The relationship between depression and procrastination among master's level students

Thesis Report

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Acknowledgement

Depression has engulfed the world since time immemorial and especially, in today's world, this mental condition has been a threat to society. People are losing motivation, committing suicides, leaving their jobs, dropping out of college and even relationships are being destroyed due to depression. Procrastination, which is the habit of delaying tasks, is caused by depression. Although, it may not be considered as one of the symptoms of depression, but these terms are closely related to each other. So, I chose the relation between depression and procrastination among master's level students as the topic of my thesis. My senior's works and research helped me a lot to get the achievement toward this study. So, I think that I am lucky enough to get valuable support, guidance and help from numerous personalities. Without their help, this study could have not been completed in this form.

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Finally, the research is likely to stand in as one of the quality resource products in the respective issue. I am positive and confident about the utilization of this study in course of adding value in the related field.

Declaration of originality

I declare that this thesis is my original work and has not been presented anywhere else.

Prashant Bajal

Recommendation for graduation

We attest that the present thesis titled, "**The relationship between depression and procrastination among master's level students**" meets the minimum criteria of thesis work of CPSY. 484 required for Post Graduate Diploma in Counseling Psychology of Tribhuvan University. We approve this thesis and recommend **Mr. Prashant Bajal** for graduation if they meet other requirements of the university.

Supervisor	Coordinator	External
Mr. Ashish Kafle	**Mr. Govinda Sharan Upadhyay**	**Examiner**

Abstract

This study explores the intricate relationship between depression and procrastination among master's level students. Depression, characterized by persistent sadness, loss of interest, and impaired daily functioning, has been found to correlate with procrastination, a habitual deferral of tasks despite knowing its detrimental consequences. The study investigates how depression leads to procrastination in academic settings, particularly among postgraduate students, and examines whether procrastination exacerbates depressive symptoms, creating a cyclical relationship. A quantitative research method was employed, utilizing questionnaires based on Becks Depression Inventory (BDI) and Lay Procrastination Scale (PCS). A total of 305 postgraduate students from diverse academic backgrounds participated in the study. It was conducted among 305 students currently enrolled in a master's degree program with the sample of 154 female students and 151 male students. Utilizing quantitative methods, the research surveyed students from various academic backgrounds through an online questionnaire assessing levels of depression and procrastination. An independent samples t-test for procrastination and depression along with ANOVA was carried out to find the relationship between depression and procrastination, along with other variables such as age, sex and academic semester. The results indicate no significant correlations between procrastination and depression. Similarly, no findings revealed variations in depression and procrastination levels based on gender, age, and academic semester. The study contributes to the understanding of mental health in educational settings, highlighting the need for psychological support to mitigate the effects of these interrelated issues on student success.

Keywords: *depression, procrastination, master's level students*

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1. Introduction

1.1 Background

Depressive disorder, which is commonly known as depression, is an immensely common disorder that causes an individual to have a kind of sadness hovering around them and keep them in pensive mood as well as cause total loss of pleasure in activities that they once enjoyed. (World Health Organization, 2023). Depression causes a dearth of concentration while studying, working, ultimately hindering daily activities, emanates excessive guilt and causes a person to have lack of confidence and low self-esteem. It makes people hopeless when they think about their future and due to their thoughts of self-unworthiness, they develop suicidal tendencies. They face disrupted sleep i.e. either they cannot sleep at all or sleep way too much.

The act of delaying tasks until the last minute or even deferring them past their deadline is called procrastination. Procrastination involves avoiding doing what we know we should be doing. Sometimes we can be creative in our avoidance strategies (Devi & Dhull, 2017). According to researchers, procrastination is a failure of self-regulation that is characterized by intentional deferring of tasks or work in spite of the acknowledgement of the potential detrimental consequences. Procrastination is no good and is hazardous to our life because when we keep on deferring tasks, we fail to complete it on time or maybe even fail to complete it at all and the persistence of such indolence eventually, leads to failure in life. We all have been through these situations in life when we tend to defer our important works and lazily hang on to unnecessary stuffs. This can have a major impact on our life, our career, our education and the change could be a hazardous one. If we don’t complete our work in time and just dawdle lazily, we are, consciously or unconsciously, wasting time as we are not engaged in anything important

by deferring our important tasks; we are usually just passing the time, avoiding our work and not realizing that along with killing time we are killing our future too.

1.2 Statement of problem

Depression causes loss of interest in almost everything and this leads to deferring important works, assignments, which, eventually, hampers an individual's daily life. This procrastination, when done by a student, leads to academic failure, when he does not pay attention in class, refrains from doing his assignments at home and does not submit them on time or submits them at the last moment. This academic failure leads to further depression and this endless cycle goes on and on (Jannatunnura & Adani, 2023).

This has become a serious issue, especially in today's fast-paced world, where a student needs to keep up with all the assignments, home works, study everything before the semester ends and prepare for exams in a meagre period of time. A depressed student who has no interest in anything and lacks the vigour to do these activities will always end up procrastinating and this procrastination leads to academic failure, ultimately putting his career in jeopardy.

The aim of this study is to determine the relationship between depression and procrastination among students. This study aims to explore whether a depression leads to procrastination or procrastination leads to depression or do they continue in an eternal vicious circle. This research is based on a quantitative method and will be using online questionnaires to conduct survey among students from different academic background. The target population of this research is students from different age groups and individuals who are either currently studying, have just completed education or are unemployed graduates. This study aims to explore the answers of the following questions:

a) What is the relationship between depression and procrastination?

b) Do gender or age have any kind of relationship with depression?

c) Do gender or age have any kind of relationship with procrastination?

d) Does academic semester have any kind of relationship with depression?

e) Does academic semester have any kind of relationship with procrastination?

1.3 Significance of study

A depressed individual has persistent sadness, little to no interest in once-enjoyable activities, low libido, mood swings, irritation and anger and other symptoms that significantly interfere with the day-to-day functioning in his life; a student with depression and these symptoms will not be able to focus on his studies and it will have hazardous effects on his academics. He will not be able to complete assignments and keep on postponing them, he will require extensions and when he won't be able to complete them even on deadline, he will become more and more depressed. The cycle of depression and procrastination is a never-ending cycle and the procrastination done by students is known as academic procrastination which has seriously perilous effects on the study and ultimately, on the career of the student.

This study is necessary to understand the impact of depression on academic procrastination and chronic procrastination leading to depression which can be a vicious cycle, hindering day-to-day activities of students.

1.4 Objective of the study

1.4.1 General objective

This study tends to understand the relationship between depression and procrastination among post-graduate students; students who are currently enrolled in a master's program, irrespective of the subject or the semester they are studying in.

1.4.2 Specific objective

This study has the following specific objectives:

a) To assess the level of depression and procrastination among students.

b) To compare depression level between male and female students.

c) To compare procrastination level between male and female students.

d) To compare depression level between students of different semesters.

e) To compare procrastination level between students of different semesters.

f) To analyze relationship between depression and procrastination.

g) To analyze relationship of age with depression and procrastination.

1.5 Hypothesis

Hypothesis 1: There is no significant difference in depression between male and female students.

Hypothesis 2: There is no significant difference in procrastination between male and female students.

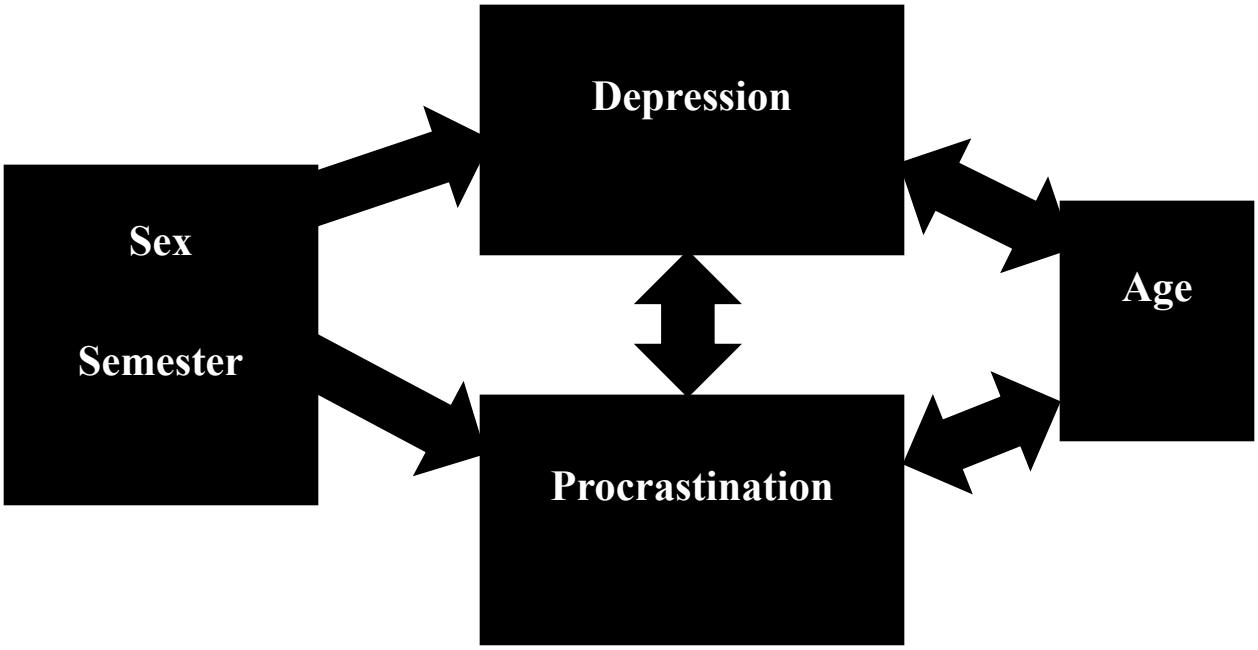
Hypothesis 3: There is no significant difference in depression between students of different semesters.

Hypothesis 4: There is no significant difference in procrastination between students of different semesters.

Hypothesis 5: There is no significant relationship between depression and procrastination.

Hypothesis 6: there is no significant relationship of age with depression and procrastination.

1.6 Conceptual framework



The above figure shows the complex phenomenon of depression and procrastination and their relationship with age, sex and academic semester in a simplified form. The variables under study are depression and procrastination and the other variables that could affect them are sex, semester and age.

The two-way arrow between depression and procrastination shows their relationship with each other and the two-way arrow between depression and age as well as procrastination and age represents any kind of correlation that could exist between them.

The one-way arrow between sex, semester and depression as well as sex, semester and procrastination shows the relation of the two variables with depression and procrastination.

1.7 Operational definition

Depression and procrastination were measured through scales developed by psychologists that are reliable and are considered valid in the field of psychology. Depression was measured using Beck Depression Inventory which contains 21 items with each item having four statements to choose from. This was developed by Aaron T. Beck. In this study, depression refers to the score obtained in Beck's Depression Inventory.

Procrastination is measured by using Lay Procrastination Scale developed by Clarry H. Lay which is a 20-itemed Likert scale that has five options to choose from that decides whether the statement is characteristic or uncharacteristic of the person. Similarly, in this study, procrastination refers to the score obtained in Lay's Procrastination Scale.

1.8 Limitations of the study

This research has the following restraints.

a) Over emphasis on quantitative data

This research has relied heavily on quantitative methods overlooking qualitative insights that provide a deeper understanding of psychological phenomena.

b) Demand characteristics

Students, especially those enrolled in a psychology program, might have responded differently to questions of procrastination which they feared might be a sign of laziness.

c) Researcher bias

This research targeted, especially the students enrolled in a psychology program, as it was easy to explain them about the research purpose, the questions of the research and the way they

needed to respond unlike the students of other programs who need to be explained all the psychological terms and jargons in layman words for them to fill the questionnaire.

