Psychopharmacology Bulletin

COUNTRY

United States

Universities and research institutions in United States

Media Ranking in United States

SUBJECT AREA AND CATEGORY

Medicine
Pharmacology (medical)
Psychiatry and Mental Health

PUBLISHER

MedWorks Media LLC

SJR 2024

0.561 Q3

H-INDEX

66

PUBLICATION TYPE

Journals

ISSN

00485764, 24722448

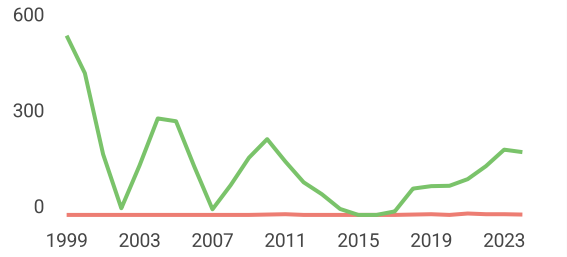
COVERAGE

1963-1967, 1969-1998, 2001-2004, 2006-2012, 2016-2025

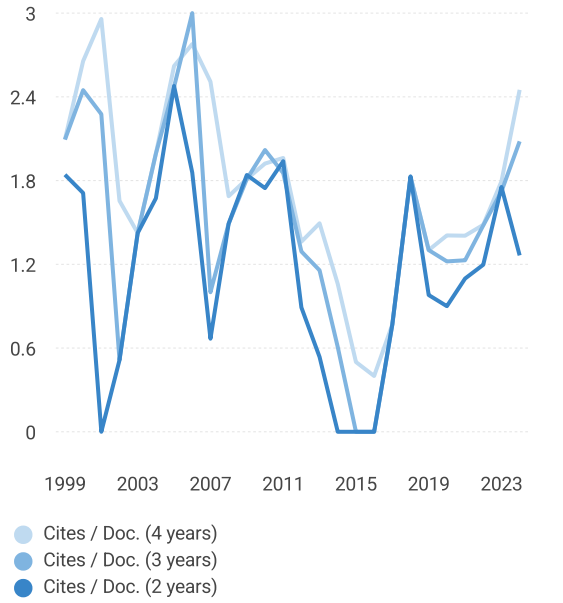
INFORMATION

Homepage

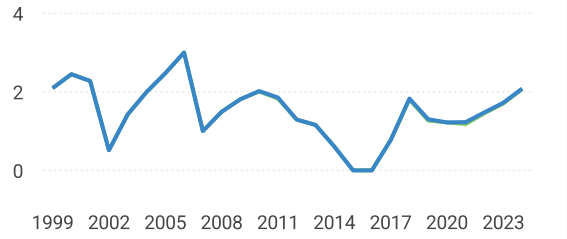
Total Cites Self-Cites



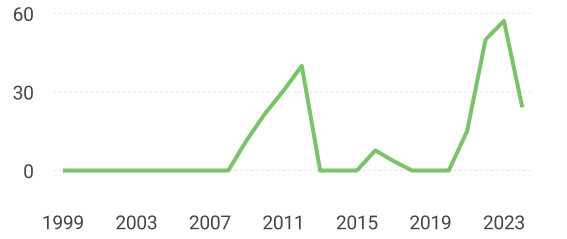
Citations per document



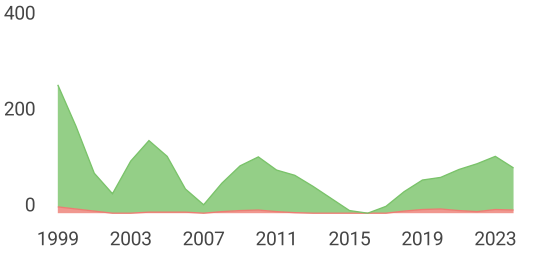
External Cites per Doc Cites per Doc



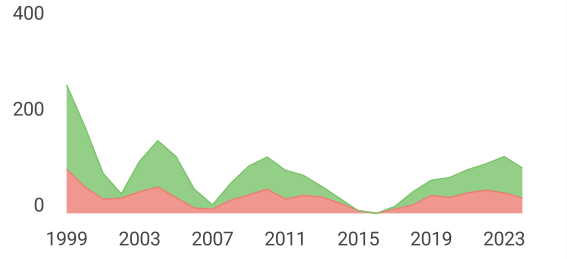
% International Collaboration



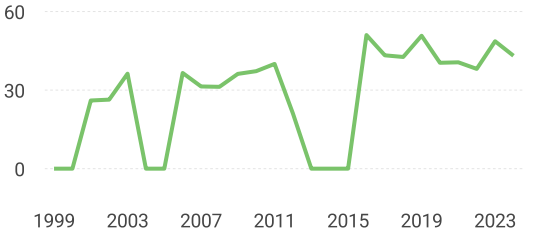
Citable documents Non-citable documents



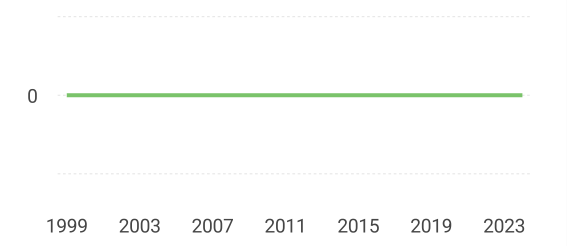
Cited documents Uncited documents



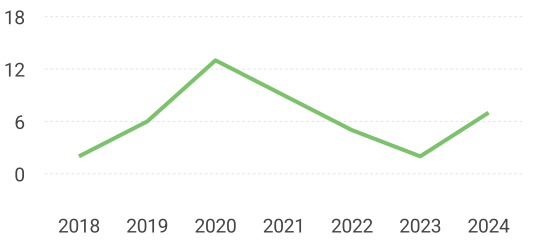
% Female Authors



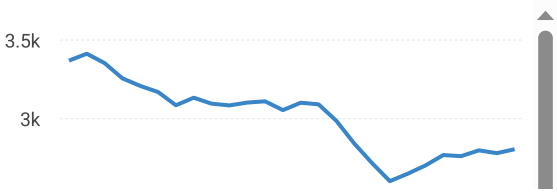
Documents cited by public policy (Overton)

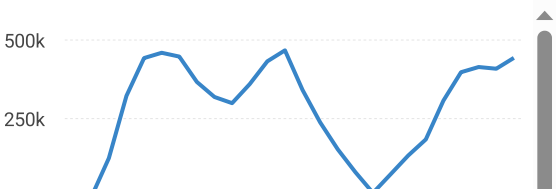


Documents related to SDGs (UN)



Estimated APC Estimated financial value





← Show this widget in your own website

Just copy the code below and paste within your html code:

```
<a href="https://www.scimag
```

SCImago Graphica

Explore, visually communicate and make sense of data with our **new data visualization tool**.

Metrics based on Scopus® data as of March 2025

Leave a comment

Name

Email
(will not be published)

I'm not a robot
reCAPTCHA
Privacy - Terms

Submit

The users of Scimago Journal & Country Rank have the possibility to dialogue through comments linked to a specific journal. The purpose is to have a forum in which general doubts about the processes of publication in the

MEDWORKS MEDIA
THE VOICE OF SCIENCE

Authors & Editorial Advisors

Medworks Media and its journal group — led by *Psychopharmacology Bulletin* — has worked closely with a select group of medical thought leaders for the last twenty years. From the department chiefs of some of the most renowned hospital medical centers in the world, to the up-and-coming young investigators who are about to influence the fields of psychopharmacology and psychiatry, Medworks fosters close allegiances with this core group of editors and contributors. Please dive further into this section for a complete roster.

Click an author's name to navigate to their page.

Primary Contributors

- Michael E. Thase, MD
- Charles B. Nemeroff, MD
- Boadie W. Dunlop, MD
- James M. La Rossa Jr.

