is noteworthy that for the appraisal and coping process, there are also dispositional factors influencing whether a person generally tends towards the *avoidance* or *approach* of a problematic situation (Kohlmann et al., 2021, p. 18; Roth & Cohen, 1986). This underlines the importance to include avoidance coping and its facets within this study.

For this study, both stress models are essential: the transactional model of stress as well as the interaction model of stress, anxiety and coping. In more detail, the transactional model is especially important for understanding and later measuring the concept of perceived stress, as its focus is on appraisal. The interaction model, however, concentrates on the differentiation between coping strategies, which form a central point within the study at hand.

It is important to say that by itself, stress cannot be classified as a disease and must not always be classified as harmful, but can lead to associated symptoms, disorders or diseases as a cause, a consequence, a covariate or a sustaining factor (Apgar & Cadmus, 2021; Heinrichs et al., 2015, p. 5). Only chronic stress can be emphasized as detrimental (Apgar & Cadmus, 2021; Rohleder, 2019). The associated diseases, disorders or symptoms vary greatly and can be found not only in the psychological area but also in somatoform, psychosomatic or somatic areas of common diagnostic manuals (Heinrichs et al., 2015, p. 6). Lastly, similar to procrastination, consequences can also be seen on a general level through the reduction of productivity at work due to stress (Ringeisen et al., 2021).

When looking at frequencies of perceived stress, very different numbers can be found depending on the measure used and the population studied, but perceived stress among students varies around moderate to severe levels (Joseph et al., 2021). As with procrastination, no difference can be found between fulltime and parttime students (Quinn, 2019). Along those lines, perceived stress is not found to be different when comparing graduate and undergraduate students, either (Ickes et al., 2015). Generally, women tend to report a higher level of perceived stress than men (Anbulamar et al., 2017; Böke et al., 2019; Bozorgnia et al., 2020, p. 86; Brougham et al., 2009; Klein et al., 2016); but there are exceptions to this finding (Dwyer & Cummings, 2001; Garbóczy et al., 2020; Salazar & Ronda, 2022). Additionally, whereas women tend to use emotion-oriented and avoidant coping more than men (Athulya et al., 2016; Böke et al., 2019; Brougham et al., 2009), this found gender difference is not indicated in all conducted studies (Athulya et al., 2016). Looking from a general point of view, students tend to report higher levels of perceived stress than the general population and do not display conducive coping strategies (Joseph et al., 2021; Klein et al., 2016). When looking at university students, high perceived stress is, as expected from looking at the general population, associated with lower physical and mental health as well as academic achievement (Leppink et al., 2016; Pflieger & Gerhardt, 2013). Additionally, stressors in this life-phase seem to accumulate (Bauer & Seppelfricke, 2020, p. 9; W. Shi, 2019). Generally, it could be found out that the use of task-oriented coping is linked to better academic achievement and less perceived stress in comparison to avoidance coping (Gustems-Carnicer et al., 2019). As most of the research including the current study is done with a student sample, it is important to mention that academic stress is strongly correlated with social and also financial stress (Lakyntiew et al., 2014). It is important to note that stress and the subsequent choice of coping is influenced by personality variables, especially the level of neuroticism, which strikes to be also related to procrastination (Abbasi, 2011; Connor-Smith & Flachsbart, 2007). Expectation of self-efficacy correlates negatively with perceived stress as well (Bozorgnia et al., 2020, p. 86).

Thus, current research and relevant parts of the theoretical background on the topics of procrastination, perceived stress and coping have been displayed. To introduce the study at hand, it is now important to state the research question and the corresponding hypotheses that can be deduced from research and theory, in order to attain the study's aim to further explore the relationship between the three constructs.

3. The Current Study

To attain the aim of the study, to discern and understand the relations between procrastination, perceived stress, and coping strategies, it is crucial to pose hypotheses that will make the theoretical questions asked, measurable.

The research question that imposes itself when looking at the current level of research and theoretical background is the following: Which connections can be found between procrastination, perceived stress and used coping strategies in a sample of university students?

To analyze this question multiple hypotheses were formed¹:

1. Perceived stress positively correlates with procrastination.

This hypothesis could be easily derived from the numerous findings that already prove the relation, as well as theoretical backgrounds, like operant conditioning, out of which it can be concluded (Beleaua & Cocoradă, 2016; Burka & Yuen, 2008; Höcker et al., 2022, pp. 21–22; Sirois & Kitner, 2015; Verešová, 2013).

2. Avoidant coping positively correlates with procrastination.

Similar to the first hypothesis and previously examined by numerous studies, this one can be deduced from the definition of procrastination, since it describes the avoidance of a task (Blunt & Pychyl, 2000; Pychyl & Sirois, 2016, p. 170; F. M. Sirois & Kitner, 2015). The hypothesis is especially interesting because of conflicting evidence existing regarding the correlation (Beleaua & Cocoradă, 2016; Burns et al., 2012; Shamel & Nayeri, 2021).

- 2.1 Social-diversion-oriented coping positively correlates with procrastination.

Social-diversion-oriented coping is the person-oriented facet of avoidance coping (Kälin & Semmer, 2020, p. 13). Former studies indicated an ambiguous relationship between this coping strategy and procrastination (Beleaua & Cocoradă, 2016; Blunt & Pychyl, 2000; Burns et al., 2012; Kälin & Semmer, 2020, p. 13; Shamel & Nayeri, 2021; Sirois & Kitner, 2015; Verešová, 2013). Scrutinizing this facet of avoidance coping, is especially interesting because of the indications that it might be an adaptive coping strategy, i.e., reducing stress (Kälin & Semmer, 2020, p. 27). Therefore, results might further differentiate the ambiguous relation of avoidance coping and procrastination.

¹ The hypotheses have not been preregistered prior to collection or analysis of the data.

2.2 Distraction-oriented coping positively correlates with procrastination.

This particular hypothesis can be described as the task-oriented coping strategy of avoidance coping and can be justified in the same way as the previous one (Kälin & Semmer, 2020, p. 13).

Taken together with the previous hypothesis, the examination should clarify if the connection between procrastination and avoidance coping can be pinpointed to one facet and therefore maybe hint towards a better understanding of the uncertainties concerning procrastination and avoidance coping.

3. Emotion-oriented coping positively correlates with procrastination.

Emotion-oriented coping has not been examined in the context of procrastination yet, but like the two previous hypotheses, it can be based on findings that are more general. Sirois and Kitner (2015) could show during their meta-analysis that procrastination was linked to maladaptive coping, which can be a generalized term for emotion-oriented and avoidance coping (Endler & Parker, 1990a; Flett et al., 1995). As for the hypotheses described before, this study aims at a more differentiated view on maladaptive coping and procrastination.

4. Task-oriented coping negatively correlates with procrastination.

This connection can be classified as the antonym of procrastination when taken in an extreme and was also shown in research many times before (Deniz, 2006; Sepehrian & Hosseinzadeh, 2011; Ulya et al., 2020; Verešová, 2013).

5. Avoidance coping positively correlates with perceived stress.

Since avoidance coping is a part of maladaptive coping, it is a stress-magnifying coping strategy by definition but is also shown to exacerbate stress (Endler & Parker, 1990a; Flett et al., 1995). Therefore, a positive relation between the two constructs is to be expected.

5.1 Social-diversion-oriented coping negatively correlates with perceived stress.

As a facet of avoidance coping, the connection between social-diversion-oriented coping as in seeking social support, is hypothesized to lead to oppositional results in comparison to the previous hypothesis (Endler & Parker, 1990a; Kälin & Semmer, 2020, pp. 13, 27).

5.2 Distraction-oriented coping positively correlates with perceived stress.

This hypothesis can be suspected contrarily to hypothesis 5.1 as it focuses on the maladaptive facet of avoidance coping (Endler & Parker, 1990a; Flett et al., 1995; Kälin & Semmer, 2020, pp. 13, 27).

The aim is again to specify general findings about coping strategies and their correlates.

6. Emotion-oriented coping positively correlates with perceived stress.

Emotion-oriented coping can be defined as maladaptive coping as well (Kälin & Semmer, 2020, p. 13). Subsequently, a positive connection to perceived stress is implied and might also be useful in specifying the previously found positive relation (Sirois & Kitner, 2015).

7. Task-oriented coping negatively correlates with perceived stress.

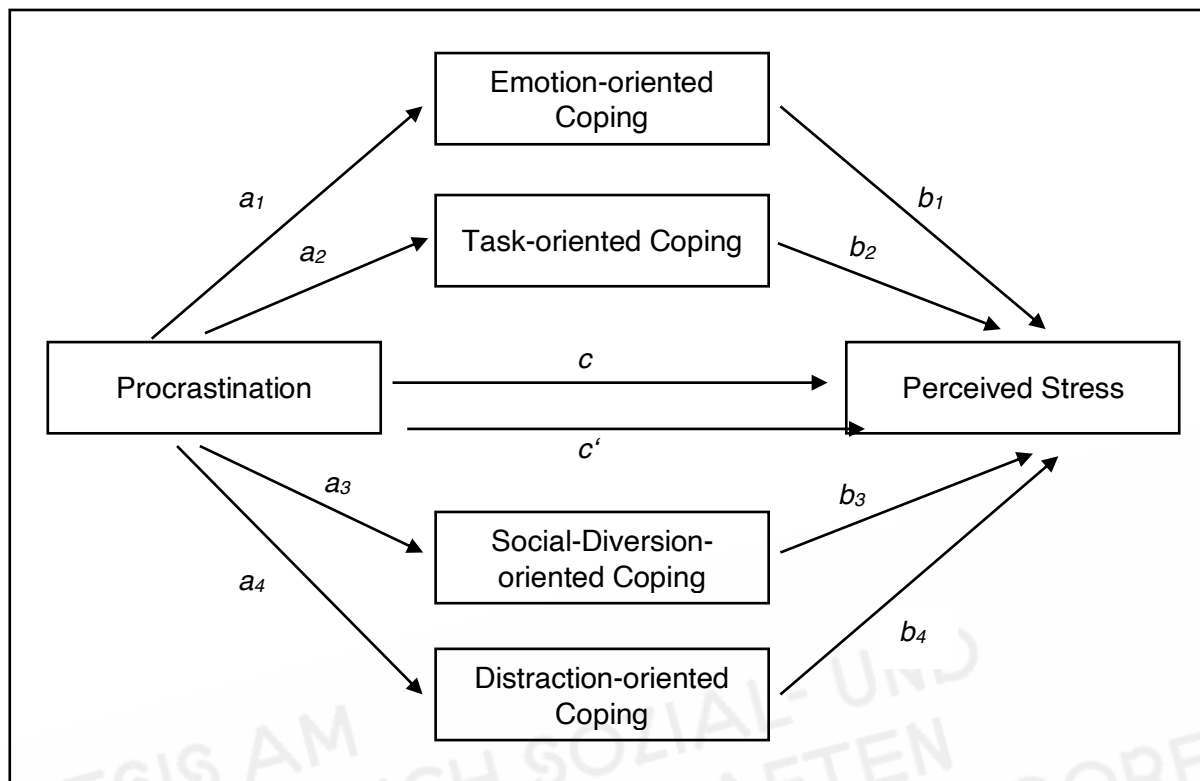
While this coping strategy is defined as adaptive or stress-reducing, the expected negative correlation becomes apparent (Endler & Parker, 1990a; Flett et al., 1995). A recent study already found the existence of this connection (Gustems-Carnicer et al., 2019).

8. The link between procrastination and perceived stress is mediated by social-diversion-oriented coping, distraction-oriented coping, emotion-oriented coping and task-oriented coping.

This hypothesis is based on the meta-analysis by Sirois and Kitner (2015) and as a number of previous hypotheses, should reevaluate the findings and if possible, refine them, with more distinctive results. Even if Sirois and Kitner (2015) could not identify adaptive coping as a mediator of the relation, it is still important to retest this as a replication of their findings but with the diversified view on different strategies of coping (Sirois & Kitner, 2015). Figure 3 illustrates the relations suspected within this hypothesis. The covariate gender was used as Sirois and Kitner (2015) proposed it as well as literature indicates gender differences in both procrastination and perceived stress (Beutel et al., 2016; Klein et al., 2016).

Figure 3

Proposed mediation model and relations between procrastination, perceived stress.



Note. This figure illustrates hypothesis eight as it shows the proposed constructs (predictor, outcome and mediators), connections and paths within the planned mediation-analysis. Gender has been added as a covariate.

4. Method

To examine the previously stated research question and hypotheses, it is important to shine light on the methodological background of the study, its sample and its procedure.

4.1 Participants

The present study includes a sample only encompassing German university students. There was no difference made between regular universities and universities of applied sciences. Before the data analysis, a number of participants were excluded ($N = 502$, $n = 429$) because of not proceeding to the questionnaires of interest, just answering demographic questions.