2. Literature review

2.1 The relationship between depression and procrastination among students

Procrastination is characterized as the intentional delay of tasks, often leading to anxiety and stress among students. It is a common behavior in academic settings, where students frequently postpone assignments and exam preparations, which can contribute to mental health issues like depression. Depression is a prevalent psychiatric disorder that manifests as persistent sadness and a lack of interest, potentially leading to further psychological complications. Various internal and external factors contribute to depression in students, including academic pressures and social expectations, which can hinder their academic performance and overall well-being (Jannatunnura & Adani, 2023). The paper highlighted the connection between academic procrastination and depression, noting that students with depression often lack the energy and motivation to complete tasks, leading to increased procrastination.

The study involved 100 students from the English Language Education Study Program at STKIP Muhammadiyah Aceh Barat Daya, utilizing convenience sampling for participant selection. Data was collected through two questionnaires assessing levels of depression and academic procrastination. The depression questionnaire was adapted from the Depression Anxiety Stress Scale-24 and consisted of 21 items, while the procrastination questionnaire required participants to rate their procrastination behaviors on a scale of 1 to 5.

The study by Jannatunnura and Adani (2023) concluded that there is a positive correlation between depression and academic procrastination among EFL (English as a Foreign

Language) students. This means that students who experience higher levels of depression are more likely to engage in procrastination regarding their academic tasks. The findings revealed that the majority of participants exhibited normal (39%) to moderate (31%) levels of depression, with a smaller percentage experiencing severe (16%) or mild (12%) depression. Notably, 60% of participants engaged in high levels of academic procrastination. A positive correlation was found between depression and academic procrastination, supporting previous research that links emotional regulation difficulties with procrastination behaviors. The study indicated that students' struggles with academic responsibilities contribute to mental distress (Jannatunnura & Adani, 2023).

Procrastination is defined as the intentional delay in starting or completing a task despite knowing the negative consequences of such delay, often driven by impulses for immediate gratification rather than long-term goals. The phenomenon of procrastination is common among students, with estimates suggesting that procrastination frequency among college students ranges from 50% to 90%, and nearly half of college students spend a significant portion of their day procrastinating.

Gutic et al. (2023) utilized data from a sample of 658 students, consisting of 548 females and 110 males, with an average age of 23.16 years. Instruments such as the General Procrastination Scale and the Depression, Anxiety, and Stress Scale were employed to collect data on procrastination, depression, anxiety, and stress levels among the students. A Sociodemographic Data Questionnaire, specifically created for the study, was used to gather additional information about the participants, contributing to a comprehensive dataset for analysis. The data collection process was conducted anonymously and online during the second

semester of 2022, using the Internet platform Google Docs. The snowball sampling method was employed to reach out to students, ensuring a diverse sample for the study.

The mean values of depression, anxiety, and stress subscales measured by DASS-21 were higher in the study sample compared to the normal population ranges, indicating elevated levels of negative affectivity among the students. The reliability of the procrastination scale and all three DASS-21 subscales (depression, anxiety, stress) was high, with alpha coefficients above 0.80, suggesting consistent and reliable measurement tools were used in the study. Significant positive correlations were found between stress, anxiety, and depression, indicating a strong interconnection among these mental health dimensions in the student population, with changes in one dimension influencing the others. Regression analysis results revealed that depression was a significant predictor of procrastination in female students, explaining 8% of the variance in procrastination behaviors, while anxiety, stress, and age did not emerge as significant predictors in either male or female students.

The research findings revealed that depression was a significant predictor of procrastination in female students, indicating that higher levels of depression were associated with increased procrastination behavior. In contrast, anxiety, stress, and age did not prove to be significant predictors of procrastination in either male or female students. The study highlighted the importance of understanding the factors contributing to procrastination among students and emphasized the need for psychological support and counseling services in educational institutions to address this issue effectively. The research results suggested that preventive programs should be developed to recognize and overcome early signs of procrastination in students, indicating a proactive approach to addressing this behavioral issue (Gutić, et al., 2023).

A study investigated by Baing et al. (2023) studied the relationship between procrastination and academic burnout among first-year college students. The backdrop of this research is the significant disruption caused by the COVID-19 pandemic, which exacerbated academic challenges, particularly procrastination, due to the shift to online learning. The authors noted that procrastination, defined as the act of delaying necessary tasks, has been identified as a common issue among students, further intensified by the pandemic's impact on traditional learning environments.

The study employed a correlational research design to assess the relationship between procrastination and academic burnout among 150 first-year college students. Standardized tests were used to measure the two variables. The data were analyzed using the Pearson correlation coefficient to determine the strength and significance of the relationship between procrastination and burnout. The study also ensured that ethical considerations were strictly adhered to throughout the research process. The statistical analysis revealed a low positive correlation between procrastination and academic burnout. This suggests that while there is a relationship between the two variables, it is not particularly strong.

The findings suggested that procrastination is related to academic burnout, albeit the relationship is not highly robust. The authors discussed how procrastination can contribute to the development of burnout by increasing stress and reducing students' ability to manage academic pressures effectively. The study underscored the importance of institutional support, such as enhanced guidance programs, to help students develop better time management skills and reduce the likelihood of experiencing burnout. The authors also proposed the need for activities that engage students both cognitively and emotionally without causing exhaustion. The findings

highlighted the necessity of addressing procrastination through targeted interventions, which could help mitigate the risk of burnout (Baing, et al., 2023).

Procrastination is the act of delaying or postponing necessary academic tasks. This behavior is linked to feelings of anxiety and is characterized by a deliberate delay in completing academic responsibilities, such as studying or writing assignments. Research conducted by Nazari et al. (2021) at the Kashan University of Medical Sciences explored the relationship between academic procrastination and depression among students, employing a cross-sectional descriptive-analytic design, involving a sample of 400 students selected through stratified random sampling. Data collection tools included Demographic Information Questionnaire, Solomon and Rothblum Academic Procrastination Questionnaire and the Beck Depression Inventory II. This methodological approach allows for a comprehensive analysis of the relationship between procrastination and depression. Data analysis was performed using SPSS and the analysis included descriptive statistics and inferential statistics to determine the significance of the findings.

The study highlighted a concerning level of academic procrastination among students at Kashan University of Medical Sciences, with a notable correlation to depression. A substantial 74.9% of the students exhibited moderate to high levels of academic procrastination, indicating that procrastination is a prevalent issue among the student population. The demographic analysis revealed that the majority of participants were female compared to males. A significant positive correlation was found between academic procrastination and depression among students. This suggested that higher levels of procrastination are associated with increased levels of depression. Approximately 35.8% of students reported experiencing various degrees of depression, with the overall prevalence of depression among participants being 45.25%. Among the components of

academic procrastination, homework preparation showed the highest correlation (0.909), while the tendency to change procrastination habits had the lowest correlation (0.109). Although male, single, and unemployed students had higher mean scores for procrastination, these demographic factors were not significantly associated with academic procrastination levels (Nazari, et al., 2021).

The article by Yikuan (2021) investigated the impact of COVID-19 pandemic on the academic procrastination and stress levels among Chinese college students. The study focused on understanding how the shift to online learning during the pandemic has affected students' behavior and psychological well-being, particularly concerning procrastination and different types of stress such as challenge stress and hindrance stress. Procrastination, characterized as the avoidance of tasks, is commonly associated with negative outcomes such as depression and academic underperformance. The pandemic exacerbated these issues by disrupting traditional learning environments, forcing students to adapt to remote learning.

The study involved a total of 169 undergraduate students who voluntarily participated in the survey. The study employed a questionnaire that consisted of 37 questions, designed to assess various dimensions of academic procrastination. The dimensions included completed homework, review preparation, autonomous learning, and willingness to change. To measure stress levels, the study referenced the Challenge and Hindrance Stress: Relationships with Exhaustion, Motivation to Learn, and Learning Performance questionnaire.

The findings indicated that the lack of effective supervision and a conducive learning atmosphere at home contributed to increased procrastination behaviors. The study found that the overall procrastination behavior among college students has significantly increased during the pandemic. This increase is attributed to the shift to online learning, which has led to a lack of

effective supervision and a conducive learning environment, ultimately reducing learning efficiency and increasing procrastination behavior. The increase in procrastination was not uniform across all students; it varied by academic year and gender. The study indicated that different grades and genders experienced varying degrees of procrastination, suggesting that some groups may be more vulnerable to procrastination than others. The findings revealed an inverse relationship between procrastination and academic performance. As procrastination increased, academic performance tended to decline, highlighting the negative consequences of delaying academic tasks. The research emphasized that procrastination is often driven by stress and anxiety. The study suggests that the stress levels experienced by students during the pandemic may have contributed to their procrastination behaviors, as students sought to avoid tasks that caused them anxiety (Yikuan, 2021).

Self-esteem and negative emotional states play crucial roles in students' tendency to procrastinate in completing final assignments and academic procrastination, the act of delaying tasks despite knowing the negative consequences, is a prevalent issue among students. The study conducted by Djamahar et al. (2020) explored the relationship between self-esteem, negative emotional states, and academic procrastination in final year students at Jakarta State University in July, 2019.

The research sample comprised of 48 biology students selected through simple random sampling and Instruments such as the Coopersmith Self-Esteem Inventory (CSEI), Depression Anxiety Stress Scale 42 (DASS 42), and academic procrastination questionnaires were used for data collection. Data analysis involved conducting prerequisite tests such as normality tests to ensure data distribution and homogeneity before hypothesis testing. The study employed a

descriptive correlational method to analyze the significant relationship between self-esteem, negative emotional states, and academic procrastination in final year college students.

Research suggested that higher levels of self-esteem and negative emotional states are associated with lower levels of academic procrastination, indicating a complex interplay between psychological factors and procrastination tendencies. The study found that there is a significant negative relationship between self-esteem and academic procrastination, a significant positive relationship between negative emotional state and academic procrastination and a significant negative relationship between self- esteem and negative emotional state with academic procrastination in final year students. The results have three categories of self-esteem levels, namely, low category totaling 0 students (0%), medium category totaling 32 students (66.7%) and the high category numbered 16 students (33.3%). The calculation of negative emotional state resulted in 5 students (10.42%) experiencing a severe category of negative emotional state, nine students (18.75%) experiencing a negative emotional state with a moderate category, and 34 students (70.83%) experiencing a negative emotional state with the normal category. Also, there are three categories of levels of academic procrastination in final-year students, namely, the low category totaling two students (4.16%), medium category totaling 43 students (85.42%), and high category totaling five students (10.42%) (Djamahar, et al., 2020).

Self-esteem demonstrates one's quality of being able to recognize one's peculiar self in absence of validation and acceptance of others. High, moderate and low self-esteem describe a student with positive, carefree and negative perception towards the attainment of his academic goals. Academic procrastination has become common among Nigerian students since the arrival of internet and computer games. It produces test anxiety among students and its production precedes as well as succeeds test-taking exercises.

A study was conducted by Okoye and Oghenekaro (2020) using a correlational-descriptive research design in Delta State University, Abraka on 43 PGDE students using purposive sampling technique. Instruments such as Rosenberg Self-Esteem Scale, Abu-Ghazal's Academic Procrastination Questionnaire and Test Anxiety Questionnaire containing 10, 21 and 20 items, respectively were adopted for this study. Pearson Product Moment Correlation Coefficient was used in hypothesis testing with a 0.05 level of significance. The results showed that academic achievement and self-esteem were positively related, academic procrastination and academic achievement were negatively related and test anxiety and academic achievement were negatively related. The study demonstrated considerable relationship between all the three variables and suggested students to have a work-life balance through implementation of time management strategies in order to culminate academic performance (Okoye & Oghenekaro, 2020).