D

- Boadie W. Dunlop, MD, MS

G

- Jack M. Gorman, MD

H

- Steven E. Hyman, MD

K

- Herbert D. Kleber, MD
- K. Ranga Rama Krishnan, MB, ChB

L

- James M. La Rossa Jr.
- Jeffrey A. Lieberman, MD

N

- Charles B. Nemeroff, MD, PhD
- Philip T. Ninan, MD

T

- Michael E. Thase, MD

W

- Myrna M. Weissman, PhD

CONTACT US

58427 Joshua Lane
Yucca Valley CA 92284

+1 (917) 692-8000
support@medworksmedia.com
MedWorksMedia.com

USEFUL LINKS

About Us

Articles In Press

Author Guidelines

Authors and Editorial Advisors

Journal Supplements

Psychopharmacology 101

Psychopharmacology Bulletin

Psychotropics A-Z

RECENT PSYCHOPHARMACOLOGY BULLETIN ARTICLES

Pocket Reference Guide - The Black Book of Psychotropic Dosing and Monitoring - Digital PDF

Trends in Outpatient Buprenorphine Prescribing for Chronic Pain: A Retrospective

BRAIN SCIENCE BLOGS

› Johnson & Johnson Submits sNDA to FDA for Caplyta to Prevent Schizophrenia Relapse
July 13, 2025

› Autoimmune Diseases Linked to Increased Risk for Mood Disorders
July 4, 2025

› Semaglutide May Lower

Disability Scale (K-MIDS): A Proposal

Volume 55 • Number 4 • 2025

Psychopharmacology BULLETIN

ORIGINAL RESEARCH

Pilot Trial of SDX/d-MPH Adult ADHD Examining Effects Throughout the Day
Lenard A. Adler, Goyeon Cho, Terry Leon, Mariane Gutchman, Caleb A. Masland, Deepti Anbarasan

Effects of Valproate on Intracellular Calcium Ion Signaling: Implications for Mechanistic Research
Steven L. Dubovsky, Elsa Dauriguac, Sevin Kandefer

Prevalence of THC-Positive Urine Drug Screens in Patients Receiving Chronic Opioid Therapy: A Retrospective Review
Jamal Hasoon, Omar Viswanath, Ivan Urits, Alaa Abd-Elsayed, Alan D. Kaye

Methadone Prescribing Patterns at a Single Institution: A Retrospective Study and Clinical Implications
Jamal Hasoon, Amad Qadeer, Grant H. Chen, Omar Viswanath, Ivan Urits, Christopher L. Robinson

Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students
Rihana Yuara, Indrayadi Gunardi, Wiwiek Poedjiastoeti, Anggraeny Putri Sekar Palupi, Ade Prijanti Dwisaptarini, Jamison Wijaya, Julyne Andriyanto, Elizabeth Fitriana Sari

OPRM1 rs1799971 Polymorphism Predicts Differential Response to Extended-Release Naltrexone in Alcohol Use Disorder: The Interplay of Genetics and Motivation
Valentin Skryabin, Sergei Mirzakhan, Anton Masyakin, Sergei Pozdniakov, Valentina Ivanchenko, Valery Shipilov

GENERAL PSYCHIATRY

Systematic Review of Second-Generation Antidepressant Monotherapy for Acute Bipolar-II Depression
Ahmed Elmoualamy, Nicola Nerth, Jin Hong Park, Danielle J. Gerberi, Susan L. McElroy, Mark A. Frye, Balwinder Singh

COMPLICATED CASE HISTORIES

Gender Dysphoria & Dissociative Identity Disorder in Autism Spectrum Disorder
Snigdha Nandipati, Anuradha Reddy

Singing Without Speaking: A Unique Case of Psychogenic Speech and Voice Disorder in an Adolescent
Courtney Barth, Brianna Chang, Anuradha Reddy

Cannabidiol Induced Manic Episode: A Case Report
Anas Bin Auf, Razan A. Almalki, Noor M. Alkurmanyani

Reversible Lacosamide Interference in Electroconvulsive Therapy: A Case Report
Greg Miglis, Greg Nies, Molly Cindorella, Nona Nichols, Sahil Munjal

CLINICAL PERSPECTIVE

Genital Dysmorphia–A Valid Diagnostic Construct? and Psychopharmacological Options at Hand
Ahmed Naguy

LETTER TO THE EDITOR

Exploring the Potential Psychopharmacological Mechanisms Behind the Maniogenic Properties of Clozapine
Samuel Chollette-Tetrault, Mehrshad Bakhshi

Contraception and Mood Effects—Intended or Unintended?
Ahmed Naguy, Bibi Alamiri

MedWorks Media
Forward Science & Discovery

www.psychopharmbulletin.com www.medworksmedia.com

MEDWORKS MEDIA
THE VOICE OF SCIENCE

PSYCHOPHARMACOLOGY BULLETIN VOL 55 NO. 4 ARTICLES – 2025

Authors can request a digital copy of their article gratis by emailing **editorial@medworksmedia.com.** Please put "Author Request" in the subject line. No third parties please. Advisory Board members in good standing can request *any* item in the database. Please put "Advisory Board Request" in the subject line.

Sort by **Date** | Show **20 Products**

Pilot Trial of SDX/d-MPH Adult ADHD Examining Effects Throughout the Day

$30.00

Add to cart Details

Effects of Valproate on Intracellular Calcium Ion Signaling: Implications for Mechanistic Research

$30.00

Add to cart Details

Prevalence of THC-Positive Urine Drug Screens in Patients Receiving Chronic Opioid Therapy: A Retrospective Review

$30.00

Add to cart Details

Methadone Prescribing Patterns at a Single Institution: A Retrospective Study and Clinical Implications

$30.00

Add to cart Details

Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students

$30.00

OPRM1 rs1799971 Polymorphism Predicts Differential Response to Extended-Release Naltrexone in Alcohol Use Disorder: The Interplay of

Systematic Review of Second-Generation Antidepressant Monotherapy for Acute Bipolar-II Depression

$30.00

Gender Dysphoria & Dissociative Identity Disorder in Autism Spectrum Disorder

$30.00

cart

Singing Without Speaking: A Unique Case of Psychogenic Speech and Voice Disorder in an Adolescent

$30.00

Add to cart Details

Cannabidiol Induced Manic Episode: A Case Report

$30.00

Add to cart Details

Reversible Lacosamide Interference in Electroconvulsive Therapy: A Case Report

$30.00

Add to cart Details

Genital Dysmorphia-A Valid Diagnostic Construct? and Psychopharmacologic Options at Hand

$30.00

Add to cart Details

Exploring the Potential Psychopharmacological Mechanisms

Contraception and Mood Effects—

Add to cart Details

cart

CONTACT US

58427 Joshua Lane
Yucca Valley CA 92284

+1 (917) 692-8000
support@medworksmedia.com
MedWorksMedia.com

Privacy Policy
Cookie Policy

USEFUL LINKS

About Us

Articles In Press

Author Guidelines

Authors and Editorial Advisors

Journal Supplements

Psychopharmacology 101

Psychopharmacology Bulletin

Psychotropics A-Z

Subscriptions

RECENT PSYCHOPHARMACOLOGY BULLETIN ARTICLES

Pocket Reference Guide - The Black Book of Psychotropic Dosing and Monitoring - Digital PDF

Trends in Outpatient Buprenorphine Prescribing for Chronic Pain: A Retrospective Analysis Over 18 Months

Kuwait-Mental Illness Disability

BRAIN SCIENCE BLOGS

- Johnson & Johnson Submits sNDA to FDA for Caplyta to Prevent Schizophrenia Relapse
  July 13, 2025
- Autoimmune Diseases Linked to Increased Risk for Mood Disorders
  July 4, 2025
- Semaglutide May Lower Dementia Risk in T2 Diabetes
  July 4, 2025

Psychopharmacology Bulletin - Auf article accepted for publication

Revathy Kumar <revathy@medlar.in>
to me, James

Dear Dr.Indrayadi Gunardi,

We are an off-shore company working on behalf of MedWorks Media Inc. We are pleased to inform you that your manu
Depression in Preclinical and Clinical Dental Students" is being typeset as it goes through a fast-track review for p
of Psychopharmacology Bulletin.

Please plan us into your schedule in the coming days to review galley drafts of your article and answer queries. Your tir
has been a pleasure working with you and we hope to have the opportunity to do so again in the future. However, t
copies of the copyright agreement and any necessary letters of permission, which we will be sending in our next n
hesitate to contact us.

Yours sincerely,
Revathy

On behalf of:
James M. La Rossa Jr.
Editorial Director & Publisher
MEDWORKS MEDIA INC.