The sample used consisted of $n = 429$ (80.4 % female, 16.1 % male, 3.5 % other²) students. It is important to take into account that the big majority of participants identify as female. The mean age of the studied group was $M = 25.8$ years old ($SD = 6.02$, $Mdn = 25$, $Min = 18$, $Max = 55$). Although participants all had to be students, their academic majors, which were grouped with a classification proposed by the German federal office (Statistisches Bundesamt, 2020), were very diverse ($n = 424$): social sciences, law and economics were studied by 64.1 % and therefore by the majority, while 12.8 % were majoring in engineering sciences and 12.4 % were having art and art sciences as their academic major. Additionally, 9.1 % studied humanities as a major and lastly, .5 % of the participants were majoring in medicine and health sciences. The other categories proposed, i.e., sports, mathematics, and natural sciences, agricultural -, forest- and nutritional sciences were not reported by any participants. Subsequently it was also differentiated, whether the students were undergraduates completing their bachelor's degree, or graduate students completing their master's degree. Hence 76.9 % of students were studying in a bachelor's program and 23.1 % were in a master's program. Furthermore, the number of semesters the students had been studying so far was on average $M = 7.3$ semesters ($SD = 4.10$, $Mdn = 6$, $Min = 1$, $Max = 21$, $n = 415$). Differentiating between bachelor and master students, undergraduates were studying for $M = 6.04$ ($SD = 3.33$, $Mdn = 6$, $Min = 1$, $Max = 19$, $n = 330$) semesters already, while graduate students were studying for $M = 12.18$ ($SD = 2.95$, $Mdn = 12$, $Min = 7$, $Max = 21$, $n = 85$) semesters when completing

² The category "other" covers the individuals which were reporting "other" (German: "divers") and the participants which used a text box to report another gender that they identified with. In exact numbers 2.8 % reported "other" and .7 % answered via the text box.

the survey. Importantly, during analyses including the sum of semesters a person studied at a university combining bachelor's and master's degree, illogical answers were found and excluded in all further analyses concerning this item.³ It is additionally important to discern that some universities are offering to study as a fulltime student, which in this sample were 87.4 %, or as a parttime student, which in the present study includes 12.6 % percent of students. Considering this discrimination between full- and parttime, the number of semesters needed to study until the present day was $M = 7.01$ ($SD = 4.02$, $Mdn = 6$, $Min = 0$, $Max = 21$, $n = 363$) semesters for fulltime- and $M = 9.16$ ($SD = 4.11$, $Mdn = 8$, $Min = 2$, $Max = 19$, $n = 52$) semesters for parttime students. Taking the moment in time and especially the current events as well as the events of the past few years into consideration, it is important to state that 40.1 % of the sample have exclusively or predominantly studied remotely and 59.9 % have already studied face-to-face. Lastly it is relevant to look at the amount of time that students are working, or if they are working at all. Twenty-four percent of all participants are not working, and the 76 % that are working are spending $M = 16.92$ hours ($SD = 8.95$, $Mdn = 16$, $Min = 1$, $Max = 44$) per week on work.

4.2 Sampling Procedure

As described in the beginning of the text at hand, the target population in this study are German university students (Döring & Bortz, 2016, p. 292). The sample can be characterized as a *non-probabilistic convenience sample*, since the universities involved in acquiring participants voluntarily supported the study; other ways of spreading the survey were easily available (e.g., social media) (ibid., p. 323).

In practice participants were acquired, by notifying the dean's assistant of all faculties of the University of applied sciences Düsseldorf and simultaneously advertising the link to the study in entrance halls of libraries of three big universities in Germany, as well as publishing the link to the study on different social media sites. The timing of the submission of answers to the survey suggests that the majority of participants are from the HSD. This can be described as a self-selection process (American Psychological Association, 2020, p. 83). At the same

³ An example for that kind of answer could be that a participant put in four semesters as the time they spent studying at a university, but also said that they were studying in a master's program. Since a regular bachelor's degree takes on average 6 semesters to complete, the answer is obviously false. In the following it will be always shortly noted when and how many participants are excluded from affected analyses.

time, many universities that were messaged during data collection did not answer the request or denied it.

It is important to note that as a reward for participation students could win one of three 25 € gift-cards. Students from HSD could even enter the raffle twice, with the participation in another study conducted for a master's thesis. This might explain the self-selection of HSD students which occurred during the study at hand.

4.3 Design

The study at hand can be classified as an *empirical, non-experimental, cross-sectional field study*, because of no *randomization*, no intervention and one time of measurement (Döring & Bortz, 2016, pp. 183–216). The general design of the study is a *quantitative sample study* with a *group design* and is using a *primary analysis*, which has been conducted as the foundation of a master's thesis (ibid.). The study itself can be partially labeled as a *replication study* since it was planned with reference to the studies used during the meta-analysis done by Sirois and Kitner (2015). Thus, it can be labelled as a *systematic replication study* because of the changes made to the design, data collection and analysis (ibid.). The changes consist inter alia in the measures used in the questionnaire, since the scale measuring coping strategies differs from the one used in the analyses by Sirois and Kitner (2015). In the analysis of the study at hand *descriptive* and *explanatory* parts can be found (ibid.).

4.4 Instrumentation

During the study at hand, three different instruments were provided online for the data collection. Additionally, there was a number of questions asked about demographics.

The three standardized questionnaires used were the German short version of the “General Procrastination Scale” (GPS-K) (Klingsieck & Fries, 2018), the German version of the “Perceived Stress Scale” (PSS-10) (Schneider et al., 2020) and the German short version of the “Coping Inventory for Stressful Situations” (CISS) (Kälin & Semmer, 2020). The used instruments will be described in detail in the following.

4.4.1 General Procrastination Scale (GPS-K)

The GPS-K is a German version of the “General Procrastination Scale” by Lay (1986) which was translated and shortened by Klingsieck and Fries (2018). The instrument measures

procrastination as a trait (Klingsieck & Fries, 2018). While the original version contained 20 items, the GPS-K only encompasses nine.

The scale starts with a short instruction for the participant and uses a four-point Likert-Scale which differentiated between one, which equals “very atypical” [“sehr untypisch”] and four, which equals “very typical” [“sehr typisch”] (Klingsieck & Fries, 2018). The items themselves are referring to the delay and timing of a task or on the contrary the punctuality of the completion or the beginning of a task, e.g., item number two which says “I only work on tasks close to the deadline” [“Ich erledige Aufgaben immer erst kurz vor dem Abgabetermin”] (ibid.). Thus, four items of the questionnaire (items five, six, seven and nine) had to be recoded before analysis. The analysis of the one-dimensional scale is simply done by calculating the mean of the answers given (ibid.). The interpretation of data can be done comparing the data to the means and standard deviations of norms provided by Klingsieck and Fries (2018). For this study, the sample composed by students of all majors has been chosen to compare the data with.

Considering the quality criteria of the GPS-K, a satisfying conclusion can be drawn. Objectivity is achieved due to the set instruction and order of the items. Additionally, the analysis and interpretation are clearly stated. Considering, reliability Cronbach’s alpha varies between $\alpha = .86$ and $\alpha = .88$ and the retest-reliability can be seen at $r_{tt} = .83$, which can both be viewed as satisfactory (Field, 2018, p. 1054; Klingsieck & Fries, 2018). The validity of the test can be assumed because of strong indications about discriminant, concurrent, convergent and ecological validity. Because of the low number of items and the short time needed to complete and analyze, the scale can be considered economic (ibid.).

The GPS-K was chosen for this study because of its psychometric qualities, international recognition as well as its shortness. It is important to mention that the GPS-K was slightly changed to be used for this study, by changing the way of addressing the participant to a more informal way i.e., from “Sie” to “du”.⁴

⁴ In German it is custom to address a person in a formal way by saying “Sie” as a pronoun and as a more informal alternative, saying “du”. Since this study was conducted by a student with a sample consisting of students, it seemed more appropriate to address the participants by using the more informal manner.

4.4.2 Perceived Stress Scale (PSS-10)

The PSS-10, which is a German short version of the often used “Perceived Stress Scale” by Cohen, Karmarck and Mermelstein (S. Cohen et al., 1983; Klein et al., 2016). The original scale encompassed 14 items and was later shortened to ten items with better reliability and factor loadings (S. Cohen & Williamson, 1988).

The scale itself consists of a short instruction followed by ten items, measuring the degree to which an individual considers a situation as stressful; it is based on the stress theory of Lazarus and colleagues as a state measure (Kohlmann et al., 2021, p. 56; Lazarus & Folkman, 1984, 1986). The items are answered on a five-point Likert-Scale from one, which equals “never” [“nie”] to five, which represents “very often” [“sehr oft”] (Schneider et al., 2020). Item number seven „In the last month, how often have you been able to control irritations in your life?“ (S. Cohen & Williamson, 1988) [“Wie oft warst du während der letzten Prüfungsphase in der Lage, ärgerliche Situationen in deinem Leben zu beeinflussen?“ (modified from Klein et al., 2016)] can be used as an exemplary item for the PSS-10. The analysis and interpretation of the PSS-10 is performed by reversing the scores of items four, five, seven and eight first, and then calculating a sum score of all items, which can then be compared to the norm values provided by Klein et al. (2016) for German samples. As a comparison sample for the current study, the student sample has been chosen.

There are discrepancies concerning the factor structure of the PSS-10, which was originally built as a one-dimensional test, but researchers also found indications of a two-factor structure (Klein et al., 2016). The two factors found are often defined as primary and secondary appraisal stated by Lazarus and Folkman (Lazarus & Folkman, 1984, 1986). For this research endeavor, it was carefully decided on the usage of the original unidimensional structure of the scale, because here the interest does not lie in the two specific factors or effects over time, but on a general classification of the perceived stress level of the sample (Klein et al., 2016; Reis et al., 2019).

Concerning quality criteria of the scale it can be said that the internal consistency or reliability of the measure can be considered satisfying with Cronbach’s alpha $\alpha = .84$ and indications for validity (internal and external) and objectivity can be found (Field, 2018, p. 1054; Klein et al., 2016). Since the questionnaire only consists of ten items and can be completed within a few minutes it can also be considered economical (ibid.).

The PSS-10 was chosen because of its international recognition, shortness, and simplicity in addition to its satisfying psychometric qualities.

As noticeable in the exemplary item the PSS-10, in the same manner as the GPS-K, was also modified for the study at hand with the usage of a more informal way of addressing the participant and with the reference to last exam period instead of the time period of one month.

4.4.3 *Coping Inventory for Stressful Situations (CISS)*

The German short version of the CISS as a trait measure of coping with stress was used in the survey. The original version of the “Coping Inventory of Stressful Situations” by Endler and Parker (1990) consisted of 48 items and was shortened to the 24-item version which was used during this study (Kälin & Semmer, 2020).

The CISS covers three coping styles: task-oriented coping, e.g., item twelve “I create a plan and execute it.” [“Ich erarbeite mir einen Plan und führe ihn auch aus.” (Kälin & Semmer, 2020, p. 22)], emotion-oriented coping, e.g., item twenty-one “I get angry.” [“Ich werde wütend.” (ibid.)] and avoidance-coping. The included avoidance-coping style is divided into social-diversion-oriented coping, e.g., item seventeen “I visit a friend.” [“Ich besuche einen Freund/eine Freundin.” (ibid., p. 23)] as well as distraction-oriented coping, e.g., item twenty-two “I watch a movie.” [“Ich schaue mir einen Film an” (ibid.)]. The items are answered on a five-point Likert-Scale between one, as “very atypical” [“sehr untypisch” (ibid., p. 29)] to five, as “very typical” [“sehr typisch“ (ibid.)]. The scale can be analyzed and later interpreted by calculating the sum score of each coping style and then the scores can be compared to the provided norms (ibid.). For this study the general norm, which is not divided by gender, has been chosen to compare the data with.

Looking at quality criteria, the reliability or internal consistency lies between Cronbach’s alpha $\alpha = .74 - .83$ (ibid.). Hence Cronbach’s alpha can be considered satisfactory (Field, 2018). External and internal validity as well as objectivity can be assumed as well. The questionnaire can be completed and interpreted relatively quickly and can accordingly be considered economic (ibid.).

Therefore, the internationally recognized scale has been chosen as the most economic and psychometrically satisfying measure for coping strategies which differentiates further than

maladaptive and adaptive coping. The only modification made was again, addressing the participant in a more informal manner.

4.5 Data Collection

Data was collected via the online survey program LimeSurvey⁵. The timeframe in which the survey was online lay between the 15th of March and the 15th of May 2022. So, the study was conducted in the beginning of the summer term.