Depression has become common among students and it impacts their academic performance. This leads to procrastination causing academic failure which is known as academic procrastination. Depression causes mood disorders, continuous sadness and loss of interest and causes to have feelings of hopelessness, worthlessness and helplessness which could last for a very long period of time and risk a person's mental health, career and social life.

A study conducted by Wirajaya et al. (2020) found that the main reasons of EFL students to procrastinate were time-management (28%), aversiveness of the task (24%), sincerity (22%) and personal initiative (26%), and there was a strong correlation between students' academic procrastination and self-efficacy. The research was conducted on 100 EFL students of the English Language Education Study Program STKIP Muhammadiyah Aceh Barat Daya using depression and procrastination questionnaire adapted from the Depression Anxiety Stress Scale-

24. The dominant responses towards depression level were normal (39%), moderate (31%), severe (16%), mild (12%) and critical (2%). Academic procrastination was done by 3 subjects at the lowest level, 37 subjects at a moderate level, 31 subjects at a high level and 29 subjects did at a highest level. Adding together, 60% of all subjects carried out academic procrastination at a high to highest level after; the correlation test showing that depression and academic procrastination have a positive correlation. The study showed that depression and procrastination variables have positive relationship which means students with high levels of depression are more likely to have academic procrastination (Wirajaya, et al., 2020).

A survey done by Liu et al. to understand the factors responsible for such procrastination in postgraduates The questionnaires were based on Temporal Decision Model of procrastination and strength model of self-control. A random cluster sampling was used and students' academic self-efficacy was understood through course learning, scientific research ability and social practice ability using Harman single factor test.

This study showed that, in academics, self-control acted as a mediator between self-efficacy and procrastination and its mediating role was moderated by gender variables. There were gender differences too, noted in academic self-efficacy where, it is positively and negatively related with self-control and procrastination, respectively (Liu, et al., 2020).

A study was conducted by Batool et al. (2019) among clinically diagnosed patients of depression to find out the relationship between depression and procrastination among general population in Punjab. The sample comprised of 120 males and 120 females and were selected through purposive and snowball sampling technique from different hospitals and residential areas. The study aimed to explore the prevalence of depression and procrastination among both clinically diagnosed depressive patients and the general population in Punjab. The core objective

was to investigate whether procrastination plays a role in causing depression by examining the relationship between the two factors. The study tools used in this study were Beck Depression Inventory and Tuckman Scale for depression and procrastination, respectively.

The findings of the study showed a positive correlation between depression and procrastination, suggesting that procrastination could be a contributing factor to depression. Gender and marital status were found to have an influence on the levels of depression and procrastination, with higher depression levels observed in married individuals compared to unmarried ones and in males compared to females. Additionally, the study revealed differences in procrastination levels based on gender and marital status, with lower levels of procrastination seen in females compared to males and in unmarried individuals compared to married ones.

The study found that depression and procrastination were positively correlated among participants, indicating that as levels of procrastination increased, so did levels of depression. Male participants showed higher levels of depression compared to females, while females exhibited lower levels of procrastination than males. The research revealed that married individuals had higher levels of depression when compared to unmarried participants, suggesting a potential relationship between marital status and mental health outcomes (Batool, et al., 2019).

Procrastination, a widespread behavioral phenomenon, is characterized by the delay of necessary tasks, often resulting in negative consequences such as decreased academic performance and increased stress and anxiety. A study by Saplavska and Jerkunkova (2018) focused on academic procrastination—a specific form of procrastination related to delaying educational assignments—and its link to anxiety among students. The authors highlighted that procrastination is a complex phenomenon encompassing behavioral, emotional, and cognitive components.

The study involved a total of 60 participants, all of whom were second-year full-time students from the Latvian University of Life Sciences and Technologies. Instruments such as procrastination scale was used to measure the intensity of academic procrastination through a series of statements evaluated on a Likert scale and State-Trait Anxiety Inventory (Form Y) which consisted of 40 statements divided into two parts: one measuring situational anxiety and the other measuring personal anxiety where each part also uses a Likert scale for evaluation. The data collected from the questionnaires were processed using SPSS 20.0 software and MS Excel 2010. The reliability of the questionnaires was confirmed using the Alfa-Cronbach coefficient.

The study found that 48% of participants exhibited a high level of academic procrastination, while 27% showed a medium level, and 25% had a low level of procrastination. This indicates that a substantial portion of students struggle with procrastination in their academic tasks. A positive statistically significant correlation was identified between academic procrastination and both personal and situational anxiety. This suggests that as anxiety levels increase, so does the tendency to procrastinate academically. The chi-squared test results indicated a statistically significant relationship between academic procrastination and situational anxiety. However, no significant differences were found for the variables, academic procrastination and Situational anxiety in some instances. The findings highlight the negative impact of academic procrastination on students' psychological well-being, emphasizing the need for interventions to address procrastination and anxiety in educational settings (Saplavska & Jerkunkova, 2018).

A study conducted by Aftab et al. (2017) extended the Procrastination-Health model by examining the indirect effects of two cognitive schemas—defectiveness and insufficient self-control—on the relationship between procrastination and depression. This investigation is

conducted using samples from the United States and Pakistan, highlighting the cross-cultural aspect of the research.

The study involved a total of 652 college students, with 412 from the United States and 240 from Pakistan. The Tuckman Procrastination Scale-Short Form (TPS-SF) was utilized to assess procrastination traits and participants also self-reported on measures of depression and maladaptive schemas, which included the cognitive schemas of defectiveness and insufficient self-control. The choice of measures was based on their psychometric properties, ensuring appropriateness for cross-cultural administration. The authors employed Hayes's Process Macro (Model 4) to analyze the potential indirect effects of the cognitive schemas on the relationship between procrastination and depression.

The researchers conducted a moderated multiple mediation analysis to explore whether the mediation effects varied by nationality confirming that procrastination is linked to depression through cognitive schemas, with defectiveness and insufficient self-control playing crucial roles (Aftab, et al., 2017).

2.2 Depression, procrastination and anxiety in university students

Procrastination is a common behavior where individuals delay tasks until the last minute, often leading to feelings of guilt and stress about unfinished work. It is prevalent across various demographics, including different nationalities, socioeconomic statuses, and educational backgrounds. This study by Jochmann et al. (2024) aimed to fill that gap by examining the long-term effects of procrastination on mental health, specifically looking at how it relates to stress, depression, and anxiety symptoms.

The study collected longitudinal data from 392 university students over a period of one year, with measurements taken at three different occasions. The data analysis involved using structural equation modeling with robust maximum likelihood estimation due to the non-normality of some study variables. The researchers employed autoregressive time-lagged panel models to test their hypotheses, which helps in understanding how variables influence each other over time. This method was crucial for examining the temporal relationships between procrastination, perceived stress, and mental health symptoms. Established and well-evaluated instruments were used for measuring the variables involved in the study, ensuring the reliability and validity of the data collected. The study also included a correlation matrix of the manifest variables, which provided insights into the relationships among procrastination, perceived stress, and depression and anxiety symptoms (Jochmann, et al., 2024).

The study reported good internal consistencies for procrastination, perceived stress, and depression and anxiety symptoms. The correlation analysis revealed a medium to large positive relationship between procrastination and depression and anxiety symptoms. However, the association between procrastination and perceived stress was small, while the relationship between perceived stress and depression and anxiety symptoms was very large. Confirmatory factor analysis indicated an acceptable to good fit for the measurement model, with significant loadings for all items on their respective factors. The autoregressive mediation model fitted the data significantly better than the stability model. The study aimed to test three hypotheses. First, procrastination leads to perceived stress over time which was rejected as the data did not support this path. Second, perceived stress leads to depression and anxiety symptoms over time which was also rejected and third, procrastination leads to depression and anxiety symptoms over time,

mediated by perceived stress which was partially confirmed, as procrastination did lead to depression and anxiety symptoms, but the effect was not mediated by perceived stress.

The study's longitudinal design allowed for insights into the causal direction of effects, which is a significant contribution to understanding the consequences of procrastination on mental health. However, it could not confirm long-term effects of procrastination on chronic disease via chronic stress, as initially hypothesized. The study noted a high dropout rate (88.5%), which may have influenced the results. The mean score of procrastination was lower in participants who completed all three waves compared to those who only participated in the first wave, suggesting that higher procrastinators may have been less likely to complete the study.

The study concluded that procrastination leads to increased symptoms of depression and anxiety over time. Contrary to the initial hypothesis, perceived stress was not found to mediate the relationship between procrastination and mental health outcomes. The study indicated that procrastination did not lead to perceived stress over time, nor did it lead to depression and anxiety symptoms. This suggests that the relationship between procrastination and mental health may not operate through perceived stress as previously assumed. The researchers proposed that procrastination might only lead to perceived stress in the short term, particularly during critical academic periods, such as exam preparations. However, this short-term stress may not be sufficient to cause long-term mental health issues without the presence of other risk factors (Jochmann, et al., 2024).

2.3 Depression and procrastination among students during COVID-19 pandemic

The tendency to delay learning-related activities is academic procrastination. Studying at home means having a lot of free time to study and eventually, procrastinating. Covid-19

pandemic caused students to stay at home and take online classes, further increasing their tendency to deferring study and assignments.

A study by Cahyaratri et al. (2022) was conducted among medical students in Indonesia who were not diagnosed with anxiety and depression, not taking an anxiolytic, antidepressant or other psychotropic drugs. The study used Procrastination Academic Scale for Student questionnaire to measure procrastination and Depression, Anxiety, Stress Scale-21 to measure the level of depression, anxiety and stress using Spearman's test for the correlation test. The study found that 48.9% of respondents had a high level of academic procrastination. Out of 184 obtained samples, where female respondents were higher than males, 21.7% experienced severe to very severe stress, 32.6% experienced moderate to severe anxiety and 50.5% experienced severe to very severe depression. The results showed that academic procrastination had a moderately positive correlation with stress, anxiety and depression. When students delay tasks that they need to complete, they will have low achievement levels and will not be able to achieve their expected academic goals that can lead to stress, depression and anxiety (Cahyaratri, et al., 2022).

A study by Brenllaa et al. (2022) conducted on Argentinian students addresses the scarcity of data on the role of future time perspective, age, and gender in relation to procrastination and academic motivation during the pandemic. The study hypothesized that future time perspective would have a negative relationship with procrastination but a positive one with motivation, with age and gender potentially moderating these associations.

The study utilized data collected from 257 undergraduate psychology students aged 18–44 from the Catholic Argentinean University, who participated in the research through an online questionnaire. Questionnaires were administered to the participants to gather information on

variables such as future time perspective, procrastination, and academic motivation, forming the basis of the data analyzed in the study. The researchers focused on exploring the relationships between future time perspective, procrastination, and academic motivation among the surveyed students, using the data obtained from the questionnaires to conduct statistical analyses. The data collected through the questionnaires allowed the researchers to examine how future time perspective influences behaviors like procrastination and motivation, providing valuable insights into the psychological aspects of students' lives during the pandemic.

The hypothesis that future time perspective would have a negative relationship with procrastination was partially supported. A more positive future time perspective was associated with lower levels of procrastination, indicating a potential protective effect against procrastination. Regarding academic motivation, the hypothesis that future time perspective would have a positive relationship was only partially confirmed. The relationship between future time perspective and motivation was not significant for men or older students, suggesting that other factors may play a role in influencing motivation levels. The results of the moderation analysis indicated that age and gender had a differential effect on the relationships between future time perspective, procrastination, and motivation. These findings emphasized the importance of considering individual differences in understanding how future time perspective influences academic behaviors. Overall, the study highlighted the significance of future time perspective in shaping students' behaviors, particularly in challenging contexts like the pandemic. By recognizing the role of future time perspective, interventions can be developed to support students in managing procrastination and enhancing motivation levels, ultimately improving academic outcomes. These findings highlighted the importance of future time perspective in influencing behavior outcomes, particularly in challenging situations like the

pandemic. Internal differences, such as age and gender, can either enhance or diminish the impact of future time perspective on procrastination and motivation (Brenllaa, et al., 2022).