ATTACHMENTS: Nil

c. 917.692.8000
ceo@medworksmedia.com
editorial@medworksmedia.com

UNIVERSITAS TRISAKTI

Indrayadi Gunardi <indrayadi@trisakti.ac.id>

MWM-PB-Yusra: Page proof

2 messages

Revathy Kumar <revathy@medlar.in> Tue, Jun 24, 2025 at 7:54 PM
To: indrayadi@trisakti.ac.id
Cc: James La ROSSA <ceo@medworksmedia.com>

Dear Dr.Indrayadi Gunardi,

Please note that attached is **"Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students"** a PDF galley proof of your article for the upcoming issue of *Psychopharmacology Bulletin*.

Please look at this manuscript as carefully as possible and then e-mail any changes back to me at revathy@medlar.in. We will need your input no later than **two business days**. If no changes are warranted please e-mail me back with your approval.

Please keep in mind that this matter is enormously time-sensitive.

Many thanks for your considerable efforts.

Yours truly,

Revathy

On behalf of:

James M. La Rossa Jr.

Editorial Director & Publisher

MEDWORKS MEDIA INC.

c. 917.692.8000

ceo@medworksmedia.com

editorial@medworksmedia.com

Materials:

58427 Joshua Lane Yucca Valley, CA. 92284

http://www.linkedin.com/in/jameslaros

PB-Yusra.pdf
760K

UNIVERSITAS TRISAKTI

Indrayadi Gunardi <indrayadi@trisakti.ac.id>

Re: Psychopharmacology Bulletin - Yusra article accepted for publication

8 messages

Revathy Kumar <revathy@medlar.in> Tue, Jun 24, 2025 at 7:50 PM
To: indrayadi@trisakti.ac.id
Cc: James La ROSSA <ceo@medworksmedia.com>

Dear Dr.Indrayadi Gunardi,

I hope you have received my earlier mail.

Please complete and execute the forms attached to this e-mail in preparation for article publication in the Psychopharmacology Bulletin. It is important that you and the other authors who participated significantly in the writing of the manuscript complete the disclosure information provided as carefully as possible. We will keep this information on file so that the forms can be updated in the event of future submissions.

Please forward the disclosure documents to your fellow contributors and then e-mail the completed forms back to us at editorial@medworksmedia.com as soon as you are able.

Many thanks for your valuable time and effort.

Yours sincerely,
Revathy

On behalf of:
James M. La Rossa Jr.
Editorial Director & Publisher
MEDWORKS MEDIA INC.

On Tue, Jun 24, 2025 at 1:49 PM Revathy Kumar <revathy@medlar.in> wrote:

> Dear Dr.Indrayadi Gunardi,
>
> We are an off-shore company working on behalf of MedWorks Media Inc. We are pleased to inform you that your manuscript, **"Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students"** is being typeset as it goes through a fast-track review for publication in an upcoming issue of Psychopharmacology Bulletin.
>
> Please plan us into your schedule in the coming days to review galley drafts of your article and answer queries. Your timely response will be very much appreciated. It has been a pleasure working with you and we hope to have the opportunity to do so again in the future. However, the publication is pending the receipt of signed copies of the copyright agreement and any necessary letters of permission, which we will be sending in our next mail. If you have any questions, please do not hesitate to contact us.
>
> Yours sincerely,
>
> Revathy
>
> On behalf of:
>
> James M. La Rossa Jr.
>
> Editorial Director & Publisher
>
> MEDWORKS MEDIA INC.
>
> ATTACHMENTS: Nil

c. 917.692.8000

ceo@medworksmedia.com

editorial@medworksmedia.com

Materials:
58427 Joshua Lane Yucca Valley, CA. 92284
http://www.linkedin.com/in/jameslaross

4 attachments

BULLETIN_Copyright.doc
40K

Request for Disclosure info.doc
28K

Statement of Disclosure.doc
38K

Policy on Disclosure.doc
39K

---

indrayadi <indrayadi@trisakti.ac.id> Wed, Jun 25, 2025 at 7:04 AM
To: Drg Yohana Yusra <yohanayusra@yahoo.com>

Sent from my Galaxy
[Quoted text hidden]

4 attachments

BULLETIN_Copyright.doc
40K

Request for Disclosure info.doc
28K

Statement of Disclosure.doc
38K

Policy on Disclosure.doc
39K

Indrayadi Gunardi <indrayadi@trisakti.ac.id> Wed, Jun 25, 2025 at 11:05 AM
To: Revathy Kumar <revathy@medlar.in>
Cc: Drg Yohana Yusra <yohanayusra@yahoo.com>

Dear Revathy,

I send you
1. Proofread the manuscript with comments (PDF file)
2. Statement of disclosure from all authors (PDF file)
3. Bulletin copyright from correspondence author (PDF file)

Regards
Dr. Indrayadi
[Quoted text hidden]

3 attachments

BULLETIN_Copyright.pdf
172K

Statement of Disclosure.pdf
175K

PB-Yusra_IG.pdf
840K

Indrayadi Gunardi <indrayadi@trisakti.ac.id> Wed, Jun 25, 2025 at 12:16 PM
To: Revathy Kumar <revathy@medlar.in>

Dear Revathy,

I am sending you the following documents:

1. Proofread manuscript with comments (PDF)
2. Statement of disclosure from all authors (PDF)
3. Copyright agreement signed by the corresponding author (PDF)

Please let me know if anything further is required. Thank you

Best regards,
Dr. Indrayadi

[Quoted text hidden]

---

3 attachments

BULLETIN_Copyright.pdf
172K

Statement of Disclosure.pdf
175K

PB-Yusra_IG.pdf
840K

Revathy Kumar <revathy@medlar.in> Wed, Jun 25, 2025 at 12:57 PM
To: Indrayadi Gunardi <indrayadi@trisakti.ac.id>
Cc: Drg Yohana Yusra <yohanayusra@yahoo.com>

Dear Dr. Indrayadi Gunardi,

Please find attached the revised proof for your approval.

Regards
Revathy

[Quoted text hidden]

> [Quoted text hidden]
>
> **UNIVERSITAS TRISAKTI**
> ***"Is a one stop learning for sustainable development"***
> Kampus A, Jl. Kyai Tapa No.1, Grogol
> Jakarta Barat 11440 - INDONESIA
> www.trisakti.ac.id
> (t) +62-21.566 3232, (f) +62-21.567 3001

PB-Yusra (1).pdf
767K

Indrayadi Gunardi <indrayadi@trisakti.ac.id> Wed, Jun 25, 2025 at 1:05 PM
To: Revathy Kumar <revathy@medlar.in>

Dear Revathy,

I am sending you the following documents: Proofread manuscript with comments (PDF)

Please delete the sentence under figure 3 "**For age correlates with depression. ***For semester correlates with depression."

Please let me know if anything further is required.

Best regards,
Dr. Indrayadi

[Quoted text hidden]

PB-Yusra (1)_IG.pdf
776K

Revathy Kumar <revathy@medlar.in> Wed, Jun 25, 2025 at 2:45 PM
To: Indrayadi Gunardi <indrayadi@trisakti.ac.id>
Cc: James La ROSSA <ceo@medworksmedia.com>

Dear Dr.Indrayadi Gunardi,

Please find attached the updated version for your approval.

Regards
Revathy
[Quoted text hidden]

PB-Yusra (2).pdf
758K

Indrayadi Gunardi <indrayadi@trisakti.ac.id> Thu, Jun 26, 2025 at 10:12 AM
To: Revathy Kumar <revathy@medlar.in>

Dear Revathy,

I am sending you the following documents: Proofread manuscript with comments (PDF)

To editor: Please kindly revise the legend of Figure 3 as follows:
Before:
Spearman Correlation Between Variables in Both Groups (*p < 0.05)

After:
Spearman Correlation Between Variables in Both Groups (*p < 0.05; **p < 0.01)

To editor: Additionally, please note that the figure legend now includes definitions for the statistical significance markers (* and **) used in the figure. I confirmed that the asterisks are correctly placed next to the relevant values in the figure.

Please let me know if anything further is required.