During the survey, participants were first presented with a short welcome text which stated the intention and the backgrounds of the study and the rewards for participation as well as presenting the expected time that the participant will need to complete the survey. Directly afterwards a data protection agreement was presented and had to be formally agreed to in order to proceed. The data protection agreement was written based on European and German data protection guidelines and laws, and it was designed based on an exemplary data protection agreement that was monitored by the data protection supervisor of the HSD.

After the participant proceeded in the survey, they were given the general instruction for the study. It encompassed a cue for the whole survey, which said that the person should envision themselves during the last exam period when answering the survey. Furthermore, a short briefing about the handling of the questionnaire was given. Subsequently, the demographics were asked for.

The three questionnaires GPS-K, PSS-10 and CISS followed. All used scales were not titled by the official names but titled with the general topic of the questionnaire (e.g., Questions about Procrastination etc.). After the completion of those, the survey ended with an acknowledgement of gratitude and the link to the reward raffle. To ensure maximum data protection, a separate survey and data protection agreement was issued for the raffle, since the e-mail-addresses had to be saved for a certain time period.

After completing the data collection period, winners were chosen at random and given two weeks to claim their price. If they did not answer back, a new winner was chosen.

⁵ LimeSurvey was used as a full version provided by the university and available under the following link: <https://umfrage.soz-kult.hs-duesseldorf.de>.

4.6 Data Analysis

The data was prepared and analyzed with the statistics program *IBM SPSS Statistics*⁶. Therefore, even before and during data collection the needed syntax was written according to the created and previously illustrated hypotheses. Before the analysis, the data was prepared by firstly implementing it in SPSS and removing cases where more than half of the needed answers were missing. Secondly, words that could not be considered values in variables were removed manually, i. e. in the item recording working hours per week, several participants wrote the word “hours” after their answer. Afterwards the data was recoded in numerical variables as well as labeled according to the different measures. Items that needed to be inverted for the analysis were transformed in that manner. As a next step, the data obtained from the different scales was analyzed according to the previously recounted ways in which the scales should be analyzed, e. g. calculating sum or mean scores.

For further analysis it is essential to keep in mind that the Likert-Scales used to answer the measures can just be used as interval scaled if equidistance can be assumed, otherwise calculations have to be made with the assumption of an ordinal scale of measurement (Döring & Bortz, 2016, pp. 244, 251). For the used scales an interval scale can be assumed, but the arithmetic means were compared with medians to ensure no conflicting results (Döring & Bortz, 2016, p. 251).

As a first step in the proper analysis of the data, descriptive statistics were calculated using fitting means and parameters of variability (Fahrmeir et al., 2016, p. 53 ff.). Specifically, frequencies, percentages, means, standard deviations, minimum and maximum values were calculated (ibid., p. 49 ff.). It is crucial to consider that the arithmetic mean, and the standard deviation can only be correctly interpreted when the data can be classified as metric, otherwise other (additional) parameters are appropriate, like a median or mode (Döring & Bortz, 2016, p. 251; Fahrmeir et al., 2016, p. 53 ff.). In addition to analyzing the whole sample, a grouped descriptive analysis was also done to supplement the data. Thus, grouping variables deduced from demographic questions were used.

To test the hypotheses, inferential statistics have been used. It is important to choose different fitting tests for the constructed hypotheses. For most of the chosen hypotheses (one

⁶ Version 28.0.1.1 was used for the data analysis.

through seven) the calculation of Pearson's correlation coefficient is fitting (Fahrmeir et al., 2016, pp. 126–131; Field, 2018, p. 178). Pearson's r can become a number between -1 and +1 and defines the strength in which two variables are related linearly without assuming a causal relationship (Fahrmeir et al., 2016, pp. 126–131; Field, 2018, p. 178). The value of Pearson's r can be interpreted as follows: a negative correlation means that when one variable shows higher numbers the other shows lower numbers, and a positive correlation means that when one variable shows higher numbers, the other also shows higher numbers. A coefficient that is zero means that there is no relationship (ibid.). The strength of a relationship can be analyzed using a suggested classification by Cohen (J. Cohen, 1988, 1992, pp. 113–116).

Since Pearson's r is measuring the relationship between two variables in a linear way, it is important to first inspect the data visually by looking at a scatterplot of the two concerned variables (Field, 2018, p. 453). As Pearson's correlation also assumes normality of the distributions, it is more accurate to use the non-parametric bootstrap-procedure to examine significance (Field, 2018, p. 470). Bootstrapping means drawing dependent samples from the sample provided again and again and each time estimating the parameter of interest (ibid., pp. 367). Then a confidence interval is calculated, to define where 95 % of estimates fall, if zero is not found in this interval, a significant effect can be assumed (ibid.). This procedure can be used even without the assumption and indication of normality (ibid., p. 470).

The last hypothesis (hypothesis eight) requires a mediation analysis to be examined and therefore the SPSS Macro *PROCESS*⁷ was used⁸. It is important to know that a mediation means that “the relationship between a predictor variable and an outcome variable can be explained or partially explained by their relationship to a third variable (the mediator)” (Field, 2018, p. 652). The procedure can be classified as a special version of multiple regression (Baron & Kenny, 1986; Hayes, 2009).

To make sure that a mediation is occurring, four conditions have to be fulfilled with the calculation of linear models: the predictor variable must predict the outcome variable significantly; the predictor must significantly predict the mediator variable; the mediator

⁷ PROCESS version 4.1 was used for the data analysis and is available through the following link: <http://www.processmacro.org/download.html>.

⁸ For this step in the analysis SPSS was operated by using dialog boxes instead of syntax, which was used in the beginning.

variable must predict the outcome variable in a significant way; and lastly with the effect of the predictor and mediator taken together in the model, the predictor must predict the outcome variable to a lesser degree than in the case when just the predictor and outcome variable are modeled together (Baron & Kenny, 1986; Field, 2018, p. 654). Ideally, in the last condition, the amount of prediction of the outcome variable done by the predictor variable will become zero, but that does not happen often (Field, 2018, p. 655). To make sure that even if there is no full mediation, the mediation can be securely demonstrated, it is recommended to calculate confidence intervals through a bootstrapping procedure, as explained above for correlation analysis (Field, 2018, p. 656). Again, if zero does not fall within the confidence interval, a significant effect can be assumed (Field, 2018, p. 661).

But before starting the calculation of a mediation, different requirements have to be fulfilled. Firstly, the prerequisites of linear relationships between variables are important so that the linear models fit the data (Hayes, 2018, p. 69). These can be checked visually by using bivariate scatterplots of all paths of the mediation model (Fahrmeir et al., 2016, p. 449). Secondly, the assumption of normality can be left out because of the usage of the bootstrap procedure (Field, 2018, p. 367). *Homoscedasticity*, i.e., “homogeneity of variance” (Field, 2018, p. 662) or “that the variance of the outcome variable should be stable at all levels of the predictor variable” (ibid., p. 333) can also be bypassed by using bootstrapping (Field, 2018, p. 527; Hayes, 2018, p. 71). The next assumption, which concerns independence, is best suspected via the sampling technique of the study (Hayes, 2018, pp. 72–73). Additionally, multicollinearity should not exist (Field, 2018, p. 533). This can be audited with a correlation-matrix using all relevant variables and then the inspection for correlation bigger than $r = .80$ or $r = .90$ (ibid., p. 534). And lastly, the existence of outliers can make the results of the analysis useless (ibid., p. 321). Outliers can be ruled out via the inspection of the descriptive analysis of the data; conveniently, a boxplot can be used (Döring & Bortz, 2016, p. 622). After the investigation of those prerequisites, the actual mediation-analysis can take place and the data can be securely interpreted.

To make the coefficients of the analysis more comparable to other studies, it is advisable, besides calculating and noting the different *b*-values, to report standardized variables as well (Field, 2018, p. 656; Mackinnon, 2012; Preacher & Hayes, 2008). The used macro calculates these standardized coefficients and therefore the data does not have to be z-

standardized before analysis. Effect sizes can be estimated via the proposed sizes similar to the ones provided for correlation analysis (J. Cohen, 1988). Generally, to assess the fit of the data within the used model, the coefficient R^2 is calculated which describes how much variance of the outcome variable can be explained by the mediator (Field, 2018, p. 657). If this coefficient becomes negative, it is a hint that rather than mediation, suppression takes place (ibid.).

The hypothesis used in this study goes one step further in using not only one mediator but four and can therefore be characterized as a multiple mediation (see figure 3). Statistically it works in the same way as a simple mediation, so the requirements and explanations can be equally used.

4.7 Power

To minimize the Type II error rate and maximize statistical power, which means that a significant effect is mistaken as no effect, sample size was calculated a priori, so before the start of the survey, via the program *G*Power*⁹ (Döring & Bortz, 2016, p. 669 ff.; Field, 2018, p. 138). All calculated sample sizes for a medium effect size through *G*power* were exceeded by the number of participants taking the survey even after the previously depicted exclusion of cases¹⁰. To estimate the size of a minimum sample for the proposed mediation analysis, it was only possible to calculate an estimate for mediation models with a single mediator, while the model proposed here is a multiple-mediation model. A self-programmed statistical model for a priori power analysis could not be done during this study. But power-analysis for a single mediator mediation showed that a more than sufficient sample size was given in this study.¹¹ This could be shown via *G*Power* as well as the more precise pre-modeled tables by Fritz & MacKinnon (2007).

⁹ The version *G*Power* 3.1.9.6 for Mac was used and is available under this link:

<https://www.psychologie.hhu.de/arbeitsgruppen/allgemeine-psychologie-und-arbeitspsychologie/gpower>.

¹⁰ Calculated sample size for Pearson's r was $n = 138$.

¹¹ Calculated sample size for single mediation model by *G*Power* was $n = 46$ and deduced sample size from Fritz and MacKinnon (2007) was $n = 162$.

5. Results

5.1 Descriptive Analysis

As described above, the first step of the analysis was, to first look at the data in a descriptive manner. First, tables one through three show the descriptive analysis of the measures used during data collection. Because of the many demographics that were asked for, not all possible data groupings are reported here, but it was decided on the most outstanding results¹².

Table 1

Descriptive analysis of the GPS-K, PSS-10 for the total and parts of the divided sample.

| | GPS-K | | | | | PSS-10 | | | |
|--------|----------|----------|-----------|------------|------------|----------|-----------|------------|------------|
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Gender | | | | | | | | | |
| m | 69 | 2.71 | .63 | 1.33 | 4.00 | 29.25 | 7.69 | 13.00 | 50.00 |
| w | 345 | 2.82 | .64 | 1.00 | 4.00 | 32.52 | 7.11 | 13.00 | 50.00 |
| Total | 429 | 2.82 | .65 | 1.00 | 4.00 | 32.15 | 7.30 | 13.00 | 50.00 |
| Sample | | | | | | | | | |

Note. This table demonstrates the descriptive analysis of the GPS-K and PSS-10 for the total sample as well as a divided sample by gender.

¹² Full tables are supplemented in the appendix C.

Table 2

Descriptive analysis of the CISS (Emotion-oriented and Task-oriented Coping) for the total and parts of the divided sample.

| | CISS | | | | | | | | |
|--------|-------------------------|----------|-----------|------------|------------|----------------------|-----------|------------|------------|
| | Emotion-oriented Coping | | | | | Task-oriented Coping | | | |
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Gender | | | | | | | | | |
| m | 69 | 23.64 | 7.39 | 8.00 | 39.00 | 28.45 | 4.74 | 12.00 | 38.00 |
| w | 345 | 26.00 | 6.40 | 9.00 | 40.00 | 27.80 | 5.34 | 14.00 | 40.00 |
| Total | 429 | 26.51 | 6.68 | 8 | 40 | 27.83 | 5.20 | 12 | 40 |
| Sample | | | | | | | | | |

Note. This table demonstrates the descriptive analysis of the CISS (Emotion-oriented and Task-oriented Coping) for the total sample as well as a divided sample by gender.

Table 3

Descriptive analysis of the CISS (Avoidance Coping and facets) for the total and parts of the divided sample.

| | CISS | | | | | | | | | | | | | |
|--------|---------------------------|----------|-----------|------------|------------|----------------------------------|-----------|------------|------------|-----------------------------|-----------|------------|------------|---|
| | Avoidance-oriented Coping | | | | | Social-Diversion-Oriented Coping | | | | Distraction-Oriented Coping | | | | |
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | |
| Gender | | | | | | | | | | | | | | |
| m | 69 | 23.5 | 5.6 | 11.0 | 35.0 | 12.9 | 3.6 | 4.0 | 20.0 | 10.5 | 3.1 | 4.0 | 17.0 | |
| | | 4 | 7 | 0 | 0 | 4 | 8 | 0 | 0 | 9 | 0 | 0 | 0 | |
| w | 34 | 25.5 | 5.8 | 10.0 | 40.0 | 13.1 | 3.7 | 4.0 | 20.0 | 12.3 | 3.5 | 4.0 | 20.0 | |
| | | 5 | 2 | 7 | 0 | 0 | 9 | 8 | 0 | 0 | 5 | 6 | 0 | 0 |
| Total | 42 | 25.0 | 5.8 | 10 | 40 | 13.0 | 3.7 | 4 | 20 | 12.0 | 3.5 | 4 | 20 | |
| Sample | 9 | 7 | 9 | | | 6 | 7 | | | 1 | 4 | | | |

Note. This table demonstrates the descriptive analysis of the CISS (Avoidance Coping and facets) for the total sample as well as a divided sample by gender.