Depressive symptoms negatively impacted the physical and mental health of college students in the Covid-19 pandemic. This study by Yang et al. (2022) was conducted to investigate the relationship between physical activity and depressive symptoms among Chinese college students along with the mediating roles of perceived stress and academic procrastination. The study found significant correlations amongst the mentioned variables.

The study was conducted on 586 college students using Physical Activity Scale (PARS-3), Perceived Stress Scale (PSS-10), Procrastination Assessment Scale- Students (PASS) and the Patient Health Questionnaire (PHQ-9). The study employs chain mediation analysis was to explore the direct and indirect effects of physical activity on depressive symptoms through perceived stress and academic procrastination, providing a comprehensive understanding of the relationships between these variables in the context of college students during the COVID-19 pandemic. The study employed an unrotated exploratory factor analysis to analyze all measurement items, utilizing the Harman single-factor test to assess common method bias in the data and revealed a total of seven common factors with eigenvalues greater than one, with the first common factor explaining 28.83% of the total variation, indicating no significant common method bias in the study.

The study concluded that physical activity directly influences depressive symptoms among college students during the Covid-19 pandemic, highlighting the importance of engaging in regular exercise for mental well-being. PA also indirectly affects depressive symptoms through the chain mediating impact of perceived stress and academic procrastination, emphasizing the interconnected nature of these factors in influencing mental health outcomes. The study

suggested that researchers, educators, and mental health workers should prioritize addressing perceived stress and academic procrastination among college students to intervene effectively in their depressive symptoms, underscoring the need for targeted interventions to support students' mental health during challenging times. Efforts to reduce perceived stress levels and implement educational programs to guide students in reducing academic procrastination are essential for supporting college students' mental health and well-being during the pandemic and beyond (Yang, et al., 2022).

The transition to online learning due to the COVID-19 pandemic has been challenging for medical students, particularly middle and senior students who heavily rely on practical clinical work with patients. The shift to forced social distancing and online learning has disrupted the traditional learning methods for medical students, impacting their mental health and increasing the risk of issues like procrastination, anxiety, and depression. The study by Romash (2020) aimed to investigate the levels of anxiety, depression, and procrastination among medical students at Ivano-Frankivsk National Medical University during the period of forced social distancing, and how these factors affect academic performance.

The research involved interviewing a total of 212 medical students to gather data on their mental health and academic performance. The Hospital Anxiety and Depression Scale was employed to assess anxiety and depression levels in the participants and The Montgomery-Asberg Depression Rating Scale was used to further evaluate the severity of depressive symptoms in the students. The "Questionnaire to study the propensity of the individual to procrastination" was administered to evaluate both personally and situationally conditioned procrastination tendencies in the students. The questionnaire used in the study was a modification of the General Procrastination Scale and consisted of two scales. Personally

conditioned procrastination scale was used to assess personal tendencies towards procrastination and situationally conditioned procrastination scale was employed to evaluate situational procrastination tendencies among the students.

The manifestation of procrastination in medical students during the altered psycho-emotional state induced by forced social distancing due to the COVID-19 pandemic was primarily of a situational nature, indicating a response to the challenging circumstances faced by the students. The study confirmed that the COVID-19 pandemic, as a stressful event, led to the emergence of protective mechanisms in medical students, resulting in emotional and behavioral changes and disorders as a response to the external stressor. The research findings highlighted the presence of adjustment disorders among medical students during the period of altered psycho-emotional state caused by the pandemic and social distancing measures, emphasizing the importance of addressing mental health issues in this population. It was observed that increased academic demands during the altered psycho-emotional state were associated with higher levels of anxiety and depressive symptoms in medical students, indicating a significant impact of external stressors on mental well-being and academic performance. The study emphasized the need for medical students to be aware that experiencing depression is not a cause for shame and underscored the importance of maintaining mental and emotional health, as well as supporting classmates who may be struggling with mental illness. Overall, the research highlighted the profound impact of the COVID-19 pandemic and social distancing measures on the mental health and academic performance of medical students, emphasizing the importance of addressing emotional well-being and providing support to mitigate the effects of external stressors on this vulnerable population (Romash, 2020).

2.4 The relation of depression and procrastination with performance perfectionism

Academic procrastination and social anxiety are prevalent issues among adolescents, particularly in the context of the increasing prevalence of internet addiction. Several studies have examined these factors independently, but the relationship between them, particularly how they interact to predict internet addiction, is less explored. This research by Rezaei and Gazki (2024), provides a comprehensive understanding of how academic procrastination and social anxiety contribute to internet addiction among adolescents.

Academic procrastination is a well-documented phenomenon characterized by the voluntary delay of important academic tasks despite knowing that this delay will have negative consequences. Procrastination is linked to several psychological factors, including anxiety, low self-efficacy, and poor time management skills. Social anxiety is another critical factor linked to internet addiction. It is defined as the intense fear of being judged or negatively evaluated in social situations, leading to avoidance behaviors. For adolescents, the internet provides a safer space to interact socially without the immediate pressures of face-to-face interaction, which can exacerbate social anxiety.

The study involved 255 participants, comprising 176 medical students and 79 dental students from Hormozgan University of Medical Sciences in Iran. Data were collected using three validated questionnaires: Procrastination Assessment Scale for Students, Tehran Multidimensional Perfectionism Scale and Anxiety/Insomnia Subscale of the General Health Questionnaire-28 (GHQ-28). The study used a cross-sectional design, with data collected through convenience sampling. The researchers employed a quota sampling technique, distributing the sample proportionately between medical and dental students and linear regression analysis was employed to explore the predictive power of anxiety and the different

components of perfectionism on academic procrastination, with adjustments made for gender and academic semester. Collinearity diagnostics were performed to ensure the validity of the regression models.

The study found that anxiety was a significant predictor of academic procrastination in both medical and dental students. Specifically, anxiety was positively correlated with procrastination indicating that higher levels of anxiety are associated with greater tendencies to procrastinate. Both anxiety and academic procrastination were negatively correlated with the students' grade point average, suggesting that these factors adversely affect academic performance. The study concluded that anxiety plays a more significant role than perfectionism in predicting academic procrastination among medical and dental students Rezaei and Gazki (2024).

This study by Khalifa (2023) explored the relationship between performance perfectionism, academic procrastination, and depression among early childhood student teachers. Academic procrastination is a common issue in academic settings, linked to challenges with self-regulation and other factors. This study aimed to understand how perfectionism plays a role in this dynamic. 600 early childhood student teachers were randomly selected using instruments such as Performance Perfectionism Scale, Active Academic Procrastination Scale and Depression Scale and data was interpreted through statistical software and correlation analysis.

A statistically significant positive correlation was found between performance perfectionism and academic procrastination. This suggested that students with higher perfectionism tend to procrastinate more. A statistically significant negative correlation was identified between performance perfectionism and depression, indicating that higher perfectionism is associated with lower levels of depression. A statistically significant negative

correlation was also found between depression and academic procrastination, suggesting that students experiencing depression tend to procrastinate less.

The study highlighed the complex interplay between performance perfectionism, academic procrastination, and depression. While perfectionism may drive procrastination, it may also be associated with lower levels of depression. The findings underscore the need to address academic procrastination among students by focusing on external factors and promoting a supportive learning environment. The authors recommended interventions that educate students, educators, and families about procrastination, perfectionism, and coping strategies for managing these issues (Khalifa, 2023).

This study by Kuftyak (2022) aimed to explore the link between academic procrastination, stress levels, and overall academic performance in a group of students. The researchers wanted to understand how procrastination, as a delay tactic, contributes to problems in academic settings. The research acknowledges the prevalence of procrastination among students and its detrimental effects on their studies and the study aims to understand how procrastination contributes to stress and, consequently, impacts academic outcomes.

The research participants were 435 students aged 17 to 25 years old and data was collected by gathering information on students' procrastination habits, the types and frequency of stressors they encountered, their responses to these stressors, and their academic achievements. Instruments such as Procrastination Assessment Scale for Students and Student-life Stress Inventory was used to assess procrastination tendencies, stress levels, coping mechanisms, and other relevant psychological variables and to obtain objective measures of academic performance, such as grades or GPA, respectively. Using comparative analysis, the researchers compared procrastination levels between groups of students with varying levels of academic

performance and correlation analysis was used to determine the strength and direction of the relationship between procrastination, stress indicators, stress responses, and academic performance.

The study found a significant negative correlation between procrastination and academic performance. Students who procrastinated more frequently tended to have lower academic achievements. Procrastination was strongly associated with increased stress levels. Students who procrastinated more often reported experiencing higher levels of stress, frustration, and other negative emotions. The study identified several factors that contributed to stress in students, including social anxiety, fear of failure, laziness, poor perfectionism, and impulsivity. Students who exhibited these traits were more likely to experience stress and react more intensely to stressors. The correlation analysis revealed significant relationships between various study variables. For instance, procrastination was positively correlated with stress indicators like frustration, conflict, and pressure, while negatively correlated with self-control. Procrastination not only leads to poorer academic outcomes but also contributes to a vicious cycle of stress and negative emotions, further hindering academic progress. The study highlights the importance of addressing procrastination and stress management techniques in educational settings to support student well-being and academic success (Kuftyak, 2022).

The study by Jiao et al. (d2011) aimed to investigate the impact of group dynamics on graduate student performance, focusing on the role of personality variables. The authors chose to study academic procrastination because of its potential impact on group work, particularly at the graduate level. They cite previous research linking procrastination to negative consequences like stress, anxiety, and poor academic performance.

The study included 28 groups from graduate-level research methods courses. Group sizes ranged from 2 to 5 students. Data was collected using the Procrastination Assessment Scale–Students and group performance was assessed using the quality of the group's article critique, which was a collaborative assignment for the course. Multiple regression analyses were used to examine the relationship between procrastination and group performance on the article critique. The study found no significant relationship between the average level of procrastination within a group and the group's overall performance on the article critique. However, groups with higher average levels of procrastination due to task aversiveness tended to have lower performance scores. Procrastination on specific tasks, particularly administrative tasks, keeping up with reading assignments, and writing term papers, was significantly associated with lower group performance. These three procrastination variables together explained 46.9% of the variance in performance.

The study suggested that academic procrastination, particularly when driven by task aversiveness, can negatively impact the performance of graduate student groups. While the average procrastination level within a group was not directly linked to performance, specific procrastination behaviors, such as delaying administrative tasks or writing assignments, were detrimental. The authors highlighted the need for interventions to address procrastination and improve self-regulation skills among graduate students engaged in collaborative learning environments (Jiao, et al., 2011).

2.5 Procrastination and mental health issues among students

Procrastination, the act of delaying tasks despite potential negative consequences, is prevalent among university students. It is often seen as a failure of self-regulation and has been associated with various mental and physical health issues. While cross-sectional studies have

highlighted links between procrastination and adverse health outcomes, there is a scarcity of longitudinal research that examines these associations over time. This study by Johansson et al. (2023) aimed to fill this gap by investigating the relationship between procrastination and subsequent health outcomes among university students in Sweden over a nine-month period.