Best regards,
Dr. Indrayadi
[Quoted text hidden]

PB-Yusra (2)_IG.pdf
781K

Key Words: anxiety, dental student, depression, stress

Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students

By Yohana Yusra, Indrayadi Gunardi, Wiwiek Poedjiastoeti, Anggraeny Putri Sekar Palupi, Ade Prijanti Dwisaptarini, Jamison Wijaya, Julvyn, Andrijanto, Elizabeth Fitriana Sari

ABSTRACT ~ ***Objective:*** *To compare factors correlating with stress, anxiety, and depression between dental students (DS) in preclinical (PP) and clinical programs (CP).* ***Method:*** *This study involved 165 DS, utilizing the DASS-21, GAD-7, PSS-10, and PHQ-9 assessments. The data were analyzed using the Rasch model and Spearman test.* ***Result:*** *The study included 38.18% in PP and 61.81% in CP (M:F 1:3.7), and a mean age of 21.99 ± 2.36 years. Person map revealed perceptual differences in anxiety and depression between groups, but not in stress. In the PP group, family was the sole factor correlating with stress ($p = 0.032$). Stress was the primary mental health concern among dental students, particularly during both preclinical and clinical programs. Anxiety and depression, though less common in the preclinical stage, increased significantly in the clinical phase. In the CP group, both supervisor and family ($p < 0.05$) were correlated with anxiety, while age and self-health ($p < 0.05$) were linked to depression.* ***Conclusion:*** *Stress was the primary mental health concern among dental students, particularly during both preclinical and clinical programs. Anxiety and depression, though less common in the preclinical stage, increased significantly in the clinical phase. Identifying factors such as family, supervisors, age, self-health, and academic progression is essential for developing effective strategies to support dental students' mental health.* Psychopharmacology Bulletin. *2025;55(4):55–67.*

Yusra, BDS, DDS, MKes, PhD, Department of Orthodontic, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Gunardi, BDS, DDS, Sp.PM, PhD, Department of Oral Medicine, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Poedjiastoeti, BDS, DDS, M.Kes, Sp.BM, PhD, Palupi, BDS, DDS, Sp.BM, PhD, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Dwisaptarini, BDS, DDS, Sp.KG, PhD, Department of Restorative Dentistry, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Wijaya, Julvyn, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Andrijanto, Faculty of Smart Technology and Engineering, Universitas Kristen Maranatha, Indonesia. Sari, BDS, DDS, Sp.PM, PhD, Dentistry and Oral Health Discipline, Department of Rural Clinical Science, La Trobe Rural Health School, Bendigo, VIC, Australia.

To whom correspondence should be addressed: Indrayadi Gunardi, BDS, DDS, Sp.PM, PhD, Department of Oral Medicine, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Phone: +6282114727167; E-mail: indrayadi@trisakti.ac.id.

Introduction

The mental well-being of dental students has received increasing attention due to the intense demands of their academic and clinical training. Dental students are frequently exposed to high levels of stress, with rigorous coursework, demanding clinical practice, and the expectation to achieve academic excellence. These pressures may lead to significant mental health challenges, specifically stress, anxiety, and depression, potentially impacting their personal lives, academic performance, and future professional practice,[1–3] academic performance,[4] and future professional practice.[5] According to epidemiological data, the levels of stress, anxiety, and depression among students have tended to increase in recent years. The prevalence among medical students is reported to be 59.3% for anxiety, 45.1% for stress, and 44% for depression.[6] For dental students, the prevalence is 55.99% for depression, 66.8% for anxiety, and 54.7% for stress.[7]

According to De Gregorio et al. the mental health challenges often escalate as students transition from preclinical to clinical stages in dental education.[8] While preclinical students primarily focus on theoretical learning and skill development, clinical students face additional stressors, including patient care responsibilities and close supervision by experienced practitioners. These added responsibilities could heighten feelings of inadequacy, performance anxiety, and academic pressure, which may amplify their risk of mental health issues.

The academic workload associated with dental education plays a significant role in the mental health of students. Extensive hours of study, frequent assessments, and the need for continuous academic excellence create a highly competitive environment. Students often experience sleep disturbances,[9] burnout,[10] and cognitive overload[11] as a result of trying to meet these demands. The cumulative nature of academic stress can impair students' coping abilities, leading to heightened anxiety and depressive symptoms, which may persist throughout their educational journey.

Effective coping strategies and access to support systems are essential to mitigate the psychological burden faced by dental students. Studies have shown that students who engage in mindfulness,[12] time management,[13] and physical exercise[14] experience lower levels of stress and anxiety. Moreover, institutional support, such as mental health counseling services, peer mentoring, and faculty guidance, can play a crucial role in fostering resilience. Universities that implement structured mental health programs have reported a significant reduction in students' anxiety and depression scores.[15]

The mental health challenges faced by dental students not only affect their academic journey but also have long-term implications for their professional practice. High levels of unresolved stress and anxiety during training have been linked to burnout and reduced job satisfaction among practicing dentists.[16] Furthermore, prolonged exposure to stressors during education may diminish empathy and affect the quality of patient care. Early intervention and mental health support during dental training are therefore crucial to ensure a smooth transition into professional roles and to safeguard future practitioners' well-being.

Understanding the specific factors associated with stress, anxiety, and depression among dental students is crucial for developing targeted interventions. This study aims to evaluate these factors in correlation between preclinical (PP) and clinical (CP) dental students (DS) in terms of mental health (stress, anxiety, and depression). By identifying specific stressors and vulnerabilities, the study provides insights that may inform mental health support strategies tailored to the unique needs of dental students at various stages of their education.

Method

Subject Recruitment

This observational, cross-sectional study included 323 dental students (DS), who were assessed using the validated Indonesian Depression, Anxiety and Stress Scale-21/DASS-21,[17] General Anxiety Disorder-7/GAD-7,[18] Perceived Stress Scale-10/PSS-10,[19] and Patient Health Questionnaire-9/PHQ-9[20] assessments. The inclusion criteria included current dental students who had not taken any exams or tests in the four weeks prior to the study, in order to minimize bias related to mental health. DS who did not complete all the questionnaires were excluded from the study. Informed consent was obtained prior to the questionnaire being filled. Ethical clearance was obtained from the Ethical Committee Faculty of Dentistry Universitas Trisakti No.050/S3/KEPK/FKG/8/2024.

Questionnaire

The DASS-21 consists of 21 items divided into three domains: depression, anxiety, and stress, assessing psychological conditions over the past week. The depression domain includes items #3, #5, #10, #13,

#16, #17, and #21. The anxiety domain includes items #2, #4, #7, #9, #15, #19, and #20. The stress domain includes items #1, #6, #8, #11, #12, #14, and #18. Respondents select one of four answer choices: 0 = "Never", 1 = "Sometimes", 2 = "Often", and 3 = "Almost always". Scoring is categorized as follows: Normal (depression [0–4], anxiety [0–3], stress [0–7]), Mild (depression [5–6], anxiety [4–5], stress [8–9]), Moderate (depression [7–10], anxiety (6–7), Stress (10–12]), Severe (depression [11–13], anxiety [8–9], stress [13–16]), and Extremely severe (depression [>14], anxiety [>10], stress [>17]).[21]

The GAD-7 comprises 7 items that assess generalized anxiety disorder symptoms over the past two weeks. Respondents choose from the following answer choices: 0 = "Not at all", 1 = "Several days", 2 = "More than half the days", and 3 = "Nearly every day". The total score is interpreted as follows: No to low risk anxiety (0–4), Mild anxiety (5–9), Moderate anxiety (10–14), and Severe anxiety (15–21).[22]

The PSS-10 is composed of 10 items that measure stress levels over the past month, divided into two domains: perceived helplessness and perceived self-efficacy. Items related to perceived helplessness include #1, #2, #3, #6, #9, and #10, while perceived self-efficacy includes items #4, #5, #7, and #8. The answer choices for perceived helplessness range from 0 = "Never" to 4 = "Very often", while the perceived self-efficacy domain is scored in reverse, from 4 = "Never" to 0 = "Very often". The total score is interpreted as follows: Very low stress (0–7), Low stress (8–11), Average stress (12–15), High stress (>21).[23]

The PHQ-9 assesses depressive symptoms over the past two weeks, covering nine areas: anhedonia, depressed mood, sleep disturbances, fatigue, appetite changes, feelings of worthlessness, concentration difficulties, psychomotor disturbances, and thoughts of death or self-harm. Respondents choose from four answer choices: 0 = "Not at all", 1 = "Several days", 2 = "More than half the days", and 3 = "Nearly every day". Total scores are interpreted as follows: No – minimal depression (0–4), Mild depression (5–9), Moderate depression (10–14), Moderately severe depression (15–19), and Severe depression (20–27).[24]

All of the questionnaires had a construct validity prior to the study. The Indonesian questionnaires were tested on 55 subjects. The Cronbach alpha for DASS-21 was 0.93, GAD-7 was 0.90, PSS-10 was 0.82, and PHQ-9 was 0.88. The item reliability for DASS-21 was

0.96 (separation 4.68), GAD-7 was 0.96 (separation 5.03), PSS-10 was 0.93 (separation 3.52), and PHQ-9 was 0.98 (separation 6.93). The eigenvalue score for unidimensionality of questionnaires was above 2. Google forms was used to distribute the questionnaire.