Regarding the total sample, the procrastination score is above average, i.e., one standard deviation above the average score of the chosen norm provided by Klingsieck & Fries (2018). When looking at the matching frequencies, 62.5 % of the sample has a procrastination score above average. Following along with the PSS-10, the perceived stress level is extremely above the average score of the norm (Klein et al., 2016). It can be found just under three standard deviations above the mean of the norm. 94.9 % of the participants are reporting a perceived stress score that is above average. When looking at the coping strategies used by the participants, it becomes clear that in comparison to the norm, only for emotion-oriented coping a value only slightly above average can be found (Kälin & Semmer, 2020). Here, 53.1 % are using emotion-oriented coping significantly more than average. Task-oriented coping is used below average by 18.9 % of the sample, while avoidance coping is used above average by 32.4 %. Considering the facets of avoidance coping, social-diversion-oriented coping is used above average in 18.6 % of cases and distraction-oriented coping in 43.8 % of cases.

When visually inspecting the grouped data, only a few values are remarkable. There are obvious differences regarding gender and the perceived stress score (see table 1) as well as gender and coping strategies (see tables 2 and 3). It can be observed that women are reporting a higher perceived stress score and are more likely to use emotion-oriented coping as well as avoidance coping, especially distraction-oriented coping.

5.2 Inferential Analysis

After looking at the descriptive analyses, it is important to look at the hypotheses that have been posed in the beginning, through the usage of inferential statistics. Firstly, the correlational hypotheses, hypotheses one through seven, are investigated. Table 4 reports the correlations calculated.

Table 4*Correlations between the scales GPS-K, PSS-10 and coping strategies of the CISS.*

| GPS-K | PSS-10 | CISS | CISS | CISS | | |
|--------|--|--|---|---|---|--|
| | | Emotion-oriented Coping | Task-oriented Coping | Social-diversion-oriented Coping | Distraction-oriented Coping | Avoidance Coping (Total) |
| GPS-K | .40** (<i>p</i> = <.001) CI 95 % [.32, .48] | .46** (<i>p</i> = <.001) CI 95 % [.36, .52] | -.44** (<i>p</i> = <.001) CI 95 % [-.51, -.36] | .17** (<i>p</i> = <.001) CI 95 % [-.05, -.10] | .11* (<i>p</i> = .01) CI 95 % [.02, .23] | -.03 (<i>p</i> = .37) CI 95 % [-.13, .06] |
| PSS-10 | | .74** (<i>p</i> = <.001) CI 95 % [.68, .77] | -.28** (<i>p</i> = <.001) CI 95 % [-.35, -.17] | -.24** (<i>p</i> = <.001) CI 95 % [-.33, -.13] | .05 (<i>p</i> = .29) CI 95 % [-.06, .16] | -.11* (<i>p</i> = .01) CI 95 % [-.23, -.02] |

Note. This Table demonstrates the Correlations (Pearson's *r*) which have been hypothesized (Hypotheses one through seven).

p* < .05. *p* < .001.

After scrutinizing the correlation analyses, it is possible to say that there is a significant positive relation between the procrastination score and the perceived stress score. Here, the effect size can be considered as a medium effect (J. Cohen, 1988, 1992). Therefore, the first hypothesis can be verified. The correlation between procrastination and avoidance coping is insignificant and therefore the second hypothesis must be rejected. Looking at the two facets of avoidance coping, higher scores in both go along with higher procrastination scores with a significant small effect-size. Consequently, the hypotheses 2.1 and 2.2 can be verified. Similarly, hypothesis three can be verified with a medium-sized significant positive effect. But

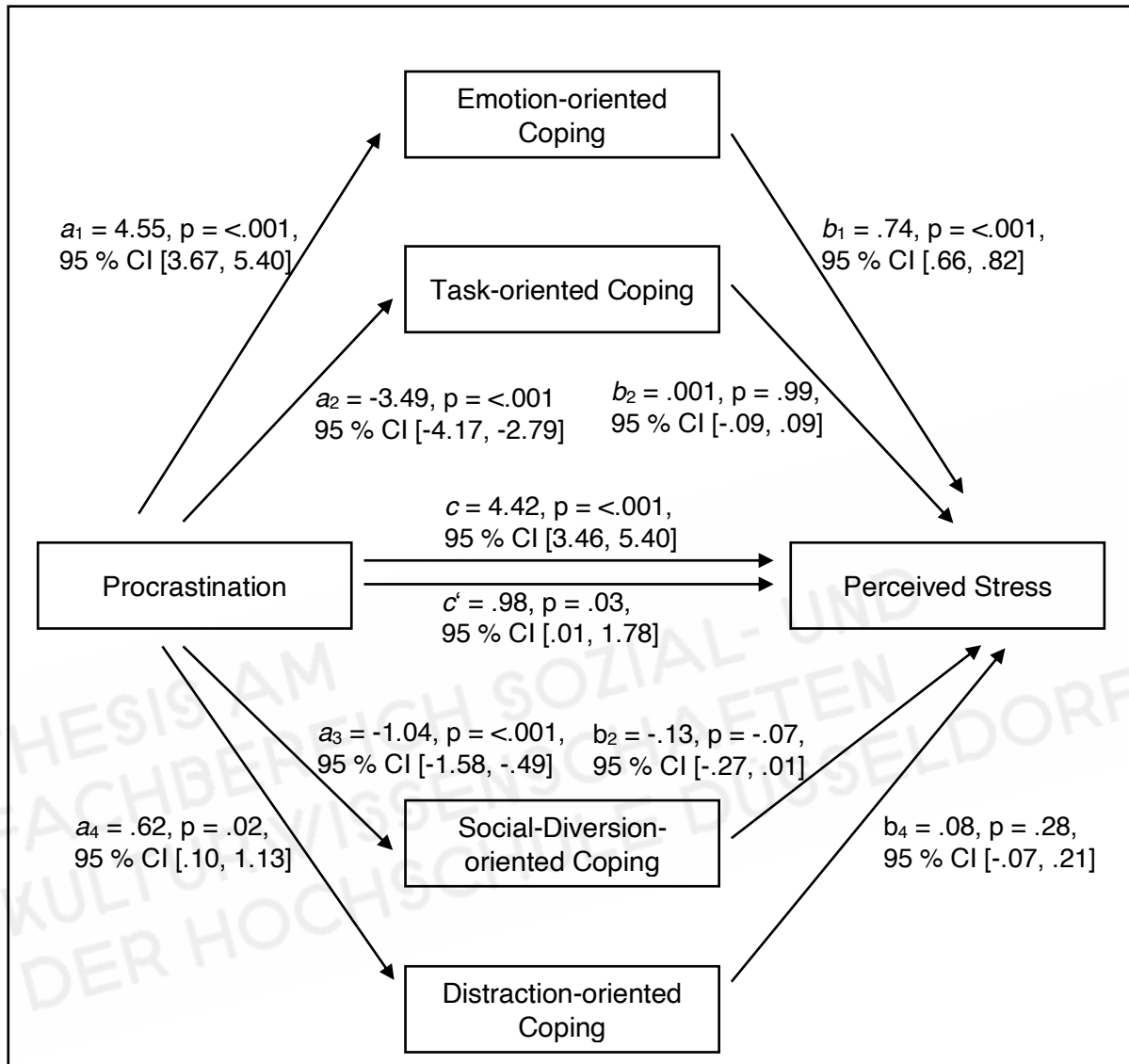
the significant negative correlation with a medium-sized effect can be found, as expected when looking at the correlation between procrastination and task-oriented coping. Hypothesis four can subsequently be confirmed. Hypothesis five cannot be backed up by the significant negative correlation with a small effect size, since the direction of the relation is different. Perceived stress scores rise with the fall of avoidance coping scores. For social-diversion-oriented coping, a significant negative correlation with perceived stress and a small effect size can be registered as well, which leads to a verification of hypothesis 5.1. Whereas for distraction-oriented coping, no significant correlation can be found and therefore hypothesis 5.2 has to be discarded. Regarding perceived stress and emotion-oriented coping, a significant positive correlation with a big effect size can confirm hypothesis six. A significant negative correlation with a small effect size confirms hypothesis seven and the expected negative relation between task-oriented coping and perceived stress.

The last hypothesis was examined by conducting a mediation analysis. The assumptions that must be tested before calculating a mediation analysis have been examined or purposefully left out because of the usage of bootstrapping. Linearity is assumed through the inspection of bivariate scatterplots. Multicollinearity is rejected by looking at the intercorrelations of all factors involved within the model. To specify on the latter, the highest correlation is the one between the perceived stress score and emotion-oriented coping with $r = .74$. It still falls below the limit of $r = <.8$. Likewise, the independence of the data can be assumed because of the cross-sectional design, which did not only include one cohesive group but was spread out over different academic majors and universities. Lastly, the absence of outliers was checked and verified by looking at boxplots of the different variables chosen for the mediation model.

When examining the mediation model, the different paths have to be analyzed first, since those are also preconditions for a significant mediation. One can directly see that the procrastination score significantly predicts emotion-oriented coping. When looking at the standardized coefficient, the effect can be classified as a medium effect. When also providing R^2 it can be said that 23 % ($R^2 = .23$) of the variance in emotion-oriented coping is explained by the procrastination score. The subsequent path from emotion-oriented coping to the perceived stress score is also significant. Therefore emotion-oriented coping explains perceived stress with a large effect.

Figure 4

Model of the multiple mediation-analysis and paths between procrastination,



Note. This figure demonstrates the mediation-analysis with multiple mediators. The predictor variable is procrastination, the outcome variable is perceived stress and the proposed mediators are coping strategies. Statistics displayed are the *b*-values of the different paths with their *p*-value as well as bootstrapped confidence interval (5 % significance level). Gender has been added as a covariate.

Table 5*Standardized coefficients of the different paths of the mediation-analysis.*

| | Emotion-oriented Coping | | Task-oriented Coping | | Social-diversion-oriented Coping | | Distraction-oriented Coping | | Total effect | |
|--------------------------|---|---|---|---|---|---|---|---|---------------------------------|--------------------------------|
| | <i>a</i> -path (<i>a</i> ₁) | <i>b</i> -path (<i>b</i> ₁) | <i>a</i> -path (<i>a</i> ₂) | <i>b</i> -path (<i>b</i> ₂) | <i>a</i> -path (<i>a</i> ₃) | <i>b</i> -path (<i>b</i> ₃) | <i>a</i> -path (<i>a</i> ₄) | <i>b</i> -path (<i>b</i> ₄) | <i>c</i> '-path (<i>c</i>) | <i>c</i> -path (<i>c</i>) |
| Standardized Coefficient | .44 | .68 | -.42 | .001 | -.18 | -.07 | .10 | .04 | .08 | .38 |

Note. This table demonstrates the standardized coefficients of the paths of the mediation-model.

Following the model, the path between the procrastination score and task-oriented coping is also significant with a medium effect size, but in this case a negative effect can be identified. This means that when procrastination increases, task-oriented coping declines. Procrastination can explain 18 % ($R^2 = .18$) of the variance in task-oriented coping. However, task-oriented coping does not significantly predict perceived stress, so this precondition must be negated. The procrastination score significantly predicts social-diversion-oriented coping with a negative small effect and explains 2 % ($R^2 = .02$) of the variance in the coping strategy. The following path, where social-diversion-oriented coping is the predictor of the perceived stress score, is not significant. Again, the precondition for mediation has to be denied. Subsequently, the procrastination score predicts distraction-oriented coping at a very small effect, i.e., below the limit for a small effect. When looking at the R^2 -value, procrastination explains 2 % of the variance concerning distraction-oriented coping. Distraction-oriented coping does not predict perceived stress to a significant degree and therefore the third precondition of mediation must be denied. Looking at the path between the procrastination score and perceived stress, it is obvious that both c' and c are significant. The path c' describes whether the procrastination score predicts perceived stress, when the mediators are within the model. This can be confirmed, but with a very small effect size, which is again under the

threshold for a small effect. The R^2 -value in this case indicates that the model as a whole, explains 56 % ($R^2 = .56$) of the variance in perceived stress. Ultimately, path c of the mediation model expresses the effect of the predictor on the outcome variable without the mediators being taken into account. Here, the procrastination score predicts perceived stress significantly with a medium effect and explains 18 % ($R^2 = .18$) of the variance of perceived stress.