The study was a cohort analysis derived from the Sustainable University Life study, which followed 3,525 students from eight universities in the Stockholm area and Örebro, Sweden, over a one-year period. The participants included undergraduate and graduate students who were engaged in full-time studies and had at least one year remaining in their educational programs. Data collection occurred at five different time points, with the second time point used as the baseline for measuring procrastination and the fifth time point used to assess health outcomes.

Procrastination was assessed using five items from the Swedish version of the Pure Procrastination Scale (PPS). The items were rated on a Likert scale from 1 to 5, and the total score ranged from 5 to 25, with higher scores indicating greater procrastination. The scale demonstrated strong reliability, with a Cronbach α of 0.92 and a test-retest reliability of 0.75 over nine months. The study evaluated 16 different health outcomes at the nine-month follow-up, including mental health issues (depression, anxiety, and stress), physical pain (in various body regions), unhealthy lifestyle behaviors (such as poor sleep quality, physical inactivity, and substance use), and psychosocial factors (loneliness and economic difficulties).

To assess the relationship between procrastination and health outcomes, the researchers employed multivariable regression models. These models were adjusted for various confounders, including prior health outcomes, age, gender, education type, and more. The analysis also included sensitivity tests to account for potential biases and unmeasured confounding factors.

The study found that higher levels of procrastination were significantly associated with a range of negative health outcomes at the nine-month follow-up such as in mental health. procrastination was linked to increased symptoms of depression, anxiety and stress; in physical pain, there was a notable association between procrastination and disabling pain in the upper extremities; in unhealthy lifestyle behaviors, procrastination was correlated with poor sleep quality and physical inactivity; in psychosocial Factors, higher levels of procrastination were associated with greater loneliness and economic difficulties. Interestingly, procrastination did not show a clear association with some other health outcomes, such as general health, substance use, or breakfast skipping.

The findings support the procrastination health model, which suggests that procrastination can lead to negative health outcomes through increased stress, unhealthy behaviors, and delayed treatment-seeking. The study provided longitudinal evidence that procrastination is not only a psychological issue but also a significant factor in various health problems among university students. The weaker associations found in this study compared to previous cross-sectional research may be due to the rigorous control for confounders, including prior health conditions. The study concluded that procrastination is a significant predictor of various negative health outcomes among university students, particularly in the areas of mental health, physical pain, and lifestyle behaviors. The findings underscored the importance of addressing procrastination in university settings as part of broader efforts to support student health and well-being (Johansson, et al., 2023).

Procrastination is a common issue among university students, where they delay tasks despite knowing it will negatively impact them. It can manifest as state procrastination in specific situations or trait procrastination as a habit. This study by Rozantal et al. (2022) aimed to

differentiate between severe and less severe cases of procrastination among university students to identify those in need of support.

The data used in this paper was collected through an anonymous online survey involving participants from various universities in Sweden. A total of 732 participants completed the survey, providing valuable insights into the study of procrastination among university students. The survey included self-rated assessments of procrastination, impulsivity, perfectionism, anxiety, depression, stress, and quality of life among the participants. Diagnostic criteria for pathological delay were utilized to determine the severity of procrastination in the participants, along with self-report items and open-ended questions to assess associated physical and psychological issues. The participants were divided into two groups based on a median-split on the Pure Procrastination Scale and responses to the pathological delay i.e. less severe procrastination and severe procrastination groups. An anonymous online survey was conducted to collect data on self-rated levels of procrastination, impulsivity, perfectionism, anxiety, depression, stress, and quality of life among the participants.

Participants with severe procrastination demonstrated a higher recognition of procrastination as a problem and were more willing to seek help compared to those with less severe procrastination. Severe procrastination was associated with more significant problems across various life domains, greater symptoms of psychological issues such as stress, anxiety, and depression, and lower quality of life compared to less severe procrastination. The thematic analysis revealed that physical issues related to procrastination were characterized by stress and anxiety symptoms like tension, pain, sleep disturbances, and restlessness, while psychological issues included self-criticism, remorse, and lower self-esteem. The study emphasized the need for interventions and support systems tailored to the severity of procrastination, with a focus on

addressing psychological issues like stress, anxiety, depression, and low self-esteem among university students (Rozantal, et al., 2022).

Procrastination is characterized as the intentional delay of tasks, often leading to negative outcomes. Previous studies have linked procrastination to various psychological issues, including stress, anxiety, and depression, which can significantly impact students' overall well-being. This study by Dardara and Al-Makhalid (2022), examined the relationship between procrastination, negative emotional symptoms, and mental well-being among college students in Saudi Arabia. The authors emphasized the widespread nature of procrastination among students and its potential detrimental effects on mental health. The study involved 886 Saudi undergraduate students from Umm Al-Qura University in Makkah. The sample included both male and female students, with a mean age of 24.33 years. Participants completed online questionnaires, including the Irrational Procrastination Scale, Depression Anxiety Stress Scales, and the Mental Health Continuum-Short Form.

The study found significant correlations between procrastination and negative emotional symptoms such as in depression, stress, and anxiety, higher levels of procrastination were positively associated with increased symptoms of all the three variables and in well-being, procrastination was negatively correlated with emotional, social, and psychological well-being, indicating that students who procrastinate more tend to have lower levels of overall well-being.

The study supported existing literature suggesting that procrastination is not merely a time-management issue but also a significant psychological concern. The findings aligned with the procrastination-health model, which posited that procrastination contributes to negative emotional states and poor well-being by increasing stress and delaying important self-care behaviors. The study concluded that procrastination is a critical factor influencing mental health

among Saudi Arabian students. It highlighted the need for interventions focused on improving time management and emotional regulation skills to mitigate the negative effects of procrastination on mental well-being (Dardara & Al-Makhalid, 2022).

This research paper by Cjuno et al. (2022) focused on investigating the relationship between academic procrastination, depressive symptoms, and suicidal ideation among university students, specifically within the Faculty of Health Sciences during the pandemic. The study aimed to address the pressing issue of mental health challenges faced by students, highlighting the importance of understanding how academic procrastination and depressive symptoms contribute to suicidal ideation.

The research paper utilized a non-experimental and cross-sectional study design where A non-probabilistic convenience sample was employed, consisting of 578 participants aged between 16 and 30 years, with a majority being female. Data collection involved participants completing three main assessment tools: the Academic Procrastination Scale, the Positive and Negative Suicidal Ideation Inventory and the Beck Depression Inventory II. Through the administration of these assessment tools, the study gathered quantitative data on academic procrastination, depressive symptoms, and suicidal ideation, enabling the researchers to analyze the relationships between these variables and draw meaningful conclusions regarding the impact of procrastination and depression on suicidal ideation among university students. Statistical analyses, including frequencies and percentages at a descriptive level, partial correlation coefficient, and multiple linear regression, were conducted to examine the associations between the three variables.

Subjects with higher scores in academic procrastination and Beck Depression Inventory II reported elevated levels of suicidal ideation compared to those with lower scores. A positive

significant relationship was identified between total academic procrastination, its subscales, and suicidal ideation indicating that higher levels of procrastination were associated with increased suicidal thoughts. The correlation between academic procrastination and suicidal ideation remained significant even after controlling for depression, highlighting the independent impact of procrastination on suicidal ideation among university students. Multiple linear regression analysis revealed that academic procrastination, its subscales, and depressive symptoms could collectively explain approximately 20% of the total suicidal ideation in university students, emphasizing the significant contribution of these factors to suicidal thoughts (Cjuno, et al., 2022).

Procrastination is a common issue among students, leading to delays in task completion and academic performance. The research paper by Jose and Vijayan (2021) explored the relationship between procrastination and locus of control among postgraduate students in Karnataka understanding how individuals' tendencies to procrastinate are influenced by their locus of control, which refers to the extent to which individuals believe they can control events affecting them.

The research paper utilized data collected from 150 college students enrolled in various postgraduate courses in Karnataka, aged between 21 to 29 years old. The research employed a correlational study design where The Procrastination scale was used to measure the level of procrastination among the students and Rotter’s Locus of control scale was employed to assess the participants' locus of control orientation. The Procrastination Assessment Scale was incorporated to investigate two aspects of procrastination: delaying tasks and the psychological distress resulting from this behavior. Statistical methods such as Pearson correlation, analysis of

variance, and multi-linear regression were applied to analyze the collected data and explore the relationships between procrastination, locus of control, and other variables.

The research hypothesis stated a significant relationship between procrastination and locus of control finding a significant and positive correlation between procrastination and locus of control among the participants. Individuals with an external locus of control were found to have higher levels of procrastination and they tend to attribute their success to external factors rather than their own efforts, leading to procrastination behavior. These results emphasized the importance of understanding and addressing the relationship between procrastination and locus of control to potentially reduce procrastination tendencies and enhance academic performance among college students (Jose & Vijayan, 2021).

Procrastination and depression are two conditions that exist simultaneously and continue to exist on an eternal loop. They both are the causes of each other as well as result. A perception about one's own body shape is a cognitive body image. People who are depressed care less about communication with the world due to their ability to function physically and cognitively in a healthy way. This study by Karthikeyan and Bhaumik (2021) evaluated the amount of procrastination which is unknowingly done by patients suffering from depression to understand the relation between depression and body image procrastination. It was conducted among 30 patients including male and female, aged 21-60 years, who had body image depression and were being treated with antidepressants ranging from the time of 3 moths to 6 years. Instrument used in this study was The Unintentional Procrastination Scale. Data was collected through stratified random sampling method from psychiatric hospitals in India and interpreted using percentage analysis method.

The result showed that there is an existence of moderate to high level of unintentional procrastination among depressive patients where 25-40% of patients responded in agreement with moderation. Their lack of drive and motives was the major cause of their trouble in task completion as well as trouble in moods, emotional comprehension and difference in reactivity state. Unintentional procrastination was the most common amongst 30 samples so optimization of one's environment for avoidance of such procrastination as well as forgiving own self-regarding one's past are suggest by the researchers for avoiding procrastination (Karthikeyan & Bhaumik, 2021).

The study done by Dautov (2020) highlighted the rapid changes in living conditions and the increasing demands for self-management and self-control in modern society, which have led to heightened anxiety and fear of new information. The levels of procrastination and laziness are crucial as they influence organizational behavior patterns, particularly in academic and professional settings. These behaviors affect how individuals perceive work situations and their vulnerability to stress. The research showed that procrastination and laziness are often conflated, leading to significant contradictions in terminology. New characteristics are continually being added to these concepts, complicating their definitions. The study emphasized the need to distinguish between procrastination and laziness, as they may have different underlying causes and effects on students' academic performance.

The study involved 40 male and female participants aged 17 to 18 years. They were divided into two groups based on their academic performance: high-performing and low-performing students. Instruments such as Procrastination Scale for Students, Questionnaire on Propensity for Procrastination and Diagnosis of Prerequisites and Attitudes to Laziness were used. Data was analyzed using statistical methods such as Spearman's Rank Correlation

Coefficient, Mann-Whitney U Test, SPSS Statistics software and the combination of these methods allowed the researchers to identify not only the levels of procrastination and laziness but also the specific causes associated with these behaviors among students with varying academic performance.

A negative correlation was found between academic performance and laziness self-assessment for high-performing students indicating that as academic performance increases, self-assessed laziness decreases. However, no significant correlation was found for low-performing students. Both high and low-performing students showed a negative correlation between academic performance and academic procrastination. The correlation was stronger for low-performing students than for high-performing students. This suggested that lower academic performance is more strongly associated with higher procrastination. The primary cause of laziness in high-performing students was identified as capability deficiency, implying that their reluctance to work stemmed from a perceived lack of competence or time. The primary cause in low-performing students was Lack of interest, suggesting that a lack of engagement in the material or tasks contributed significantly to their laziness. For high-performing students, situational procrastination was the main cause, with a negative correlation between academic performance and procrastination due to external factors. In contrast, low-performing students attributed procrastination more to personal traits (Dautov, 2020).