Data Analysis

Data analysis was conducted using the Rasch model and the Spearman test. The Rasch model was employed to assess the tendency of psychological mental issues, while the Spearman test was utilized to examine the correlation between variables. A significance level of $p < 0.05$ was set for all statistical analyses.

Result

The study initially included 323 subjects. However, 158 were excluded due to incoherent data or the absence of psychological disturbances. Ultimately, the study included a total of 165 dental students, 38.18% in PP and 61.81% in CP, with 21.21% males and 78.78% females, and a mean age of 21.99 ± 2.36 years (Table 1).

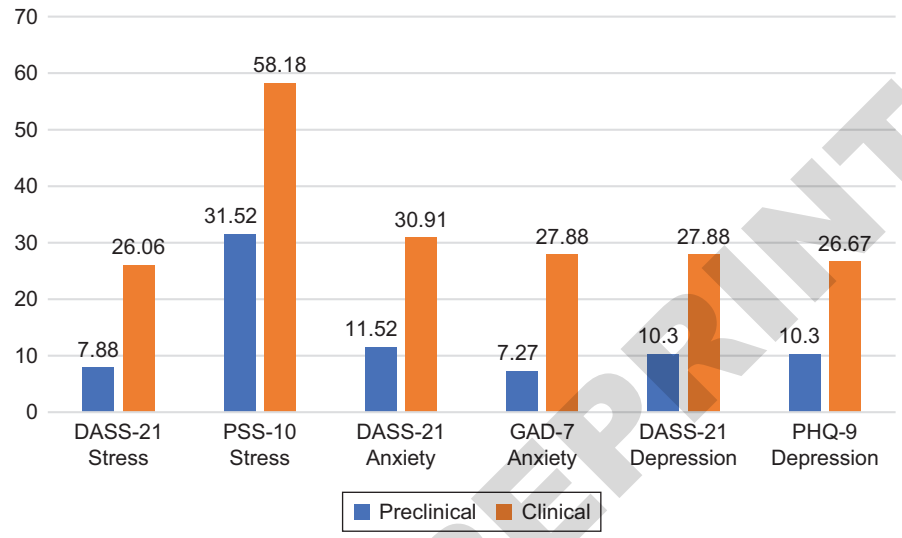
TABLE 1

Population Characteristics

VARIABLES	PRECLINICAL N = 63 N (%)	CLINICAL N = 102 N (%)
Gender		
Male	19 (30.2)	16 (15.7)
Female	44 (69.8)	86 (84.3)
Problems due to		
Academic	1 (1.6)	3 (2.9)
Clinical	–	11 (10.8)
Organization	10 (15.9)	7 (6.9)
Supervisor/lecturer	13 (20.6)	15 (14.7)
Friend/college	15 (23.8)	22 (21.6)
Family	23 (36.5)	19 (18.6)
Financial	32 (50.8)	12 (11.8)
Personal health	30 (47.6)	32 (31.4)
Other	2 (3.2)	0
Age [mean (SD)]	19.69 (1.06)	23.88 (1.55)
Semester [mean (SD)]	4.63 (1.70)	4 (1.06)
GPA [mean (SD)]	3.5 (0.32)	3.15 (0.75)

FIGURE 1

Percentage of Dental Students Categorized as Having More Than Moderate Impairment Based on Each Questionnaire Tool



The majority of dental students (31.52% and 58.18%) experienced stress in comparison to other mental health conditions (Figure 1). Person map analysis (Figure 2) revealed perceptual differences in anxiety and depression between groups, but not in stress. The PP group exhibited a higher tendency toward stress, whereas the CP group showed a greater inclination toward depression. Based on Figure 3, in the PP group, family was the sole factor correlating with stress ($r = 0.27$; $p = 0.032$). In the CP group, both supervisor ($p = 0.041$) and family ($p = 0.029$) were correlated with anxiety, while age ($r = 0.267$; $p = 0.009$) and self-health ($p = 0.016$) were linked to depression. Additionally, the number of semesters showed a significant correlation with both anxiety ($r = 0.244$; $p = 0.021$) and depression ($r = 0.276$; $p = 0.009$).

Discussion

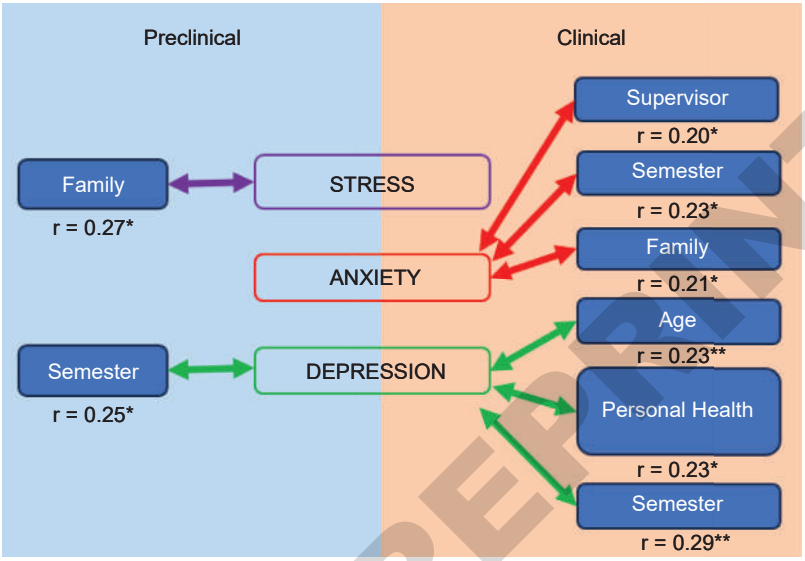
The findings of this study highlight significant differences in mental health experiences between preclinical and clinical dental students. In Table 1, preclinical dental students were more likely to have problems due to financial (50.8%), personal health (47.6%), and family (36.5%), while clinical dental students had problems due to personal health (31.4%), friends/colleagues (21.6%) and family (18.6%). Stress was found to be a prominent concern among both groups (31.52% and 58.18%), though it

FIGURE 2

Person Map Between Groups (A - Preclinical Program vs B - Clinical Program). D DASS-21; Q PHQ-9; G GAD-7; P PSS-10; s Stress; a Anxiety; d Depression. Red Box Indicate the Tendency of Psychological Issue Occurrence in Preclinical and Clinical Programs

FIGURE 3

Spearman Correlation Between Variables in Both Groups (*p < 0.05; **p < 0.01)



manifested differently (Figure 1). Based on previous publications, stress is a commonly observed mental health issue among medical and dental students, with a higher prevalence among those in clinical training.[25,26] Based on Rasch model analysis (Figure 2), preclinical dental students were likely prone to having stress, but clinical dental students to have stress and depression. According to Santabárbara et al., clinical dental students have a tendency to have depression with a prevalence of 37% (95% CI: 26–49%).[27]

In the preclinical group (Figure 3), family support was the primary factor correlated with stress ($r = 0.27$; $p = 0.029$), suggesting that support networks outside the academic environment play a crucial role in managing stress during the early stages of dental education. This finding aligns with previous studies indicating that familial support is a vital buffer against academic stress in young adults.[28,29] Family support may mitigate stress by providing emotional reassurance, financial stability, and practical assistance, which are particularly essential for students navigating the transition into a demanding academic setting.[30] Preclinical students, who are primarily focused on theoretical learning and skill acquisition, often encounter feelings of uncertainty and self-doubt. Unlike clinical students, they have limited exposure to real-life patient interactions, which may intensify feelings of inadequacy. In this context, family support can foster a sense of security, helping students build resilience and confidence as they prepare for the clinical phase

of their education. Furthermore, family support has been linked to the development of adaptive coping strategies, such as problem-solving and emotional regulation, which are essential for managing stressors in dental education.[30,31] When students perceive strong support from family members, they are more likely to engage in positive coping behaviors rather than maladaptive strategies like avoidance or withdrawal. As such, the presence of family support could reduce the physiological and psychological stress responses typically associated with academic pressures. However, it is also important to consider the variability of family support among students. Not all students have access to strong family support systems, which could lead to disparities in stress levels among the preclinical study participants.[32] Therefore, universities and dental faculties should consider providing additional support mechanisms, such as mentorship programs, peer support groups, and access to mental health counseling, to bridge this gap.