After examining the different paths in the mediation model, it becomes likely that only emotion-oriented coping is a mediator in the model. But to verify that, the indirect effects have still to be taken into account.

Table 6

Indirect effects of the different paths and total model of the mediation-analysis.

| | Emotion- oriented Coping | Task- oriented Coping | Social- Diversion- oriented Coping | Distraction- oriented Coping | Total Model |
|--------------------------|--------------------------------|-------------------------------|---|------------------------------------|------------------------------|
| Indirect effects | 3.34 95 % CI [2.63, 4.05] | -.003 95 % CI [-.40, .37] | .12 95 % CI [-.01, .31] | .05 95 % CI [-.05, .21] | 3.52 95 % CI [2.72, 4.30] |
| Standardized coefficient | .30 95 % CI [.22, .36] | -.0003 95 % CI [-.04, .02] | .01 95 % CI [-.001, .03] | .003 95 % CI [-.003, .02] | .30 95 % CI [.23, .37] |

Note. This table demonstrates the indirect effects of the different paths of the mediation-model as unstandardized and standardized coefficients as well as their confidence interval.

As expected, the indirect effect is only significant when looking at emotion-oriented coping as a mediator. It can be registered that the effect size is small. All other mediators have an insignificant indirect effect. The indirect effect of the total model can also be classified as significant with a small to medium effect size. In the end, the mediation hypotheses can only be verified concerning emotion-oriented coping as a mediator.

6. Discussion

The aim of this study was to better understand the connection between procrastination, perceived stress, and coping strategies as well as to have a more detailed view of it. To answer the proposed research question, the theoretical background of all concepts as well as current relevant research was scrutinized to formulate fitting hypotheses for this research endeavor. After the data analysis, it is now essential to interpret the findings and at the same time combine them with the research that has already been done. Of course, it is necessary to also shed light on limitations of the study. Lastly it is important to look back on the study within a wider context and see the results regarding practical implications for counseling and therapy.

6.1 Descriptive Analysis

Regarding the descriptive analysis, the sample shows procrastination scores above the average of the norm. This was expected due to previous research findings (Beleaua & Cocoradă, 2016; Beutel et al., 2016; Day et al., 2000; Dewitte & Schouwenburg, 2002; Höcker et al., 2022, p. 12; Özer, 2011). In addition, the participants had been instructed to think about their last exam period when filling in the questionnaire. As described in the beginning, preparing for exams or writing papers are tasks especially prone to procrastination (Özer, 2011). Since there are indications within this study that the lion's share of students was studying at HSD, it is interesting to look at findings of another study performed at the same university. Within the university's faculty of social- and cultural sciences the majority of students report negative consequences because of their procrastination (Sonnhüter & Wiechers, 2014). This makes the results even more comparable to previous research.

Rather more surprising was the extremely high mean perceived stress score that could be found. It is even substantially higher than a mean perceived stress score measured during an earlier phase of the pandemic with Turkish students (Aslan et al., 2020). It can only be hypothesized why the perceived stress score was that high. One explanation might be that all studies that are available now and shed light on stress during the pandemic, only consider the beginning of the pandemic and do not cover all consequences that may have accumulated over time. Also, it might be possible that the cue of the questionnaire, to think about the last exam period, in conglomeration with the beginning of the new semester, which would encompass classes in person again, had an influence on the high scores. This might be indicated because

students might have been extraordinarily stressed during the previous exam period, maybe because of it being the third online semester and/or feel nervous about the upcoming face-to-face classes and therefore see their previous stress out of proportion. It will be interesting to see other research considering students' and the general population's perceived stress at this particular stage in or at the end of the pandemic. This stresses the statement by Apgar and Cadmus (2021), who stress the serious effects of the pandemic, and that society is not able to grasp them in full capacity yet. Additionally, a general effect of the retrospective cue might also have influenced perceived stress as in a possible overestimation of perceived stress when looking back. Furthermore, it is important to keep in mind that within this study, perceived stress was measured, which bears no indication about objective stress or workload. This makes sense when looking at the transactional stress model but leaves the possibility of individual differences in the perception of stress.

It is also interesting that almost all mean scores of the coping strategies measured were within the average range of the norm. The only exception can be seen in emotion-oriented coping. As the sample consists of a majority of females and they are shown to use emotion-oriented coping more than men, it could be a small indication of a gender difference, but it might also be a false one (Böke et al., 2019; Brougham et al., 2009).

When looking at the grouped data, one construct where a suspected difference might be indicated, refers to the gender differences in perceived stress, which can also be suspected because of findings of research. It is a stable result that women tend to report higher perceived stress than men (Anbulamar et al., 2017; Böke et al., 2019; Bozorgnia et al., 2020; Brougham et al., 2009; Klein et al., 2016). Of course, this speculation on descriptive data would need further examination with inferential statistics and must also be seen with the exceptionally high perceived stress score in mind.

Additionally, there might also be gender differences considering coping strategies; in this case emotion-oriented coping as well as avoidance coping and distraction-oriented coping. This hypothesis would also have to be correctly statistically tested, but there have already been findings in research which support this hypothesis, even if those findings have been shown to be ambiguous (Athulya et al., 2016; Böke et al., 2019; Brougham et al., 2009; Hatunoglu, 2020).

6.2 Inferential Analysis

The tested hypotheses during the inferential analysis also raise interesting new observations. As expected, procrastination was significantly correlated with perceived stress. This underlines the basic connection of procrastination and perceived stress and forms the foundation of this examination at the same time (Beleau & Cocoradă, 2016; Burka & Yuen, 2008; Höcker et al., 2022, pp. 21–22; Sirois & Kitner, 2015; Verešová, 2013). Interestingly, the second hypothesis which expected avoidance coping to be positively related to procrastination, did not hold true. This supports the findings which did not find a correlation between those two concepts (Burns et al., 2012; Flett et al., 1995, p. 165; Shamel & Nayeri, 2021). It might be that, as Burns and colleagues (2012) hypothesized, procrastination is in fact not an avoidance response but an emotion-oriented one, which would also explain the small effects in the correlation of procrastination and social-diversion-oriented coping as well as distraction-oriented coping, which only just support the proposed hypotheses. Burns and colleagues are suspecting the construct of low self-efficacy, which has been previously shown to be linked to procrastination, as a main reason behind that (Burns et al., 2012; Steel, 2007; van Eerde, 2003). They believe that it works through the mechanism of cognitive coping being paired with a cognitive construct of not being able to complete a task (Burns et al., 2012). Additionally, the effect size of the relation between procrastination and emotion-oriented coping is bigger and would support the notion of procrastination being characterized as an emotion-oriented coping response and thus confirm the third hypothesis (Burns et al., 2012). This underlines the explanation construct of mood-repair concerning procrastination and even procrastination as a sign of mis-regulation of emotions (Sirois & Pychyl, 2016, p. 171). The finding is also striking when looking back at the definition of procrastination. As there is always an aversive task involved, it is only logical that when dealing with this uncomfortable situation, there must always be an emotional response (Höcker et al., 2022, p. 6; Pychyl & Sirois, 2016, p. 171).

Continuing with the fourth hypothesis, the negative connection between procrastination and task-oriented coping can again support conclusions from previous research (Deniz, 2006; Sepehrian & Hosseinzadeh, 2011; Ulya et al., 2020; Verešová, 2013). In general, the analysis of the correlational hypotheses shows similar findings to Flett et al. (1995, p. 165) who attribute their findings to procrastination being an affective response, rather than a pure avoidance one.

When scrutinizing the hypotheses considering perceived stress, it is surprising that almost all hypotheses linking perceived stress to avoidance-coping or a facet of it can be rejected. And even more unexpectedly, the correlation regarding avoidance coping as a whole is pointing into the opposite direction. Only hypothesis 5.1 can be supported and together with the rejection of hypothesis five underlines the notion that social-diversion oriented coping might in fact be an adaptive coping strategy (Kälin & Semmer, 2020, p. 27). Since those hypotheses were formulated predominantly with theoretical backing, it might be an indication that avoidance coping is not purely maladaptive, as had been shown in literature (Kälin & Semmer, 2020, p. 27; Suls & Fletcher, 1985).

As expected, emotion-oriented coping is strongly linked to perceived stress, which replicates findings and theoretical concepts (Kälin & Semmer, 2020, p. 13; Sirois & Kitner, 2015). The negative correlation between task-oriented coping and perceived stress repeats evidence from previous research as well (Endler & Parker, 1990a; Flett et al., 1995; Gustems-Carnicer et al., 2019).

The mediation analysis could replicate a few of the previously shown relations from the correlation analyses. The paths between procrastination, perceived stress and coping strategies, were all significant. This means that procrastination predicts those constructs to a varying degree. The paths between coping strategies and perceived stress and between procrastination and perceived stress differ from each other. Here, significant predictions of perceived stress can only be seen when looking at emotion-oriented coping and perceived stress, as well as procrastination and perceived stress. This is already a prediction of the later rejection of all other coping styles as mediators. Subsequently, the presumption was confirmed because the indirect effects could not support any other mediators other than emotion-oriented coping.

This finding is very interesting and first of all, as was the aim of the study, generates new and more detailed views on the role of coping in the relation between procrastination and perceived stress. The isolation of emotion-oriented coping supports the previously mentioned assumption of procrastination as an emotional response, rather than a classic avoidance response (Burns et al., 2012). It also further supports the theoretical foundation of procrastination as a form of emotional regulation or mood repair as well as a more basic problem in self-regulation (Pychyl & Sirois, 2016, p. 164; Sirois & Pychyl, 2016, p. 171). The previous thoughts can be backed up by the correlational analysis as well as the mediation

analysis. It has to be stressed that further investigation will be needed, because of the serious possible consequences of procrastination and stress which were stated before.

In general, this study provides more insight into the important findings Sirois and Kitner (2015) provided, as differentiating the mediating maladaptive coping strategy. This is done in identifying emotion-oriented coping as the mediator stemming from maladaptive coping; as well as replicating the finding, that adaptive coping, here task-oriented coping, does not seem to be a mediator.

Thus far however, this is only the first study that can show these findings yet and they of course need to be replicated to further confirm these new conclusions. This is especially important regarding the sample used, since it is predominantly a sample from one single university and shows exceptionally high perceived stress scores, which could be confounded with effects of the pandemic or other factors. At the same time, it is also important to look into other mediators which have shown to predict the connection between procrastination and perceived stress, such as mindfulness and self-compassion as well as psychological inflexibility (Eisenbeck et al., 2019; Pychyl & Flett, 2012; Riaz & Saif, 2017; Sirois, 2014; Sirois & Tosti, 2012). Especially self-compassion might be worthwhile looking into, considering the results of the study at hand, as it might be a positive way of emotion-oriented coping (Sirois, 2014). Such further examination seems to be especially promising since the model used during this study does not provide evidence for a full mediation, but rather a partial one. This means that the effect between procrastination and stress might be influenced by other factors as well.

6.3 Implications

Implications that can be drawn from the results of the study, besides the need to replicate and further explore the found conclusions as explained above, are mostly considering the people affected by procrastination. This is imposing, because of the array of consequences perceived stress and procrastination have not only on the person's goals, but rather more basically on the person's health. As mentioned above, at the moment there is not a direct indication for psychotherapy against procrastination found in the current diagnostic manuals (Höcker et al., 2022, pp. 1, 9, 11). This does not mean that psychotherapy would not be indicated, nor does it mean that it is not useful when procrastinating, especially in a severe way. But it stresses the necessity of counseling as the main and most probable way to deal with

procrastination. Counseling can be roughly defined as a professional verbal process between a client and a counselor, which can clarify as well as improve and/or provide solutions for problems, while improving skills to cope with problems arising (Nußbeck, 2019, pp. 18–20; Rehtien, 2004, p. 16).

Since the study at hand showed the correlation between procrastination and perceived stress which could be partially explained by emotion-oriented coping, with procrastination in the center of the model, current methods that are advised to intervene procrastination should be described in a nutshell.