Procrastination has a significant impact on people throughout their life and it considerably influences the efficacy of individuals, especially children and adolescents, be it inside or outside the schools. In order to study the relationship between procrastination and mental health concerning gender and developmental stage of children and adolescents, a study was conducted by Abdullah (2017) in Aleppo city on 268 students where males and females were

in the number of 133 and 135, respectively. Children and adolescents studying in 4^{th} – 9^{th} grade were studied through instruments such as Procrastination Scale and Mental Health Scale and descriptive statistics where correlation coefficient and T-test was used for measuring the relationship between the two variables and gender differences, respectively.

The results showed that males had the tendency to procrastinate more than females and likewise, adolescents inclined towards procrastination more, in comparison to children. The results also indicated considerable positive correlation between procrastination and different aspects of mental health such as acknowledging and being aware of one's as well as others, ability to adapt to personal and social situations, bravery and problem-solving skills and about finding the meaning and purpose in life. Contrary to that, different indexes of mental health were found to have a negative correlation with procrastination such as the way people view the real world, trust as well as love of one's own self as well as others and deceptive freedom and responsibility. Researchers believe that procrastination is contingent upon one's sense of purpose, depending upon how strong or weak it is (Abdullah, 2017).

2.6 Procrastination acts as a mediator between excessive social media use and depression

The overuse of social media smartphones in our daily lives have a crucial role in augmenting depression and anxiety in young adults. In 2023, WHO reported that 3.8% of the world's population suffers from depression. Among individuals aged 18 to 25 years of age, 25% experience depression (Rogowska & Cincio, 2024). Social media addiction is characterized by being overly concerned with it, having an uncontrollable urge to use it, devoting time and effort on it in a way that it impairs with daily life causing loneliness, depression, anxiety, academic or occupational difficulties and ruins physical health. A survey by the Pew Research Center found that American teenagers aged 13 to 17 have become addicted to TikTok in North America where

almost 67% of teens report using TikTok at some point, with 16% stating that they use it almost constantly. The sophisticated algorithmic systems of TikTok make it more captivating in comparison to other social media platforms in terms of addiction. Globally, amongst TikTok users aged 18 to 24, women prevail over men.

Excessive use of social media causes people to postpone matters in their everyday life leading to manifestation of procrastination in various aspects of life, which maybe become consistent over time. Procrastination is a self-regulatory failure which can lead to decreased self-esteem, reduced productivity, increased stress and a sense of frustration and guilt. This online cross-sectional survey studied individuals who were above 18 years of age and had used TikTok at least once in their life where 448 individuals aged 18 to 35 years participated. Majority of the participants were students having secondary education where highest percentage of respondents (35%) used TikTok up to five times a day, where 38% reported spending one hour on the platform. The Bergen Facebook Addiction Scale was used to assess problematic TikTok use, Pure Procrastination Scale was used to measure procrastination and the 9-item Patient Health Questionnaire was used to assess self-reported severity of depressive symptoms over the past two weeks and Pearson's correlation analysis was performed to examine the association between all the three variables. The study found that procrastination tendency led to an increment in TikTok use and subsequently, elevated depressive symptoms. It confirmed the direct effect of procrastination on depressive symptoms and the indirect effect through problematic TikTok use (Rogowska & Cincio, 2024).

The study by Tras and Gokcen (2020), explored the relationship between internet addiction and two psychological factors: academic procrastination and social anxiety. It aimed to

identify how these factors predict internet addiction among adolescents, a population increasingly at risk due to the pervasive use of digital technology.

The research was conducted using a sample of 599 high school students in Turkey. Data were collected using three scales: the Young Internet Addiction Test Short Form, the Academic Procrastination Scale, and the Social Anxiety Scale for Adolescents. The data were analyzed using Pearson Correlation Analysis and Multiple Linear Regression Analysis. There is a significant positive correlation between internet addiction and academic procrastination as well as between internet addiction and social anxiety. This suggested that as internet addiction increases, both academic procrastination and social anxiety tend to increase.

No significant relationship was found between academic procrastination and social anxiety. Academic procrastination and social anxiety were found to be significant predictors of internet addiction, explaining 25% of the variance. Among these, academic procrastination was the stronger predictor. The study highlighted the importance of addressing academic procrastination and social anxiety in interventions aimed at reducing internet addiction among adolescents. The research concluded that both academic procrastination and social anxiety contribute to the likelihood of internet addiction in adolescents. The study suggested expanding sample sizes in future research and using qualitative methods to better understand these relationships. This study added to the growing body of literature indicating that psychological factors like procrastination and anxiety are integral to understanding and addressing internet addiction in youth (Traş & Gökçen, 2020).

2.7 Bedtime procrastination among students

The study by Zhu et al. (2023) highlighted the growing issue of bedtime procrastination among Chinese college students, with over 52% reportedly delaying their bedtimes, often due to

electronic media use, particularly mobile phones. This behavior is linked to negative health outcomes such as poor sleep quality and increased daytime fatigue. The study involved a diverse sample of college students, including undergraduates and postgraduates, who participated voluntarily and provided informed consent. Data collection was standardized by trained researchers, and participants accessed the questionnaires via a QR code or link. Ethical considerations were upheld, with the study approved by the university's Research Ethics Committee, ensuring confidentiality and anonymity for all participants.

The study utilized instruments such as Boredom Proneness Scale to assess levels of boredom proneness, Bedtime Procrastination Scale to measure bedtime procrastination behaviors, Mobile Phone Addiction Tendency Scale to evaluate tendencies toward mobile phone addiction, and Depression-Anxiety-Stress Scale to assess negative emotions. The analysis employed the SPSS PROCESS macro to test the mediating effects of mobile phone addiction and negative emotions between boredom proneness and bedtime procrastination. A bias-corrected bootstrapping procedure was used to compute indirect effects, with age and gender included as covariates. A common method deviation test was performed using Harman's one-factor method, which indicated that the first factor explained only 24.2% of the variance, below the critical threshold of 40%. This finding suggested that common method bias was not a significant concern in the study.

The study found that higher levels of boredom proneness were directly associated with greater severity of bedtime procrastination among college students. This suggested that students who are more prone to boredom are likely to procrastinate going to bed. Mobile phone addiction was identified as a significant mediator in the relationship between boredom proneness and bedtime procrastination. Specifically, students with higher boredom proneness tended to exhibit

more mobile phone addiction, which in turn increased their likelihood of bedtime procrastination. Negative emotions, such as anxiety and depression, also served as mediators. The study indicated that boredom proneness led to increased mobile phone addiction, which raised levels of negative emotions, ultimately contributing to more bedtime procrastination behaviors (Zhu, et al., 2023).

Bedtime procrastination is defined as the voluntary delay of sleep without external factors, particularly prevalent among young adults. The study by Hou and Hu (2023), highlighted the increasing rates of depression among Chinese college students, linking it to unhealthy behaviors like emotional eating and procrastination. The paper posited that individuals with depression are more likely to experience high levels of perceived stress which can lead to avoidance behaviors, including bedtime procrastination. It suggested that depression may predict bedtime procrastination and emphasizes the need to explore the underlying mechanisms of this relationship, particularly through the lens of self-regulatory failure theory and rumination.

The study involved an online survey with 1,557 students, from which 1,136 valid responses were collected after rigorous screening for data integrity. The final sample consisted of 389 males and 747 females. The study utilized the Chinese version of the Beck Depression Inventory-II (BDI-II) to assess depressive symptoms, which demonstrated high reliability with a Cronbach's alpha coefficient of 0.96.

The Chinese version of the Bedtime Procrastination Scale was employed to measure bedtime procrastination, showing good reliability with a Cronbach's alpha coefficient of 0.86. The Chinese version of the Perceived Stress Scale was used to evaluate perceived stress, which also exhibited good reliability with a Cronbach's alpha coefficient of 0.82. The study assessed rumination using the Chinese version of the Ruminative Responses Scale, focusing on the

brooding subscale, which had a Cronbach's alpha coefficient of 0.80. The researchers employed Model 6 from the PROCESS macro to analyze the chained mediation model, utilizing bootstrap methods to ensure the significance of the mediating effects while controlling for multicollinearity.

A Harman single factor test indicated no significant common method deviations, as the maximum factor accounted for only 30.30% of the variance, which is below the 40% threshold. Preliminary analyses revealed significant correlations between gender, age, bedtime procrastination and perceived stress, leading to the inclusion of these variables as covariates in subsequent analyses. The results indicated that depression positively predicted both brooding and perceived stress while, perceived stress significantly predicted bedtime procrastination. However, brooding did not directly predict bedtime procrastination, and the direct effect of depression on bedtime procrastination was not significant when controlling for the mediators. The findings suggest that depression influences bedtime procrastination indirectly through perceived stress, with brooding acting as a chain mediator. The study highlights that non-clinical college students with depression are more likely to engage in bedtime procrastination as a strategy to manage negative emotions, which may lead to further complications in sleep patterns. The paper discusses the implications of these findings, noting that while bedtime procrastination may provide short-term emotional relief, it can adversely affect long-term health (Hou & Hu, 2023).

3. Methodology

3.1 Research design

This research used a cross-sectional design and quantitative method and the data was collected from respondents through questionnaires which had close-ended questions regarding

depression and procrastination. A cross-sectional study is a kind of study design where data from different individuals are collected at one point in time and other variables of interest without influencing them as, in a specific population, targeted by the researcher, they exist, in a time duration of either a single point or a short period (Cvetkovic-Vega, et al., 2021).

3.2 Research setting and population

This research was conducted online through distribution of questionnaires as well as distribution of printed questionnaires for getting response from post-graduate students, currently studying a master's degree program.

The target population of this research was post-graduate students who were enrolled in a master's degree program, irrespective of the subject and semester they were studying, while this research was being conducted.

3.3 Sampling and sample

In order to conduct this study, purposive sampling was used. This type of sampling is done when the researcher deliberately chooses respondents on the basis of their ability to provide data regarding our research question (Robinson, 2014). The sample size of this research is 305 post-graduate students who were enrolled in different subjects and different semesters.

3.4 Inclusion and exclusion criteria

The inclusion criteria for this research were that participants needed to give their full consent, without any force, for participation. They needed to be currently studying a master's degree, be it any subject or any semester.

The exclusion criteria were that participants who were not enrolled in any master's program were not allowed for participation in this research.

3.5 Data collection tool

Data was collected through online questionnaires in the form of Google Forms as well as through distribution of questionnaires in printed form. A 5- page questionnaire that consisted of twenty questions from Lay Procrastination Scale and twenty-one questions from Beck Depression Inventory was distributed among the students. Lay Procrastination Scale was developed by Clarry H. Lay and Beck Depression Inventory was developed by Aaron T. Beck.

The questionnaire also consisted of a small introduction of the researcher, purpose of the research and the assurance of confidentiality of the respondents' answers as well as personal information. The questionnaire also asked for consent of the students along with their name, age and academic background.

3.6 Data collection procedure

Data was collected through distribution of online forms to participants who were currently enrolled in a master's degree program by sending a link of Google Forms to each participant and explaining them about the research to get the maximum participation. Data was collected through distribution of printed questionnaires in different colleges and central departments of Tribhuvan University.

3.7 Data analysis

Data was analyzed through SPSS version 21. The research analyzed correlation of age with depression and procrastination. The study ran a t-test for Lay Procrastination Scale and Beck Depression Inventory on the basis of sex. An analysis of variance was conducted to assess the level of depression and procrastination among students. A t-test was conducted to compare the level of depression and procrastination among students of the basis of sex. One-way analysis of variance, commonly known as ANOVA, was carried out for calculating depression and

procrastination on the basis of semester. Correlation was conducted to assess the relationship of procrastination and depression, and age with procrastination and depression among students.