In contrast, clinical students experienced anxiety influenced by both family ($r = -0.21$; $p = 0.029$) and academic supervisors ($r = 0.20$; $p = 0.041$), suggesting that the added responsibility of patient care and clinical oversight may introduce new stressors not experienced in the preclinical phase. Supervisors often play dual roles as evaluators and mentors, which can create a pressure-filled environment for students, heightening stress and anxiety. This duality aligns with literature suggesting that supervisory relationships in clinical settings contribute to increased mental health strain among students due to the fear of negative evaluations and the desire to meet clinical expectations.[33,34] Anxiety in clinical settings has been well-documented, with studies suggesting that students often experience anticipatory anxiety regarding patient interactions and fear of making mistakes.[33] This study's findings are consistent with the notion that family support may act as a buffer against such anxieties, while the role of supervisors may inadvertently contribute to heightened anxiety due to evaluative pressures.

Depression among clinical students was also significantly associated with age ($r = 0.23$; $p = 0.009$) and personal health ($r = 0.23$; $p = 0.016$), indicating that older students and those with personal health concerns may be more susceptible to depressive symptoms. This correlation may reflect the cumulative effect of prolonged academic pressures and the physical demands of clinical work.[34] Clinical students are often required to balance patient care, academic performance, and personal obligations, all of which increase in intensity as students progress in their education. Older students may face additional responsibilities, such as family commitments or financial burdens, further exacerbating stress and depressive symptoms. Studies have suggested that students who have health concerns or who perceive themselves as physically unwell may

experience a higher vulnerability to depression,[29] further emphasizing the importance of holistic health support in academic settings. Health problems may disrupt students' daily routines, interfere with academic performance, and reduce the time available for self-care and relaxation. Chronic health conditions, in particular, may contribute to a sense of hopelessness, loss of control, and increased mental fatigue, all of which are risk factors for depression.[35] This relationship emphasizes the need for educational institutions to provide better access to health care and wellness programs tailored to students' unique needs. By addressing both physical and mental health, educational institutions may create a more supportive learning environment that promotes overall well-being. Age-related differences in depressive symptoms may also be linked to cognitive and emotional development.[36] Older students may demonstrate greater self-awareness and introspection, which can be beneficial for critical thinking.

Furthermore, the study found that the number of semesters correlated with anxiety ($p = 0.021$) and depression ($p = 0.009$), suggesting that as students progress through their dental education, the sustained pressures and increased responsibilities may contribute to cumulative mental health challenges. This finding supports the concept of academic burnout, where prolonged exposure to stressors without adequate coping mechanisms or support leads to mental exhaustion, a known risk factor for anxiety and depression.[37] The longer students remain in an academic program, the greater the cumulative effects of academic, clinical, and personal stressors, which may erode their psychological well-being over time. In dental education, each semester brings new challenges, such as more complex coursework, higher clinical demands, and growing expectations for academic performance. As these stressors accumulate, students may experience mental fatigue, which may impair cognitive function, increase emotional reactivity, and reduce the ability to manage stress.

The identified stressors and mental health outcomes among dental students underscore the need for tailored interventions at different stages of dental education. Early intervention programs focusing on stress management, resilience building, and coping strategies may be particularly beneficial for preclinical students, helping them develop skills to manage the rigors of clinical training.[38] Additionally, support systems that include accessible counseling, peer support groups, and structured mentorship programs could help mitigate the anxiety and depressive symptoms observed in clinical students.[39]

Implementing training for supervisors on supportive and non-evaluative feedback methods may also help reduce the stress and anxiety associated with clinical evaluations.[40] By promoting a more nurturing

clinical environment, students may feel more comfortable seeking guidance and support without fear of judgment, potentially reducing mental health risks and enhancing their learning experiences.

This study also has several limitations. The sample was drawn from only one dental education institution, which aimed to minimize potential bias from other factors such as socioeconomic status and resilience to psychological issues. Additionally, the sample size was limited because a portion of the subjects did not experience any psychological disturbances. Finally, these findings highlight the importance of holistic support that addresses both academic and personal aspects of student well-being. Institutions could consider initiatives such as mental health awareness campaigns, workshops on managing academic stress, and resources focused on promoting self-care practices among students. Such comprehensive approaches are essential to equip dental students with the tools necessary to navigate the challenges of their education while safeguarding their mental health.

Conclusion

Stress was the primary mental health concern among dental students, particularly during both preclinical and clinical programs. Anxiety and depression, though less common in the preclinical stage, increased significantly in the clinical phase. Identifying factors such as family, supervisors, age, self-health, and academic progression is essential for developing effective strategies to support dental students' mental health. ✤

Declaration of Conflicts of Interests

No potential conflict of interest was reported by the authors.

References

1. Danwiek J, Amtha R, Gunardi I. Management of oral mucositis: a systematic review. *Minerva Dental and Oral Science*. 2023;72(5):255–270. doi:10.23736/S2724-6329.23.04695-8
2. Defar S, Abraham Y, Reta Y, et al. Health related quality of life among people with mental illness: the role of socio-clinical characteristics and level of functional disability. *Front Public Health*. 2023;11:1134032. doi:10.3389/fpubh.2023.1134032
3. Nathaniel FA, Amtha R, Gunardi I, Hartanto FK, Sari EF. Enhanced knowledge inversed attitude of oral cancer risk habit associated with sociocultural: a quantitative and qualitative pilot study. *J Int Soc Prev Community Dent*. 2023;13(5):380–387. doi:10.4103/jispcd.JISPCD_20_23
4. Chu T, Liu X, Takayanagi S, Matsushita T, Kishimoto H. Association between mental health and academic performance among university undergraduates: the interacting role of lifestyle behaviors. *Int J Methods Psychiatr Res*. 2023;32(1):e1938. doi:10.1002/mpr.1938
5. Patel M, Swift S, Digesu A. Mental health among clinicians: what do we know and what can we do? *Int Urogynecol J*. 2021;32(5):1055–1059. doi:10.1007/s00192-021-04805-y
6. Shah P, Sapkota A, Chhetri A. Depression, anxiety, and stress among first-year medical students in a tertiary care hospital: a descriptive cross-sectional study. *JNMA J Nepal Med Assoc*. 2021;59(236):346–349. doi:10.31729/jnma.6420