First and foremost, interventions which belong to cognitive-behavioral therapy are evidently helpful when dealing with procrastination (van Eerde & Klingsieck, 2018). There are evidence-based as well as evaluated interventional programs rooted in this approach (Höcker et al., 2017, 2022, pp. 78–81; Otermin-Cristeta & Hautzinger, 2018; Rozental et al., 2018; Ugwuanyi et al., 2020; van Eerde & Klingsieck, 2018). An important recent and evidence-based example which is still only available in German, but nonetheless a rare example of a fully evaluated therapeutic manual for procrastination, is the manual and program by Höcker and colleagues (2017). Interventions and programs often lay emphasis on self-observation, psychoeducation, behavioral analysis and interventions, cognitive restructuring, self- and motivational-regulation, environmental changes, time management and planning competences (Grunschel et al., 2016, 2018; Höcker et al., 2022, pp. 45–48, 64–67; Rustemeyer & Callies, 2013, pp. 119–121). In the cognitive realm, there are also specific evaluated interventions focusing on the concept of mood repair and increasing emotional regulation (Eckert et al., 2016). Some evaluated interventions are formulated to accommodate school-environment, are online-based or made for groups (Balderas et al., 2019; Berber Çelik & Odacı, 2018; Gagnon et al., 2019; Küchler et al., 2019; Rozental et al., 2017; Rozental & Carlbring, 2013). Other studies stress that the quality of interventions against procrastination is better in person than online (Malouff & Schutte, 2019). Here, it is important to keep in mind that the meta-analysis that reported this result was taking place before the pandemic. It would be interesting to see, if through the predominant usage of online interventions, counseling and even therapy, those findings might have changed. Interestingly, there are already interventions concerning the combination of procrastination and stress (Brown, 1992). But the research concerning interventions to procrastination are still sparse, especially when looking at single interventions

(Höcker et al., 2022, p. 76). Most of the time programs are evaluated as one and as a consequence the effectiveness cannot be pinpointed.

Considering the results of the study at hand in conglomeration with the interventions for procrastination summarized above, the conclusion can be drawn that interventions must target the coping styles of an individual to buffer against perceived stress. The results show that emotion-oriented coping should be reduced. This can be said looking at the correlational as well as the mediation analysis. The fostering of more adaptive coping strategies, as in task-oriented coping, can only be deduced from correlational analysis, but not from mediation analysis. A reinforcement of task-oriented coping might have an impact on procrastination since the path between procrastination and task-oriented coping remains significant. There is evidence that strategies coming from mindfulness might influence coping strategies on a positive level (Donald & Atkins, 2016). Another concept that has proven to influence coping positively was adventure therapy (Koperski et al., 2015), i.e., professionally planned and accompanied adventurous activities to “kinesthetically engage clients on affective, behavioral, and cognitive levels” (Gass et al., 2012). During the latter study, it was also found out that, as other findings in therapy and counseling research confirm, a positive working alliance between the client/patient and counselor/therapist is most important (Koperski et al., 2015). This should be added to the already existing measures taken against procrastination. Importantly, this study underlines the concept of mood repair within the explanation of procrastination. Therefore, interventions targeting mood and emotional regulation, as brought forward by Eckert and colleagues (2016), have to be especially emphasized after the analysis.

At the same time the results of the study at hand underline the use of cognitive strategies as one intervention against procrastination. On an academic level, positive coping regarding academic stress is fostered, when students can identify themselves with their major (Obst & Kötter, 2020). This identification can be magnified either by counseling or on a more general basis, during classes at university. At the same time, this can also be helpful in identifying students at risk, when assumptions can be made about procrastination and also about a lack of identification with their major.

More in general, this study must emphasize the need to put a focus on the students' perceived stress level. A problematic development might be indicated, considering the very concerning stress level measured. And even if the reduction of procrastination and the

amelioration of coping strategies already has a buffering effect, classic stress interventions can still be helpful. Whereas many of them are rooted in classical cognitive-behavioral-therapy, some are similar to measures proposed against procrastination (Heinrichs et al., 2015, pp. 57, 62–88). Within the academic context, research could show that stress can be positively influenced by interventions provided at the university itself (Pötschke, 2020). But also, other stress reducing measures might be indicated on a systemic level. Especially in these days, it might be appropriate to implement mandatory stress management classes. These classes should offer evidence-based interventions regarding stress reduction or teach stress reducing strategies (Heinrichs et al., 2015, pp. 52–54). In addition to that, it seems also conducive to magnify and support protective factors against stress like social support, fitness and self-efficacy (Heinrichs et al., 2015, pp. 32–36).

Finally, it has to be stressed that not all of the proposed interventions can be realized in counseling contexts. However, a lot of them do fit into the more short-term, superficial and non-treating background of counseling (Borg-Laufs & Schmidtchen, 2011). Thus, procrastination is often a topic for counseling rather than therapy (Höcker et al., 2022, p. 9 ff.). The consequences of procrastination and a possible pathologic expression of it, lead to the necessity to recognize the situation when psychotherapy is indicated and counseling is not enough (Höcker et al., 2022, pp. 7–9, 16–20). Additionally, the origins of certain cases of procrastination can lie in other mental disorders which must be treated by psychotherapists (Höcker et al., 2022, p. 16 ff.).

6.4 Limitations

Importantly, an array of limitations that have to be taken into consideration when interpreting the results, has to be discussed and displayed.

When looking at the research design, it is obvious that since the study is cross-sectional, the internal validity of the results might be compromised in comparison to a study that is done longitudinally (Döring & Bortz, 2016, p. 204). That means that conclusions cannot be drawn causally or differences between groups cannot be sufficiently proven (ibid.). Subsequently, because of the single measurement, effects of age and the cohort must be taken into consideration (ibid., p. 211). This specification is extraordinarily important since the study has been issued during the COVID-19 pandemic, and effects of the pandemic on perceived stress

and procrastination were supposed from the beginning (Aslan et al., 2020; Husky et al., 2020; Mækelaë et al., 2021; Quervain et al., 2021; Zimmer et al., 2021). Results should therefore be interpreted with this in mind, and generalizability is perhaps compromised. The extremely high perceived stress score is only one of the findings to which this might be applicable.

With regard to the questionnaire and sample, it is important to note that the sample is not in equilibrium regarding demographic factors like gender, as well as majors studied. As mentioned before, the sample most likely consists primarily of students of one single university. Therefore, generalizability might be questionable or just given for students from the said university and majors. A replication of the endeavor is therefore crucial to shed light on this uncertainty.

Furthermore, it has to be briefly observed that during the questionnaire, changes were made to the way that the person was addressed as well as added instructions to think about the last exam period. The latter is inducing a form of retrospection and might be distorted.

As mentioned above, in the demographic questions logical mistakes were found, which leads to the conclusion that not only the obviously illogical answers might be false, but also other ones, which could not be identified. The fact that with the exception of the descriptive analysis, there were no analyses done based on demographics, is rather favorable for unbiased results.

Looking at the used measures more in detail, it has to be said that the PSS-10 as well as to a lesser degree the GPS-K, have factor structures which differ from the ones implied in the course of this study (Klein et al., 2016, 2019; Reis et al., 2019). This must be kept in mind when looking at interpretations as well as looking at further studies. It might be advisable to either use different measures with a more solid factor structure or maybe even to differentiate between suspected factors during analyses.

6.5 Conclusion

As was the aim, the present study was able to replicate findings about the connection between procrastination and perceived stress as well as differentiate the findings about which coping strategies mediate this connection.

Interestingly, the identified connection between procrastination and perceived stress was not mediated by all maladaptive coping strategies, but specifically only by emotion-oriented

coping. This main finding stresses the importance of the concept of mood repair or emotional regulation as one of the key factors, not only in explaining procrastination, but also in mitigating the severe consequences that procrastination and especially perceived stress pose on the individual.

Despite the limitations of the study, which should be kept in mind not only for interpretation but also for future endeavors, the research was still able to make a valuable contribution to the understanding procrastination and the factors involved. Nonetheless, this finding should be replicated and solidified without the effects that the sample and timing might have had on this investigation.

This is a promising path to emphasizing and supporting already evaluated approaches to procrastination, or even new ways of dealing with procrastination and its possible harmful consequences in contexts of counseling and therapy.

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Anhang

A Verwendetes Erhebungsinstrument



Zwischengespeicherte Umfrage laden

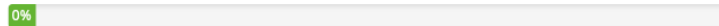
Hochschule Düsseldorf
University of Applied Sciences

HSD

Fachbereich Sozial- und Kulturwissenschaften
Faculty of Social Sciences and Cultural Studies

SK

Verantwortlich für die Umfrage: Annika Neuhaus



Befragung zum Thema "Prokrastination, Stressempfinden und -bewältigung" im Rahmen meiner Masterthesis

Liebe*r Teilnehmer*in,

ich freue mich über dein Interesse und deine Bereitschaft an meiner Onlinebefragung zum Thema "Prokrastination, Stressempfinden und -bewältigung" im Rahmen meiner Masterthesis an der Hochschule Düsseldorf (HSD) im Fachbereich Sozial- und Kulturwissenschaften teilzunehmen. Damit unterstützt du mich dabei, meine Masterthesis zu schreiben und vielleicht einige neue wissenschaftliche Erkenntnisse zu erlangen.

Der Fragebogen dient lediglich wissenschaftlichen Zwecken. Es folgen auf der nächsten Seite weitere Informationen zu meinem Forschungsvorhaben, dem Ablauf der Befragung, der Freiwilligkeit der Teilnahme sowie datenschutzrechtlichen Informationen, die du bestätigen musst, um an der Befragung teilnehmen zu können.

Die Bearbeitung des gesamten Fragebogens wird in etwa 10 Minuten dauern.

Am Ende des Fragebogens kannst du, wenn du möchtest, als Dankeschön an einem Gewinnspiel für drei 25 €-Wunsch-Gutscheine (Gutscheine für einen Laden/eine Website deiner Wahl, es nehmen über 500 Shops teil (u.a. Amazon, H&M, Ikea, Thalia, MediaMarkt, Douglas)) teilnehmen.

Viel Spaß und noch einmal ganz herzlichen Dank für deine Teilnahme

Annika Neuhaus

E-Mail: annika.neuhaus@study.hs-duesseldorf.de

Teilnehmendeninformation zur Onlinebefragung im Rahmen der Masterthesis

Verantwortliche für dieses Forschungsprojekt: Annika Neuhaus

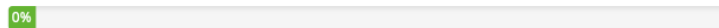
Kontaktdaten: annika.neuhaus@study.hs-duesseldorf.de

Innerhalb der Befragung geht es um das Thema "Prokrastination (Aufschieben), Stressempfinden und Stressbewältigung" und es sollen Zusammenhänge zwischen diesen Thematiken untersucht werden. Hierzu werden Studierende befragt. Die Daten werden im Rahmen meiner Masterthesis erhoben und dienen ausschließlich wissenschaftlichen Zwecken.

Ablauf der Befragung:

Hiermit bestätige ich, dass ich mindestens 18 Jahre alt bin und der Erhebung, Speicherung und Verarbeitung meiner Daten für diese Befragung zustimme.

Weiter



Einführung und Instruktion

Liebe*r Teilnehmer*in,

bestimmt hast du gerade oder im letzten Semester eine anstrengende und vielleicht stressige Prüfungsphase hinter dir und startest in die wohlverdiente Erholung, genießt diese schon für eine Weile oder beginnst gerade wieder ein neues Semester. Für die folgenden Fragebögen bitte ich dich, dich noch einmal in die vergangene Prüfungsphase hineinzusetzen und zu überlegen, wie du dich in dieser Zeit gefühlt hast und wie du gehandelt hast.

Bitte beantworte die Fragen ehrlich und spontan, so wie es sich für dich, in Bezug auf die vergangene Prüfungsphase, zutreffend anfühlt. Dabei gibt es keine richtigen oder falschen Antworten. Überlege auch nicht, welche Antwort eventuell gesellschaftlich erwünschter wäre.

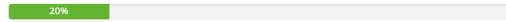
Beantworte bitte **alle** Fragen, auch wenn sich manche ähneln sollten.

Die Bearbeitung des gesamten Fragebogens wird in etwa 10 Minuten dauern.

Viel Spaß!

[Zurück](#)

[Weiter](#)



Demografische Daten

*** Welchem Geschlecht ordnest du dich zu?**

weiblich
 männlich
 divers
 Sonstiges:

*** Wie alt bist du?**

*** Studierst du zurzeit im Bachelor oder Master?**

Bachelor
 Master

*** Im wievielten Semester studierst du insgesamt?**

? Wenn du ein zweites Studium begonnen hast oder im Master studierst, rechne alle Semester, die du studiert hast zusammen.

*** Welches Studienfach studierst du?**

*** Studierst du in Voll- oder Teilzeit?**

Vollzeit
 Teilzeit

*** Hast vorwiegend oder ausschließlich online studiert oder auch bereits in Präsenz?**

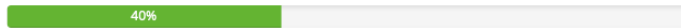
Ich habe nur oder fast nur online studiert.
 Ich habe sowohl online, als auch in Präsenz studiert.