4. Results

The following are the tables that represent the statistics interpretation and reporting of the collected data.

The following table shows distribution of sample population representing the number of male and female students participating in the survey.

Table 1

Sex distribution of sample

		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	151	49.5	49.5	49.5
	Female	154	50.5	50.5	100.0
	Total	305	100.0	100.0	

Source: Field study, 2024

The table above shows the sex distribution of sample. Among 305 participants, 49.5% were male ($N = 151$), while 50.5% were female ($N = 154$).

The following table shows the sample distribution of students on the basis of four academic semesters.

Table 2

Sample distribution based on semester

	Frequency	Percent	Valid Percent	Cumulative Percent
Semester 1st	33	10.8	10.8	10.8

	2nd	154	50.5	50.5	61.3
	3rd	80	26.2	26.2	87.5
	4th	38	12.5	12.5	100.0
	Total	305	100.0	100.0	

Source: Field study, 2024

The above table shows that 10.8% of participants were from first semester, 50.5% from second semester, 26.2% from third semester, and 12.5% from fourth semester. Highest number of participants are of second semester (*N*= 154) and the lowest of first (*N* = 33).

The following table represents the level of severity of depression scores according to Beck Depression Inventory.

Table 3

Severity of BDI score interpretation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Minimal	118	38.7	38.7	38.7
	Mild	54	17.7	17.7	91.5
	Moderate	107	35.1	35.1	73.8
	Severe	26	8.5	8.5	100.0
	Total	305	100.0	100.0	

Source: Field study, 2024

In the analysis, 38.7% of respondents reported minimal level of depression, 35.1% reported a mild level of depression, 17.7% reported a moderate level of depression, and 8.5% reported sever level depression. The most common BDI level among participants is minimal, indicating a relatively low level of depressive symptoms in the sample.

The following table represents the summary of the total statistics of the collected data that is representative of the entire sample population.

Table 4

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	305	20	72	27.86	5.184
PCS	305	34	89	58.48	10.420
BDI	305	0	63	14.01	10.613
Valid N (listwise)	305				

Source: Field study, 2024

Among 305 participants, ages ranged from 20 to 72 years (M = 27.86, SD = 5.184). The Lay Procrastination Scale (PCS) scores ranged from 34 to 89 (M = 58.48, SD = 10.420), and the Beck Depression Inventory (BDI) scores ranged from 0 to 63 (M = 14.01, SD = 10.613).

The following table represents the t-test carried out for comparing depression scores and procrastination scores among male and female students.

Table 5

T-test for Procrastination Scale and Beck Depression Inventory on the basis of sex

Group Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
PCS	Male	151	58.13	10.680	.869
	Female	154	58.82	10.182	.820
BDI	Male	151	13.23	10.392	.846
	Female	154	14.78	10.804	.871

Source: Field study, 2024

For the procrastination scale, males (N = 151) had a mean score of 58.13 (SD = 10.68), while females (N = 154) had a mean score of 58.82 (SD = 10.18). For the BDI, males reported a mean score of 13.23 (SD = 10.39), compared to females, who had a mean score of 14.78 (SD = 10.80).

These results indicate that while there are differences in mean scores between the sexes for both procrastination and depression.

The following table represents the independent samples t-test carried out for finding any existence of differences between procrastination scores and depression scores between sexes.

Table 6

Independent Samples T-test for procrastination scale and BDI

		F	Sig.	t	df	Sig. (2-tailed)
PCS	Equal variances assumed	.195	.659	-.585	303	.559
	Equal variances not assumed			-.585	301.627	.559
BDI	Equal variances assumed	.114	.736	-1.280	303	.202
	Equal variances not assumed			-1.280	302.889	.201

Source: Field study, 2024

For the PCS, Levene's test indicated that the assumption of equal variances was met, F (1,303) = 0.195, p = 0.659, F (1,303) = 0.195, p = 0.659, F (1,303) = 0.195, p=0.659. The t-test results showed no significant difference in PCS scores between males (M = 58.13, SD = 10.68) and females (M = 58.82, SD = 10.18), t (303) = −0.585, p = 0.559, t (303) = -0.585, p = 0.559, t (303) = −0.585, p = 0.559.

For the BDI, Levene's test also confirmed equal variances, F (1,303) = 0.114, p = 0.736, F (1, 303) = 0.114, p = 0.736, F (1,303) = 0.114, p = 0.736. The t-test indicated no significant difference in BDI scores between males (M = 13.23, SD = 10.39) and females (M = 14.78, SD = 10.80), t (303) = −1.280, p = 0.202, t (303) = -1.280, p = 0.202, t (303) = −1.280, p = 0.202.

These findings suggest that there are no significant differences in procrastination or depression scores between sexes in this sample.

The following table shows the analysis of variance run to compare depression level and procrastination level among students of different semesters.

Table 7

One-way ANOVA for PCS and BDI on the basis of Semester

Descriptives

		N	Mean	Std. Deviation
PCS	1	33	59.58	8.062
	2	154	58.62	10.139
	3	80	58.04	11.487
	4	38	57.89	11.277
	Total	305	58.48	10.420
BDI	1	33	14.27	12.570
	2	154	15.36	10.215
	3	80	12.51	9.581
	4	38	11.47	11.925
	Total	305	14.01	10.613

Source: Field study, 2024

For the PCS, the mean scores across groups were as follows: Group 1 (*N* = 33) had a mean score of 59.58 (*SD* = 8.062), Group 2 (*N* = 154) had a mean score of 58.62 (*SD* = 10.139), Group 3 (*N* = 80) had a mean score of 58.04 (*SD* = 11.487), and Group 4 (*N*= 38) had a mean score of 57.89 (*SD* = 11.277). The overall mean score for PCS across all participants (*N* = 305) was 58.48 (*SD* = 10.420).

For the BDI, the mean scores were as follows: Group 1 (*N* = 33) had a mean score of 14.27 (*SD* = 12.570), Group 2 (*N* = 154) had a mean score of 15.36 (*SD* = 10.215), Group 3 (*N* = 80) had a mean score of 12.51 (*SD* = 9.581), and Group 4 (*N* = 38) had a mean score of 11.47 (*SD* = 11.925). The overall mean score for BDI across all participants was 14.01 (*SD* = 10.613).

These results indicate variability in both PCS and BDI scores across the different groups.

The below table shows the analysis of variance conducted to assess the level of relationship between depression and procrastination among students.

Table 8

ANOVA for PCS and BDI

		Sum of Squares	df	Mean Square	F	Sig.
PCS	Between Groups	71.188	3	23.729	.217	.885
	Within Groups	32938.923	301	109.432		
	Total	33010.111	304			
BDI	Between Groups	705.607	3	235.202	2.111	.099

Within Groups	33535.364	301	111.413
Total	34240.970	304	

Source: Field study, 2024

For the PCS, the analysis revealed no significant differences between groups, F (3,301) = 0.217, p = 0.885, F (3, 301) = 0.217, p = 0.885, F (3,301) = 0.217, p = 0.885. The total sum of squares was 33,010.11, with 71.188 attributable to between-group variability and 32,938.923 to within-group variability.

For the BDI, the one-way ANOVA indicated a trend toward significance, F (3,301) = 2.111, p=0.099, F (3, 301) = 2.111, p = 0.099, F (3,301) = 2.111, p = 0.099. The total sum of squares for BDI was 34,240.97, with 705.607 attributed to between-group variability and 33,535.364 to within-group variability.

These results suggest that while there are no significant differences in PCS scores, there may be a trend in BDI scores that warrants further investigation.

The following table shows the analysis of correlation of age with depression and procrastination among the students.

Table 9

Correlation of age and procrastination and depression

		Age	PCS	BDI
Age	Pearson Correlation	1	-.039	-.080
	Sig. (2-tailed)		.499	.161

	N	305	305	305
PCS	Pearson Correlation	-.039	1	-.013
	Sig. (2-tailed)	.499		.819
	N	305	305	305
BDI	Pearson Correlation	-.080	-.013	1
	Sig. (2-tailed)	.161	.819	
	N	305	305	305

Source: Field study, 2024

There were no significant correlations found between age and procrastination (r = -0.039, p = 0.499) or age and depression (BDI) (r = -0.080, p = 0.161). Additionally, there was no significant correlation between PCS and BDI (r = -0.013, p = 0.819).

5. Discussion and Conclusion

This study aimed to explore the relationship between depression and procrastination among master's level students, with a focus on gender, age, and semester-based differences. The findings provide valuable insights into how depressive symptoms and procrastination behaviors interact within an academic context, confirming as well as contrasting previous research while adding new dimensions to understanding these phenomena.

The results show no significant relationship between depression and procrastination, contrasting with earlier studies that found depressive symptoms often exacerbate procrastination tendencies. This is in contrast with research by Jochmann et al. (2024) who identified procrastination as a contributing factor to heightened stress, depression, and anxiety among students. The positive correlation between depression and procrastination supports the procrastination-health model, indicating that individuals suffering from depression are more likely to delay academic tasks, further aggravating their mental health.

A study done by Steel and Ferrari (2013) showed that academic context and population-specific characteristics can moderate the effects of procrastination, and postgraduate students may be a distinctive sample that doesn't exhibit a strong relationship between these two variables. Master's level students often have higher levels of motivation and self-discipline, which may undermine the typical relationship between depression and procrastination (Steel & Ferrari, 2013).

A study conducted by Sirois and Pychyl (2013) showed that variables like academic engagement, career motivation, or study habits could confound the relationship. For instance, highly engaged students may experience depressive symptoms but still manage to stay on track with their studies. Engagement may buffer the link between procrastination and depression by

motivating students to complete tasks, even when feeling low. The study emphasized that depression leads to procrastination when it affects motivation, so if motivation levels are high, the link might be less apparent (Sirois & Pychyl, 2013).

The lack of a relationship between depression and procrastination in master's students may stem from the unique characteristics of the sample population such as high motivation, social support and resilience or the tools used to measure these constructs. Variables such as academic engagement, cultural context, and confounding factors like academic semester or sex may also play moderating roles.

The results show that a considerable portion of the students exhibit minimal levels of depressive symptoms followed by moderate, mild and then, smallest portion of participants having severe depression. The results show no change in depression levels along with age. This finding is in contrast with a study done among college students in Mangalore city which showed that depression significantly increased along with age (Naushad, et al., 2014). Similarly, no relation between procrastinate with age has been found.

The results show no significant difference between males and females in terms of both, depression and procrastination. Contrary to this, findings by (Khesht-Masjedi, et al., 2019) revealed that boys were more depressed than girls in terms of academic achievement. When examining gender differences, no kind of statistically significant differences between both sexes has been found suggesting that both genders experience these issues similarly. This contradicts some previous studies, such as those by Gutic et al. (2023) which found that depression significantly predicted procrastination in female students, but not in males. It is possible that cultural, educational, or environmental factors influenced the current sample, pointing to the need for further research to investigate these discrepancies across different populations. This can

be supported by a similar study done by Dukku et al. (2021) where they found no significant difference between males' and females' procrastination on research conducted among undergraduate students of Gombe State University. There is no significant relation between depression and the other variables as well as procrastination and the other variables like age, sex and academic semesters.

The results show that majority of the students were studying in second semester during the time that this data was collected whereas students from first semester have minority in this sample size. No significant relationship has been found between academic semesters and depression or procrastination whereas a study done by Manjari and Pandey (2017) showed no significant difference in depression scores among first and last year students.