7. Basudan S, Binanzan N, Alhassan A. Depression, anxiety and stress in dental students. *Int J Med Educ*. 2017;8:179–186. doi:10.5116/ijme.5910.b961
8. De Gregorio D, Aguilar-Valles A, Preller KH, et al. Hallucinogens in mental health: preclinical and Clinical Studies on LSD, Psilocybin, MDMA, and Ketamine. *J Neurosci*. 2021;41(5):891–900. doi:10.1523/JNEUROSCI.1659-20.2020
9. Alotaibi AD, Alosaimi FM, Alajlan AA, Bin Abdulrahman KA. The relationship between sleep quality, stress, and academic performance among medical students. *J Family Community Med*. 2020;27(1):23–28. doi:10.4103/jfcm.JFCM_132_19
10. Ishak W, Nikravesh R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. *Clin Teach*. 2013;10(4):242–245. doi:10.1111/tct.12014
11. Ghanbari S, Haghani F, Barekatain M, Jamali A. A systematized review of cognitive load theory in health sciences education and a perspective from cognitive neuroscience. *J Educ Health Promot*. 2020;9:176. doi:10.4103/jehp.jehp_643_19
12. An A, Hoang H, Trang L, et al. Investigating the effect of mindfulness-based stress reduction on stress level and brain activity of college students. *IBRO Neurosci Rep*. 2022;12:399–410. doi:10.1016/j.ibneur.2022.05.004
13. Ahmady S, Khajeali N, Kalantarion M, Sharifi F, Yaseri M. Relation between stress, time management, and academic achievement in preclinical medical education: a systematic review and meta-analysis. *J Educ Health Promot*. 2021;10:32. doi:10.4103/jehp.jehp_600_20
14. Lin Y, Gao W. The effects of physical exercise on anxiety symptoms of college students: a meta-analysis. *Front Psychol*. 2023;14. doi:10.3389/fpsyg.2023.1136900
15. Osborn TG, Li S, Saunders R, Fonagy P. University students' use of mental health services: a systematic review and meta-analysis. *Int J Ment Health Syst*. 2022;16(1):57. doi:10.1186/s13033-022-00569-0
16. Kulkarni S, Dagli N, Duraiswamy P, Desai H, Vyas H, Baroudi K. Stress and professional burnout among newly graduated dentists. *J Int Soc Prev Community Dent*. 2016;6(6):535. doi:10.4103/2231-0762.195509
17. Ifdil I, Syahputra Y, Fadli RP, et al. The depression anxiety stress scales (DASS-21): an Indonesian validation measure of the depression anxiety stress. *COUNS-EDU: The International Journal of Counseling and Education*. 2022;5(4):205–215. doi:10.23916/0020200536840
18. Budikayanti A, Larasari A, Malik K, Syeban Z, Indrawati LA, Octaviana F. Screening of generalized anxiety disorder in patients with epilepsy: using a valid and reliable Indonesian version of generalized anxiety disorder-7 (GAD-7). *Neurol Res Int*. 2019;2019:5902610. doi:10.1155/2019/5902610
19. Prasetya AB, Purnama DS, Prasetyo FW. Validity and reliability of the perceived stress scale with RASCH model. *PSIKOPEDAGOGIA Jurnal Bimbingan dan Konseling*. 2020;8(2). doi:10.12928/psikopedagogia.v8i2.17903
20. Khumaidi K, Yona S, Arista L, Nurlaelah S. Patient Health Questionnaire-9 (PHQ-9) untuk Skrining depresi pada orang dengan HIV positif: validitas dan reliabilitas instrumen. *Journal of Nursing Innovation*. 2023;2(1):14–19. doi:10.61923/jni.v2i1.10
21. Rao S, Ramesh N. Depression, anxiety and stress levels in industrial workers: a pilot study in Bangalore, India. *Ind Psychiatry J*. 2015;24(1):23–28. doi:10.4103/0972-6748.160927
22. Spitzer RL, Kroenke K, Williams JBW, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med*. 2006;166(10):1092–1097. doi:10.1001/archinte.166.10.1092
23. Jatic Z, Trifunovic N, Erkocevic H, Hasanovic E, Dzambo I, Pilav A. Construct validity of the perceived stress scale (PSS-10) in a sample of health professionals in family medicine in Bosnia and Herzegovina. *Public Health in Practice*. 2023;6:100413. doi:10.1016/j.puhip.2023.100413
24. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606–613. doi:10.1046/j.1525-1497.2001.016009606.x
25. Alamoush RA, Al-Sawaeir S, Baker DA, Aljamani SA, Alomoush SA, Al-Omiri MK. Stress experienced by dental students performing clinical training in different dental disciplines: a cross-sectional study. *J Occup Health*. 2024;66(1). doi:10.1093/joccuh/uiae006
26. Dewan H, Loka SR, Mandal NB, Mogla S, Lenin KR, Loganathan J, Mahajan A. Prevalence of stress and coping disorders among dental students: an original research. *J Pharm Bioallied Sci*. 2022;14(Suppl 1):S277–S279. doi:10.4103/jpbs.jpbs_730_21
27. Santabárbara J, Ozamiz-Etxebarria N, Idoiaga N, Olaya B, Bueno-Novitol J. Meta-analysis of prevalence of depression in dental students during COVID-19 pandemic. *Medicina (Kaunas)*. 2021;57(11). doi:10.3390/medicina57111278
28. Gunardi I, Amtha R, Widyadhana HGV. Perception as mediator between knowledge and attitude of community about COVID-19 in Dentistry. *e-GiGi*. 2021;10(1):6. doi:10.35790/eg.v10i1.37089
29. Ozbay F, Johnson DC, Dimoulas E, Morgan CA, Charney D, Southwick S. Social support and resilience to stress: from neurobiology to clinical practice. *Psychiatry (Edgmont)*. 2007;4(5):35–40.
30. Deng Y, Cherian J, Khan NUN, et al. Family and academic stress and their impact on students' depression level and academic performance. *Front Psychiatry*. 2022;13:869337. doi:10.3389/fpsyt.2022.869337

31. Kpeno A, Sahoo S, Sahu AK, Sahu PK. Problem-solving and coping skills training for youth with deliberate self-harm behaviors: a scoping review. *Journal of Indian Association for Child and Adolescent Mental Health*. 2024;20(4):304–313. doi:10.1177/09731342241278964
32. Liu Y, Cao Z. The impact of social support and stress on academic burnout among medical students in online learning: the mediating role of resilience. *Front Public Health*. 2022;10:938132. doi:10.3389/fpubh.2022.938132
33. Downing VR, Cooper KM, Cala JM, Gin LE, Brownell SE. Fear of negative evaluation and student anxiety in community college active-learning science courses. *CBE Life Sci Educ*. 2020;19(2):ar20. doi:10.1187/cbe.19-09-0186
34. Park SY, Andalibi N, Zou Y, Ambulkar S, Huh-Yoo J. Understanding students' mental well-being challenges on a university campus: interview study. *JMIR Form Res*. 2020;4(3):e15962. doi:10.2196/15962
35. Ma Y, Xiang Q, Yan C, Liao H, Wang J. Relationship between chronic diseases and depression: the mediating effect of pain. *BMC Psychiatry*. 2021;21(1):436. doi:10.1186/s12888-021-03428-3
36. Garber J, Keiley MK, Martin NC. Developmental trajectories of adolescents' depressive symptoms: Predictors of change. *J Consult Clin Psychol*. 2002;70(1):79–95. doi:10.1037/0022-006X.70.1.79
37. Liu Z, Xie Y, Sun Z, Liu D, Yin H, Shi L. Factors associated with academic burnout and its prevalence among university students: a cross-sectional study. *BMC Med Educ*. 2023;23(1):317. doi:10.1186/s12909-023-04316-y
38. Tamminga SJ, Emal LM, Boschman JS, et al. Individual-level interventions for reducing occupational stress in healthcare workers. *Cochrane Database Syst Rev*. 2023;5(5):CD002892. doi:10.1002/14651858.CD002892.pub6
39. Gautam S, Jain A, Gautam M, Vahia VN, Grover S. Clinical Practice Guidelines for the management of Depression. *Indian J Psychiatry*. 2017;59(Suppl 1):S34–S50. doi:10.4103/0019-5545.196973
40. Kuehnl A, Seubert C, Rehfuess E, von Elm E, Nowak D, Glaser J. Human resource management training of supervisors for improving health and well-being of employees. *Cochrane Database Syst Rev*. 2019;9(9):CD010905. doi:10.1002/14651858.CD010905.pub2

Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students

by Indrayadi Gunardi

Submission date: 21-Oct-2025 08:39AM (UTC+0700)
Submission ID: 2579289265
File name: Yohana_Yusra_-_psychopharmacollogy_depresi.pdf (971.68K)
Word count: 5268
Character count: 28821

ORIGINAL RESEARCH

Key Words: anxiety, dental student, depression, stress

Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students

By Yohana Yusra, Indrayadi Gunardi, Wiwiek Poedjiastoeti, Anggraeny Putri Sekar Palupi, Ade Prijanti Dwisaptarini, Jamison Wijaya, Julvyn, Andrijanto, Elizabeth Fitriana Sari

ABSTRACT ~ **Objective:** *To compare factors correlating with stress, anxiety, and depression between dental students (DS) in preclinical (PP) and clinical programs (CP).* **Method:** *This study involved 165 DS, utilizing the DASS-21, GAD-7, PSS-10, and PHQ-9 assessments. The data were analyzed using the Rasch model and Spearman test.* **Result:** *The study included 38.18% in PP and 61.81% in CP (M:F 1:3.7), and a mean age of 21.99 ± 2.36 years. Person map revealed perceptual differences in anxiety and depression between groups, but not in stress. In the PP group, family was the sole factor correlating with stress ($p = 0.032$). Stress was the primary mental health concern among dental students, particularly during both preclinical and clinical programs. Anxiety and depression, though less common in the preclinical stage, increased significantly in the clinical phase. In the CP group, both supervisor and family ($p < 0.05$) were correlated with anxiety, while age and self-health ($p < 0.05$) were linked to depression.* **Conclusion:** *Stress was the primary mental health concern among dental students, particularly during both preclinical and clinical programs. Anxiety and depression, though less common in the preclinical stage, increased significantly in the clinical phase. Identifying factors such as family, supervisors, age, self-health, and academic progression is essential for developing effective strategies to support dental students' mental health.* Psychopharmacology Bulletin. *2025;55(4):55–67.*

Yusra, BDS, DDS, MKes, PhD, Department of Orthodontic, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Gunardi, BDS, DDS, Sp.PM, PhD, Department of Oral Medicine, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Poedjiastoeti, BDS, DDS, M.Kes, Sp.BM, PhD, Palupi, BDS, DDS, Sp.BM, PhD, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Dwisaptarini, BDS, DDS, Sp.KG, PhD, Department of Restorative Dentistry, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Wijaya, Julvyn, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Andrijanto, Faculty of Smart Technology and Engineering, Universitas Kristen Maranatha, Indonesia. Sari, BDS, DDS, Sp.PM, PhD, Dentistry and Oral Health Discipline, Department of Rural Clinical Science, La Trobe Rural Health School, Bendigo, VIC, Australia.