*** In welchem Stundenumfang arbeitest wöchentlich du neben dem Studium?**

? Falls du nicht arbeitest, gib hier einfach "0" an.

Zurück

Weiter



Fragen zur Prokrastination

Bitte entscheide für jede Aussage, wie typisch oder untypisch das geschilderte Verhalten für dich ist.

*

| | sehr untypisch | eher untypisch | eher typisch | sehr typisch |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| (1) Ich ertappe mich häufig dabei, Aufgaben zu erledigen, die ich eigentlich schon vor Tagen tun wollte. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (2) Ich erledige Aufgaben immer erst kurz vor dem Abgabetermin. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (3) Selbst kleine Sachen, bei denen man sich nur hinsetzen und sie erledigen müsste, bleiben häufig für Tage liegen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (4) Bei der Vorbereitung auf einen Abgabetermin vergeude ich häufig meine Zeit mit anderen Dingen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (5) Normalerweise fange ich mit einer Arbeitsaufgabe gleich an, wenn ich sie bekommen habe. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | sehr untypisch | eher untypisch | eher typisch | sehr typisch |
| (6) Ich bin häufig mit Aufgaben früher fertig als nötig. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (7) Normalerweise erledige ich am Tag alle Dinge, die ich geplant hatte. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (8) Ich sage dauernd: „Das mache ich morgen“. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (9) Im Allgemeinen erledige ich alles, was ich machen wollte, bevor ich mich am Abend hinsetze und mich ausruhe. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Zurück

Weiter



Fragen zum Stressempfinden

Die folgenden Fragen beschäftigen sich mit deinen Gedanken und Gefühlen während der vergangenen Prüfungsphase. Bitte gib für jede Frage an, wie oft du in entsprechender Art und Weise gedacht oder gefühlt hast.

| | nie | fast nie | manchmal | ziemlich oft | sehr oft |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| (1) Wie oft warst du während der letzten Prüfungsphase aufgewühlt, weil etwas unerwartet passiert ist? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (2) Wie oft hattest du während der letzten Prüfungsphase das Gefühl, nicht in der Lage zu sein, die wichtigen Dinge in deinem Leben kontrollieren zu können? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (3) Wie oft hast du dich während der letzten Prüfungsphase nervös und gestresst gefühlt? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (4) Wie oft warst du während der letzten Prüfungsphase zuversichtlich, dass du fähig bist, deine persönlichen Probleme zu bewältigen? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | nie | fast nie | manchmal | ziemlich oft | sehr oft |
| (5) Wie oft hattest du während der letzten Prüfungsphase das Gefühl, dass sich die Dinge zu deinen Gunsten entwickeln? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (6) Wie oft hattest du während der letzten Prüfungsphase den Eindruck, nicht all deinen anstehenden Aufgaben gewachsen zu sein? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (7) Wie oft warst du während der letzten Prüfungsphase in der Lage, ärgerliche Situationen in deinem Leben zu beeinflussen? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (8) Wie oft hattest du während der letzten Prüfungsphase das Gefühl, alles im Griff zu haben? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | nie | fast nie | manchmal | ziemlich oft | sehr oft |
| (9) Wie oft hast du dich während der letzten Prüfungsphase über Dinge geärgert, über die du keine Kontrolle hattest? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (10) Wie oft hattest du während der letzten Prüfungsphase das Gefühl, dass sich so viele Schwierigkeiten angehäuft haben, dass du diese nicht überwinden konntest? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Zurück

Weiter



Fragen zum Umgang mit Stress-Situationen

Im Folgenden wird beschrieben, wie Menschen auf verschiedene, schwierige, stressvolle oder ärgerliche Situationen reagieren können. Sage uns bitte, was du **typischerweise** tust, wenn du unter Stress stehst.

★ Das ist für mich...

| | ...sehr untypisch | ...eher untypisch | ...teils-teils | ...eher typisch | ...sehr typisch |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| (1) Ich suche den Kontakt mit anderen Menschen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (2) Ich mache mir Vorwürfe, weil ich die Dinge vor mir herschiebe. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (3) Ich mache mir Vorwürfe, dass ich in diese Situation geraten bin. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (4) Ich mache einen Einkaufsummel. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (5) Ich setze Prioritäten. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | ...sehr untypisch | ...eher untypisch | ...teils-teils | ...eher typisch | ...sehr typisch |
| (6) Ich nasche oder gönne mir meine Lieblingsspeise. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (7) Ich habe die Befürchtung, dass ich die Situation nicht bewältigen kann. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (8) Ich bin sehr angespannt. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (9) Ich denke darüber nach, wie ich ähnliche Probleme gelöst habe. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (10) Ich gehe essen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | ...sehr untypisch | ...eher untypisch | ...teils-teils | ...eher typisch | ...sehr typisch |
| (11) Ich gerate außer Fassung. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (12) Ich erarbeite mir einen Plan und führe ihn auch aus. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (13) Ich mache mir Vorwürfe, weil ich nicht weiß, was ich machen soll. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (14) Ich denke über die Situation nach, damit ich sie verstehe. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (15) Ich denke über die Situation nach und versuche, aus meinen Fehler zu lernen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | ...sehr untypisch | ...eher untypisch | ...teils-teils | ...eher typisch | ...sehr typisch |
| (16) Ich wünsche mir, ich könnte ungeschehen machen, was passiert ist. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (17) Ich besuche eine Freundin/einen Freund. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (18) Ich verbringe die Zeit mit mir nahestehenden Menschen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (19) Ich durchdenke zuerst das Problem, bevor ich etwas unternehme. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (20) Ich rufe eine Freundin/einen Freund an. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | ...sehr untypisch | ...eher untypisch | ...teils-teils | ...eher typisch | ...sehr typisch |
| (21) Ich werde wütend. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (22) Ich schaue mir einen Film an. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (23) Ich erarbeite mehrere Lösungsvorschläge für das Problem. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (24) Ich versuche, so planmäßig und gezielt vorzugehen, dass ich die Situation in den Griff bekomme. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Zurück

Absenden



Vielen Dank für deine Teilnahme!

Gerne kannst du meinen Umfragelink auch an andere Studierende der HSD weitergeben!

Wenn du an der Verlosung von drei 25 €-Wunsch-Gutscheinen (Gutscheine für einen Laden/eine Website deiner Wahl, es nehmen über 500 Shops teil (u.a. Amazon, H&M, Ikea, Thalia, MediaMarkt, Douglas)) teilnehmen möchtest, klicke auf folgenden Link, dann wirst du auf eine Seite weitergeleitet, auf der du deine Email-Adresse hinterlegen kannst und so an der Ziehung teilnimmst.

Link: <https://umfrage.soz-kult.hs-duesseldorf.de/index.php?r=survey/index&sid=75763&lang=de>

Wenn du mit einer doppelten Gewinnchance teilnehmen möchtest, nimm an einer weiteren Befragung zum Thema Prokrastination unter folgendem Link teil: <https://www.umfrageonline.com/s/prokrastination-hsd>

Viel Glück!

THE
FACHBEREICH
KULTURWISSENSCHAFT
DER HOCHSCHULE DÜSSELDORF

Teilnehmendeninformation zur Onlinebefragung im Rahmen der Masterthesis

Verantwortliche für dieses Forschungsprojekt: Annika Neuhaus
Kontaktdaten: annika.neuhaus@study.hs-duesseldorf.de

Innerhalb der Befragung geht es um das Thema "Prokrastination (Aufschieben), Stressempfinden und Stressbewältigung" und es sollen Zusammenhänge zwischen diesen Thematiken untersucht werden. Hierzu werden Studierende befragt. Die Daten werden im Rahmen meiner Masterthesis erhoben und dienen ausschließlich wissenschaftlichen Zwecken.

Ablauf der Befragung:

Die Bearbeitung des gesamten Fragebogens wird in etwa 10 Minuten dauern und umfasst, neben der Erfassung von demografischen Daten, drei verschiedene Erhebungsinstrumente zu den Themenbereichen Prokrastination, Stressempfinden und Stressbewältigung.

Bei weiteren Fragen zu Inhalt und Methodik des Forschungsprojekts kannst du mich gerne unter der angegebenen Mailadresse kontaktieren.

Freiwilligkeit und Anonymität:

Die Teilnahme an der Befragung ist freiwillig und anonym. Du kannst jederzeit und ohne Angabe von Gründen die Teilnahme an der Befragung beenden oder abbrechen, ohne dass daraus Nachteile für dich entstehen. Leider können dann deine Antworten nicht für die Auswertung genutzt werden.

Die Ergebnisse der Studie werden anonymisiert ausgewertet und veröffentlicht. So können keinesfalls Daten einer Person zugeordnet werden.

Datenschutz:

Die Befragung findet anonym statt und die IP-Adresse wird nur während der Bearbeitung der Fragebögen verarbeitet und nicht gespeichert. Die Verarbeitung während der Eingabe erfolgt auf Grundlage dieser Einwilligung.

Es ist nicht nachvollziehbar, wer die Daten eingegeben hat und die Daten können auch zu keinem Zeitpunkt in einen Zusammenhang mit dem*der Teilnehmer*in gebracht werden. Somit gibt es weder Empfänger, noch einen Speicherzeitraum von personenbezogenen Daten, und es kann keine Auskunft über von dir eingegebene Daten gegeben, sowie keine Änderungen oder Löschungen vorgenommen werden (da niemand wissen kann, wer Daten eingegeben hat).

Bei Fragen oder Beschwerden kannst du neben mir, mit dem Datenschutzbeauftragten der Hochschule Düsseldorf Kontakt über datenschutzbeauftragter@hs-duesseldorf.de aufnehmen.¹

Rechtsgrundlage

Geltende Datenschutzbestimmungen in der DS-GVO

Einwilligungserklärung

Um deine Daten zu erheben, benötige ich von dir eine ausdrückliche Einwilligung.

¹Zudem hast du das Recht dich mit einer Beschwerde an die datenschutzrechtliche Aufsichtsbehörde sowohl im Mitgliedstaat deines Aufenthaltsorts, als auch an den*die Landesbeauftragte*n für Datenschutz und Informationsfreiheit Nordrhein-Westfalen (www.lidi.nrw.de) als datenschutzrechtliche Aufsichtsbehörde der Hochschule Düsseldorf zu wenden.

C *Vollständige Tabellen der deskriptiven Analyse*

Table 1 b

Descriptive analysis of the GPS-K, PSS-10 for the total and divided sample.

| | GPS-K | | | | | PSS-10 | | | |
|---|----------|----------|-----------|------------|------------|----------|-----------|------------|------------|
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Gender | | | | | | | | | |
| m | 69 | 2.71 | .63 | 1.33 | 4.00 | 29.25 | 7.69 | 13.00 | 50.00 |
| w | 345 | 2.82 | .64 | 1.00 | 4.00 | 32.52 | 7.11 | 13.00 | 50.00 |
| other | 12 | 2.99 | .53 | 2.20 | 3.56 | 37.67 | 4.99 | 27.00 | 43.00 |
| Specified in a separate text field | 3 | 3.32 | .51 | 2.78 | 3.78 | 35.67 | 8.74 | 26.00 | 43.00 |
| Mode of Study | | | | | | | | | |
| Fulltime | 375 | 2.81 | .65 | 1.00 | 4.00 | 32.15 | 7.35 | 13.00 | 50.00 |
| Parttime | 54 | 2.87 | .50 | 1.56 | 4.00 | 32.17 | 7.14 | 14.00 | 48.00 |
| Degree | | | | | | | | | |
| Bachelor | 330 | 2.83 | .63 | 1.00 | 4.00 | 32.50 | 7.29 | 13.00 | 50.00 |
| Master | 99 | 2.74 | .64 | 1.00 | 3.89 | 31.02 | 7.31 | 13.00 | 44.00 |
| Work | | | | | | | | | |
| Working | 326 | 2.80 | .65 | 1.00 | 4.00 | 31.72 | 6.96 | 13.00 | 48.00 |
| Not- Working | 103 | 2.85 | .64 | 1.33 | 4.00 | 33.51 | 8.22 | 13.00 | 50.00 |
| Online vs. Presence | | | | | | | | | |
| Online | 172 | 2.79 | .67 | 1.00 | 4.00 | 32.14 | 7.14 | 14.00 | 48.00 |
| Presence | 257 | 2.84 | .62 | 1.00 | 4.00 | 32.18 | 7.43 | 13.00 | 50.00 |
| Total Sample | 429 | 2.82 | .65 | 1.00 | 4.00 | 32.15 | 7.30 | 13.00 | 50.00 |

Table 2 b

Descriptive analysis of the CISS (Emotion-oriented and task-oriented coping) for the total and divided sample.