In terms of practical implications, the results highlight the importance of mental health interventions in educational settings. Given that depression and procrastination feed into each other, institutions should provide mental health support, particularly for students who are prone to depressive symptoms. As several studies have suggested, psychological counseling and time management workshops may help break the cycle of procrastination and depression. Additionally, personalized strategies, including cognitive-behavioral interventions, may empower students to manage their emotional and academic challenges more effectively.

While this study offers significant insights, it also underscores the need for further research in several areas. A more nuanced understanding of the causal relationship between depression and procrastination is required. Longitudinal studies that track these variables over time would be beneficial in determining whether procrastination leads to worsening depressive symptoms or vice versa.

The study's reliance on self-reported data introduces potential bias, as students may underreport symptoms due to stigma associated with mental health. Future research could combine quantitative measures with qualitative approaches, such as interviews or focus groups, to explore the lived experiences of students dealing with depression and procrastination. Also, given the growing reliance on digital learning environments, particularly post-pandemic, examining the role of online learning and digital distractions on procrastination could be a valuable addition. Studies focusing on the effects of social media and screen time, as highlighted by Rogowska and Cincio (2024) could uncover new dimensions in how procrastination and mental health issues manifest in modern educational settings. The study provides valuable insights into the distribution and levels of depression, procrastination, and age across different groups, paving the way for future research in this area.

References

Abdullah, M. Q. (2017). Procrastination and its relationship with mental health among children and adolescents. *Psychology and Behavioural Science International Journal*, 001-008. https://doi.org/10.19080/PBSIJ.2017.04.555649

Aftab, S., Klibert, J., Holtzman, N., Qadeer, K., & Aftab, S. (2017). Schemas mediate the link between procrastination and depression: Results from the United States and Pakistan. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 329-345. https://doi.org/10.1007/s10942-017-0263-5

Baing, J., Cedro, J. C., Afable, R. K., Cruz, C. M., & Bejar, E. (2023). Procrastination and Its relationship to the academic burnout of freshmen college students. *Psychology and Education*, 287-292. https://doi.org/10.5281/zenodo.8191225

Batool, H., Khan, A. M., & Saba, N. (2019). Comparative study of depression and procrastination among clinically diagnosed depressive patients and general population of Punjab. *Pakistan Journal of Humanities & Social Sciences Research*, 39-47.

Brenllaa, M. E., Lama, R. G., Marengo, I. R., & Cricq, E. S. (2022). Future time perspective, procrastination and academic motivation in Argentinian college students during the pandemic. *Psychological Thought*, 215-241. https://doi.org/10.37708/psyct.v15i1.640

Cahyaratri, M. T., Saktini, F., Asikin, H. G., & Sumekar, T. A. (2022). The relationship of academic procrastination with stress, anxiety, and depression during the Covid-19 pandemic in students of the medical study program, faculty Of medicine, UNDIP. *Diponegoro Medical Journal*., 149-153.

Cjuno, J., Palomino-Ccasa, J., Silva-Fernandez, R. G., Soncco-Aquino, M., Lumba-Bautista, O., & Hernández, R. M. (2022). Academic procrastination, depressive symptoms and suicidal ideation in university students: A look during the pandemic. *Iranian Journal of Psychiatry*. 11-17.

Cvetkovic-Vega, A., Maguiña, J. L., Soto, A., Lama-Valdivia, J., & López, L. E. (2021). Cross-sectional Studies. *Revista de la Facultad de Medicina Humana*, 179-185. https://doi.org/10.25176/RFMH.v21i1.3069

Dardara, E. A., & Al-Makhalid, K. A. (2022). Procrastination, negative emotional symptoms, and mental well-being among college students in Saudi Arabia. *Annals of Psychology*, 17-24. https://doi.org/10.6018/analesps.462041

Dautov, D. (2020). Procrastination and laziness rates among students with different academic performance as an organizational problem. *E3S Web of Conferences*. 1-10. https://doi.org/10.1051/e3sconf/202021018078

Devi, R., & Dhull, D. P. (2017). Procrastination: :A behavior need to be changed to get success. *International Education & Research Journal*, 475-476.

Djamahar, R., Dewahrani, Y. R., & Octaviani, R. (2020). Relationship between self-esteem and negative emotional state with academic procrastination in final level students. *Indonesian Journal of Biology Education*, 6-12.

Dukku, M. K., Msheliza, J. D., & Njidda, B. (2021). Effects of age and gender on procrastination: A study of Gombe State University undergraduate students. *Lapai International Journal of Administration*, 139-154.

Gutić, M., Vukčević, B., Stevanović, A., Milidrag, A., Bulatović, I., & Safiye, T. (2023). Procrastination and mental health status among students in Serbia: a cross-sectional study. *Journal of Educational & Psychological Research*, 632-637.

Hou, X., & Hu, J. (2023). Depression and bedtime procrastination: Chain mediation of brooding and perceived stress . *Heliyon*. 1-8. https://doi.org/10.1016/j.heliyon.2023.e22672

Jannatunnura, & Adani, S. (2023). The relationship between depression and academic procrastination in EFL classroom. *Nusantara Hasana Journal*, 89-95.

Jiao, Q. G., DaRos-Voseles, D. A., Collins, K. M., & Onwuegbuzie, A. J. (2011). Academic procrastination and the performance of graduate-level cooperative groups in research methods courses. *Journal of the Scholarship of Teaching and Learning*, 119 – 138.

Jochmann, A., Gusy, B., Lesener, T., & Wolter, C. (2024). Procrastination, depression and anxiety symptoms in university students: a three-wave longitudinal study on the mediating role of perceived stress. *BMC Psychology*. 1-13. https://doi.org/10.1186/s40359-024-01761-2

Johansson, F., Rozental, A., Edlund, K., Côté, P., Sundberg, T., Onel, C., . . . Skillgate, E. (2023). Associations between procrastination and subsequent health outcomes among university students in Sweden. *JAMA Network Open*. 1-11. https://doi.org/10.1001/jamanetworkopen.2022.49346

Jose, L., & Vijayan, D. (2021). Procrastination and locus of control among postgraduate students. *The International Journal of Indian Psychology*, 151-157. https://doi.org/10.25215/0903.018

Karthikeyan, R., & Bhaumik, A. (2021). A qualitative study of unintentional procrastination, depression and body image in India. *International Journal of Multidisciplinary Advanced Scientific Research and Innovation*, 142-148. https://doi.org/10.53633/IJMASRI

Khalifa, T. S. (2023). Performance perfectionism and its relation to academic procrastination and depression among early childhood student teachers. *Information Sciences Letters*, 1589-1598. http://dx.doi.org/10.18576/isl/120508

Kuftyak, E. V. (2022). Procrastination, stress and academic performance in students. *ARPHA Proceedings*, 965-974. https://dx.doi.org/10.3897/ap.5.e0965

Khesht-Masjedi, M. F., Shokrgozar, S., Abdollahi, E., Habibi, B., Asghari, T., Ofoghi, R. S., & Pazhooman, S. (2019). The relationship between gender, age, anxiety depression, and academic achievement among teenagers. *Journal of Family Medicine and Primary Care* , 799-804. https://doi.org/10.4103/jfmpc.jfmpc_103_18

Liu, G., Cheng, G., Hu, J., Pan, Y., & Zhao, S. (2020). Academic self-efficacy and postgraduate procrastination: A moderated mediation model. *Frontiers in Psychology*. 1-9. https://doi.org/10.3389/fpsyg.2020.01752

Manjari, & Pandey, D. V. (2017). Comparison of depression among freshmen and last year college students. *The International Journal of Indian Psychology*, 33-38. https://doi.org/10.25215/0501.084

Naushad, S., Farooqui, W., Sharma, S., Rani, M., Singh, R., & Verma, S. (2014). Study of proportion and determinants of depression among college students in Mangalore city. *Nigerian Medical Journal*, 156-160. https://doi.org/10.4103/0300-1652.129657

Nazari, S., Ajorpaz, N. M., Sadat, Z., Hosseinian, M., & Esalatmanesh, S. (2021). The relationship between academic procrastination and depression in students of Kashan university of medical sciences. *International Archives of Health Sciences*, 154-158. https://doi.org/10.4103/iahs.iahs_1_21

Okoye, K. R., & Oghenekaro, O. M. (2020). Relationship between self-esteem, academic procrastination and test anxiety with academic achievement of post graduate diploma in education (PGDE) students in Delta State University, Abraka. *International Scholars Journal of Arts and Social Science Research*, 37-47.

Rezaei-Gazki, P., Ilaghi, M., & Masoumian, N. (2024). The triangle of anxiety, perfectionism and academic procrastination: exploring the correlates in medical and dental students. *BMC Medical Education*. 1-7. https://doi.org/10.1186/s12909-024-05145-3

Robinson, R. (2014). Purposive Sampling. *Encyclopedia of Quality of Life and Well-Being Research*. https://doi.org/10.1007/978-94-007-0753-5_2337

Rogowska, A. M., & Cincio, A. (2024). Procrastination mediates the relationship between problematic TikTok use and depression among young adults. *Journal of Clinical Medicine*. 1-17. https://doi.org/10.3390/jcm13051247

Romash, I. (2020). The nature of the manifestation of procrastination level of anxiety and depression in medical students in a period of altered psycho-emotional state during forced social distancing because of pandemic COVID-19 and its impact on academic performance. *Mental Health: Global Challenges Journal*. http://doi.org/10.32437/mhgcj.v4i2.92

Rozental, A., Forsström, D., Hussoon, A., & Klingsieck, K. B. (2022). Procrastination among university students: Differentiating severe cases in need of support from less severe cases. *Frontiers in Psychology*. 1-15. https://doi.org/10.3389/fpsyg.2022.783570

Saplavska, J., & Jerkunkova, A. (2018). Academic procrastination and anxiety among students. *Engineering for Rural Development*, 1192-1197. https://doi.org/10.22616/ERDev2018.17.N357

Sirois, F., & Pychyl, T. (2013). Procrastination and the priority of short-term mood regulation: Consequences for future self. *Social and Personality Psychology Compass*, 115-127. https://doi.org/10.1111/spc3.12011

Steel, P., & Ferrari, J. (2013). Sex, Education and procrastination: An epidemiological study of procrastinators' characteristics from a global sample. *European Journal of Personality*, 51-58. https://doi.org/10.1002/per.1851

Traş, Z., & Gökçen, G. (2020). Academic procrastination and social anxiety as predictive variables internet addiction of adolescents. *International Education Studies*, 23-35. https://doi.org/10.5539/ies.v13n9p23

Wirajaya, M., Padmadewi, N., & Ramendra, D. (2020). Investigating the academic procrastination of EFL students. *Jurnal Pendidikan Bahasa Inggris Indonesia*, 67-77.

World Health Organization. (2023, 03 31). Retrieved from World Health Organization: https://www.who.int/news-room/fact-sheets/detail/depression

Yang, L., Liu, Z., Shi, S., Dong, Y., Cheng, H., & Li, T. (2022). The mediating role of perceived stress and academic procrastination between physical activity and depressive symptoms

among Chinese college students during the Covid-19 pandemic. *International Journal of Environmental Research and Public Health*. 4329-4340. https://doi.org/10.2147/PRBM.S431615

Yikuan, Y. (2021). The relationship between academic procrastination and stress in times of uncertainty. *Frontiers in Educational Research*, 68-72. https://doi.org/10.25236/FER.2021.040913

Zhu, Y., Liu, J., Wang, Q., Huang, J., Li, X., & Liu, J. (2023). Examining the association between boredom proneness and bedtime procrastination among Chinese college students: a sequential mediation model with mobile phone addiction and negative emotions. *Psychology Research and Behavior Management*, 4329–4340. https://doi.org/10.2147/PRBM.S431615