| | CISS | | | | | | | | |
|--|----------|-------------------------|-----------|------------|------------|----------------------|-----------|------------|------------|
| | <i>n</i> | Emotion-oriented Coping | | | | Task-oriented Coping | | | |
| | | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Gender | | | | | | | | | |
| m | 69 | 23.64 | 7.39 | 8.00 | 39.00 | 28.45 | 4.74 | 12.00 | 38.00 |
| w | 345 | 26.00 | 6.40 | 9.00 | 40.00 | 27.80 | 5.34 | 14.00 | 40.00 |
| other | 12 | 31.92 | 4.89 | 22.00 | 38.00 | 24.67 | 3.45 | 20.00 | 30.00 |
| Specified in a separate text field | 3 | 29.67 | 3.20 | 26.00 | 32.00 | 28.00 | 3.45 | 26.00 | 32.00 |
| Mode of Study | | | | | | | | | |
| Fulltime | 375 | 26.51 | 6.70 | 9.00 | 40.00 | 27.85 | 5.25 | 12.00 | 40.00 |
| Parttime | 54 | 26.56 | 6.55 | 8.00 | 40.00 | 27.58 | 5.02 | 14.00 | 39.00 |
| Degree | | | | | | | | | |
| Bachelor | 330 | 26.63 | 6.56 | 10.00 | 40.00 | 27.63 | 5.03 | 12.00 | 40.00 |
| Master | 99 | 25.81 | 7.31 | 8.00 | 40.00 | 28.43 | 5.73 | 16.00 | 40.00 |
| Work | | | | | | | | | |
| Working | 326 | 26.16 | 6.63 | 8.00 | 40.00 | 27.95 | 5.23 | 14.00 | 40.00 |
| Not-Working | 103 | 27.69 | 6.72 | 9.00 | 40.00 | 27.45 | 5.16 | 12.00 | 39.00 |
| Online vs. Presence | | | | | | | | | |
| Online | 172 | 26.72 | 6.46 | 10.00 | 40.00 | 28.14 | 5.06 | 14.00 | 40.00 |
| Presence | 257 | 26.39 | 6.83 | 8.00 | 40.00 | 27.60 | 5.30 | 8.00 | 40.00 |
| Total Sample | 429 | 26.51 | 6.68 | 8 | 40 | 27.83 | 5.20 | 12 | 40 |

Table 3 b

Descriptive analysis of the CISS (Avoidance Coping and facets) for the total and divided sample.

| | CISS | | | | | | | | | | | | |
|----------------------|---------------------------|----------|-----------|------------|------------|----------------------------------|-----------|------------|------------|-----------------------------|-----------|------------|------------|
| | Avoidance-oriented Coping | | | | | Social-Diversion-Oriented Coping | | | | Distraction-Oriented Coping | | | |
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| | | | | | | | | | | | | | |
| Gender | | | | | | | | | | | | | |
| m | 69 | 23.5 | 5.6 | 11.0 | 35.0 | 12.9 | 3.6 | 4.0 | 20.0 | 10.5 | 3.1 | 4.0 | 17.0 |
| | 4 | 7 | 0 | 0 | 4 | 8 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| w | 34 | 25.5 | 5.8 | 10.0 | 40.0 | 13.1 | 3.7 | 4.0 | 20.0 | 12.3 | 3.5 | 4.0 | 20.0 |
| | 5 | 2 | 7 | 0 | 0 | 9 | 8 | 0 | 0 | 5 | 6 | 0 | 0 |
| d | 12 | 22.5 | 5.7 | 12.0 | 31.0 | 11.2 | 3.7 | 5.0 | 16.0 | 11.3 | 3.1 | 7.0 | 17.0 |
| | 7 | 8 | 0 | 0 | 5 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| Specific | 3 | 19.0 | 4.3 | 16.0 | 24.0 | 9.00 | 1.7 | 8.0 | 11.0 | 10.0 | 5.1 | 6.0 | 16.0 |
| d in a | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| separate | | | | | | | | | | | | | |
| text field | | | | | | | | | | | | | |
| Mode of Study | | | | | | | | | | | | | |
| Fulltime | 37 | 25.1 | 5.9 | 10.0 | 40.0 | 13.1 | 3.8 | 4.0 | 20.0 | 12.0 | 3.5 | 4.0 | 20.0 |
| | 5 | 4 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 9 | 0 | 0 |
| Parttime | 54 | 24.7 | 5.6 | 11.0 | 40.0 | 12.8 | 3.5 | 4.0 | 20.0 | 11.9 | 3.2 | 4.0 | 20.0 |
| | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 3 | 4 | 0 | 0 | 0 |
| Degree | | | | | | | | | | | | | |
| Bachelo | 33 | 25.2 | 6.0 | 10.0 | 40.0 | 13.0 | 3.8 | 4.0 | 20.0 | 12.1 | 3.6 | 4.0 | 20.0 |
| r | 0 | 6 | 4 | 0 | 0 | 9 | 2 | 0 | 0 | 8 | 1 | 0 | 0 |
| Master | 99 | 24.4 | 5.3 | 12.0 | 38.0 | 11.4 | 3.6 | 4.0 | 19.0 | 12.9 | 3.2 | 4.0 | 19.0 |
| | 4 | 5 | 0 | 0 | 7 | 9 | 0 | 0 | 8 | 6 | 0 | 0 | 0 |
| Work | | | | | | | | | | | | | |
| Working | 32 | 25.6 | 5.8 | 10.0 | 40.0 | 13.3 | 3.8 | 4.0 | 20.0 | 12.3 | 3.5 | 4.0 | 20.0 |
| | 6 | 2 | 8 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 0 | 0 |
| Not- | 10 | 23.3 | 5.6 | 11.0 | 35.0 | 12.2 | 3.5 | 4.0 | 20.0 | 11.1 | 3.4 | 4.0 | 19.0 |
| Working | 3 | 5 | 7 | 0 | 0 | 2 | 3 | 0 | 0 | 3 | 2 | 0 | 0 |

| CISS | | | | | | | | | | | | | |
|---------|---------------------------|----------|-----------|------------|------------|----------------------------------|-----------|------------|------------|-----------------------------|-----------|------------|------------|
| | Avoidance-oriented Coping | | | | | Social-Diversion-Oriented Coping | | | | Distraction-Oriented Coping | | | |
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Online | 17 | 25.3 | 5.9 | 10.0 | 40.0 | 13.1 | 3.7 | 4.0 | 20.0 | 12.2 | 3.6 | 4.0 | 20.0 |
| vs. | 2 | 4 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 3 | 0 | 0 |
| Presenc | 25 | 24.9 | 5.9 | 11.0 | 40.0 | 13.0 | 3.8 | 4.0 | 20.0 | 11.9 | 3.4 | 4.0 | 20.0 |
| e | 7 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 6 | 0 | 0 |
| Total | 42 | 25.0 | 5.8 | 10 | 40 | 13.0 | 3.7 | 4 | 20 | 12.0 | 3.5 | 4 | 20 |
| Sample | 9 | 7 | 9 | | | 6 | 7 | | | 1 | 4 | | |

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Table 7

Descriptive analysis of the GPS-K, PSS-10 with the sample divided by the major of the degree.

| | GPS-K | | | | | PSS-10 | | | |
|---|----------|----------|-----------|------------|------------|----------|-----------|------------|------------|
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Humanities | 39 | 2.80 | .57 | 1.33 | 3.78 | 31.86 | 6.57 | 16.00 | 42.00 |
| Sports | 0 | | | | | | | | |
| Social Sciences, Law & Economics | 275 | 2.74 | .67 | 1.00 | 4.00 | 31.56 | 7.45 | 13.00 | 50.00 |
| Natural Sciences & Mathematics | 0 | | | | | | | | |
| Medicine & Health Sciences | 2 | 3.17 | .24 | 3.00 | 3.33 | 37.50 | 2.11 | 36.00 | 39.00 |
| Nutritional Sciences, Agriculture, Forest Sciences and Veterinary Sciences | 0 | | | | | | | | |
| Engineering Sciences | 55 | 2.90 | .64 | 1.43 | 4.00 | 33.95 | 7.69 | 14.00 | 50.00 |
| Art & Art Studies | 53 | 3.00 | .53 | 1.89 | 4.00 | 33.21 | 6.68 | 13.00 | 47.00 |

Table 8

Descriptive analysis of the CISS (emotion-oriented and task-oriented coping) with the sample divided by the major of the degree.

| | CISS | | | | | | | | |
|---|-------------------------|----------|-----------|------------|------------|----------------------|-----------|------------|------------|
| | Emotion-oriented Coping | | | | | Task-oriented Coping | | | |
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Humanities | 39 | 26.14 | 6.82 | 15.00 | 36.00 | 27.54 | 4.62 | 16.00 | 38.00 |
| Sports | 0 | | | | | | | | |
| Social Sciences, Law & Economics | 275 | 26.27 | 6.72 | 9.00 | 40.00 | 28.01 | 5.49 | 14.00 | 40.00 |
| Natural Sciences & Mathematics | 0 | | | | | | | | |
| Medicine & Health Sciences | 2 | 32.00 | .00 | 32.00 | 32.00 | 24.50 | 3.54 | 22.00 | 27.00 |
| Nutritional Sciences, Agriculture, Forest Sciences and Veterinary Sciences | 0 | | | | | | | | |
| Engineering Sciences | 55 | 27.44 | 6.42 | 8.00 | 40.00 | 26.80 | 5.16 | 12.00 | 39.00 |
| Art & Art Studies | 53 | 26.74 | 6.88 | 13.00 | 39.00 | 28.10 | 4.17 | 20.00 | 40.00 |

Table 9

Descriptive analysis of the CISS (avoidance coping and facets) with the sample divided by the major of the degree.

| | CISS | | | | | | | | | | | | |
|--|---------------------------|----------|-----------|------------|------------|----------------------------------|-----------|------------|------------|-----------------------------|-----------|------------|------------|
| | Avoidance-oriented Coping | | | | | Social-Diversion-Oriented Coping | | | | Distraction-Oriented Coping | | | |
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Humanities | 39 | 26.4 | 4.7 | 18.0 | 36.0 | 14.0 | 3.6 | 4.0 | 20.0 | 12.3 | 2.6 | 7.00 | 20.0 |
| Sports | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Social Sciences, Law & Economic Sciences | 27 | 25.1 | 5.9 | 10.0 | 40.0 | 13.2 | 3.8 | 4.0 | 20.0 | 11.9 | 3.6 | 4.00 | 20.0 |
| Natural Sciences & Mathematics | 5 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| Medicine & Health Sciences | 2 | 25.5 | 9.1 | 19.0 | 32.0 | 11.5 | 4.9 | 8.0 | 15.0 | 14.0 | 4.2 | 19.0 | 32.0 |
| Nutritional Sciences, Agriculture, Forest Sciences and Veterinary Sciences | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Engineering Sciences | 55 | 23.1 | 6.6 | 11.0 | 38.0 | 11.6 | 3.8 | 4.0 | 20.0 | 11.5 | 3.7 | 4.00 | 18.0 |
| | | 7 | 8 | 0 | 0 | 7 | 4 | 0 | 0 | 1 | 9 | 0 | 0 |

| | CISS | | | | | | | | | | | | |
|-------------------|---------------------------|----------|-----------|------------|------------|----------------------------------|-----------|------------|------------|-----------------------------|-----------|------------|------------|
| | Avoidance-oriented Coping | | | | | Social-Diversion-Oriented Coping | | | | Distraction-Oriented Coping | | | |
| | <i>n</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> | <i>M</i> | <i>SD</i> | <i>Min</i> | <i>Max</i> |
| Art & Art Studies | 53 | 25.4 | 5.2 | 14.0 | 37.0 | 12.9 | 3.4 | 5.0 | 20.0 | 12.5 | 3.1 | 6.00 | 20.0 |
| | 8 | 0 | 0 | 0 | | 8 | 3 | 0 | 0 | 1 | 0 | | 0 |

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Eidesstattliche Selbstständigkeitserklärung

Hiermit versichere ich, dass ich meine Master-Thesis zum Thema: „*Prokrastination, Stressempfinden und -bewältigung – Eine quantitative Analyse einer Onlinebefragung mit Studierenden*“ selbstständig verfasst und keine anderen Hilfsmittel, als die angegebenen benutzt habe. Alle Stellen, die von Autoren wörtlich oder sinngemäß übernommen sind, habe ich durch Angabe von Quellen als Zitat kenntlich gemacht. Die Arbeit wurde bisher weder in Teilen noch insgesamt einer anderen Prüfungsbehörde vorgelegt und auch noch nicht veröffentlicht.

Ich bin damit einverstanden, dass ein Exemplar meiner Bachelor-Thesis zur Einsicht ausgelegt wird.

(Ort, Datum)

(Unterschrift / Vor- und Zunamen)

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