To whom correspondence should be addressed: Indrayadi Gunardi, BDS, DDS, Sp.PM, PhD, Department of Oral Medicine, Faculty of Dentistry, Universitas Trisakti, Jakarta, Indonesia. Phone: +6282114727167; E-mail: indrayadi@trisakti.ac.id.

Introduction

The mental well-being of dental students has received increasing attention due to the intense demands of their academic and clinical training. Dental students are frequently exposed to high levels of stress, with rigorous coursework, demanding clinical practice, and the expectation to achieve academic excellence. These pressures may lead to significant mental health challenges, specifically stress, anxiety, and depression, potentially impacting their personal lives, academic performance, and future professional practice,[1–3] academic performance,[4] and future professional practice.[5] According to epidemiological data, the levels of stress, anxiety, and depression among students have tended to increase in recent years. The prevalence among medical students is reported to be 59.3% for anxiety, 45.1% for stress, and 44% for depression.[6] For dental students, the prevalence is 55.99% for depression, 66.8% for anxiety, and 54.7% for stress.[7]

According to De Gregorio et al. the mental health challenges often escalate as students transition from preclinical to clinical stages in dental education.[8] While preclinical students primarily focus on theoretical learning and skill development, clinical students face additional stressors, including patient care responsibilities and close supervision by experienced practitioners. These added responsibilities could heighten feelings of inadequacy, performance anxiety, and academic pressure, which may amplify their risk of mental health issues.

The academic workload associated with dental education plays a significant role in the mental health of students. Extensive hours of study, frequent assessments, and the need for continuous academic excellence create a highly competitive environment. Students often experience sleep disturbances,[9] burnout,[10] and cognitive overload[11] as a result of trying to meet these demands. The cumulative nature of academic stress can impair students' coping abilities, leading to heightened anxiety and depressive symptoms, which may persist throughout their educational journey.

Effective coping strategies and access to support systems are essential to mitigate the psychological burden faced by dental students. Studies have shown that students who engage in mindfulness,[12] time management,[13] and physical exercise[14] experience lower levels of stress and anxiety. Moreover, institutional support, such as mental health counseling services, peer mentoring, and faculty guidance, can play a crucial role in fostering resilience. Universities that implement structured mental health programs have reported a significant reduction in students' anxiety and depression scores.[15]

The mental health challenges faced by dental students not only affect their academic journey but also have long-term implications for their professional practice. High levels of unresolved stress and anxiety during training have been linked to burnout and reduced job satisfaction among practicing dentists.[16] Furthermore, prolonged exposure to stressors during education may diminish empathy and affect the quality of patient care. Early intervention and mental health support during dental training are therefore crucial to ensure a smooth transition into professional roles and to safeguard future practitioners' well-being.

Understanding the specific factors associated with stress, anxiety, and depression among dental students is crucial for developing targeted interventions. This study aims to evaluate these factors in correlation between preclinical (PP) and clinical (CP) dental students (DS) in terms of mental health (stress, anxiety, and depression). By identifying specific stressors and vulnerabilities, the study provides insights that may inform mental health support strategies tailored to the unique needs of dental students at various stages of their education.

Method

Subject Recruitment

This observational, cross-sectional study included 323 dental students (DS), who were assessed using the validated Indonesian Depression, Anxiety and Stress Scale-21/DASS-21,[17] General Anxiety Disorder-7/GAD-7,[18] Perceived Stress Scale-10/PSS-10,[19] and Patient Health Questionnaire-9/PHQ-9[20] assessments. The inclusion criteria included current dental students who had not taken any exams or tests in the four weeks prior to the study, in order to minimize bias related to mental health. DS who did not complete all the questionnaires were excluded from the study. Informed consent was obtained prior to the questionnaire being filled. Ethical clearance was obtained from the Ethical Committee Faculty of Dentistry Universitas Trisakti No.050/S3/KEPK/FKG/8/2024.

Questionnaire

The DASS-21 consists of 21 items divided into three domains: depression, anxiety, and stress, assessing psychological conditions over the past week. The depression domain includes items #3, #5, #10, #13,

#16, #17, and #21. The anxiety domain includes items #2, #4, #7, #9, #15, #19, and #20. The stress domain includes items #1, #6, #8, #11, #12, #14, and #18. Respondents select one of four answer choices: 0 = "Never", 1 = "Sometimes", 2 = "Often", and 3 = "Almost always". Scoring is categorized as follows: Normal (depression [0–4], anxiety [0–3], stress [0–7]), Mild (depression [5–6], anxiety [4–5], stress [8–9]), Moderate (depression [7–10], anxiety (6–7), Stress (10–12]), Severe (depression [11–13], anxiety [8–9], stress [13–16]), and Extremely severe (depression [>14], anxiety [>10], stress [>17]).[21]

The GAD-7 comprises 7 items that assess generalized anxiety disorder symptoms over the past two weeks. Respondents choose from the following answer choices: 0 = "Not at all", 1 = "Several days", 2 = "More than half the days", and 3 = "Nearly every day". The total score is interpreted as follows: No to low risk anxiety (0–4), Mild anxiety (5–9), Moderate anxiety (10–14), and Severe anxiety (15–21).[22]

The PSS-10 is composed of 10 items that measure stress levels over the past month, divided into two domains: perceived helplessness and perceived self-efficacy. Items related to perceived helplessness include #1, #2, #3, #6, #9, and #10, while perceived self-efficacy includes items #4, #5, #7, and #8. The answer choices for perceived helplessness range from 0 = "Never" to 4 = "Very often", while the perceived self-efficacy domain is scored in reverse, from 4 = "Never" to 0 = "Very often". The total score is interpreted as follows: Very low stress (0–7), Low stress (8–11), Average stress (12–15), High stress (>21).[23]

The PHQ-9 assesses depressive symptoms over the past two weeks, covering nine areas: anhedonia, depressed mood, sleep disturbances, fatigue, appetite changes, feelings of worthlessness, concentration difficulties, psychomotor disturbances, and thoughts of death or self-harm. Respondents choose from four answer choices: 0 = "Not at all", 1 = "Several days", 2 = "More than half the days", and 3 = "Nearly every day". Total scores are interpreted as follows: No – minimal depression (0–4), Mild depression (5–9), Moderate depression (10–14), Moderately severe depression (15–19), and Severe depression (20–27).[24]

All of the questionnaires had a construct validity prior to the study. The Indonesian questionnaires were tested on 55 subjects. The Cronbach alpha for DASS-21 was 0.93, GAD-7 was 0.90, PSS-10 was 0.82, and PHQ-9 was 0.88. The item reliability for DASS-21 was

0.96 (separation 4.68), GAD-7 was 0.96 (separation 5.03), PSS-10 was 0.93 (separation 3.52), and PHQ-9 was 0.98 (separation 6.93). The eigenvalue score for unidimensionality of questionnaires was above 2. Google forms was used to distribute the questionnaire.

Data Analysis

Data analysis was conducted using the Rasch model and the Spearman test. The Rasch model was employed to assess the tendency of psychological mental issues, while the Spearman test was utilized to examine the correlation between variables. A significance level of $p < 0.05$ was set for all statistical analyses.

Result

The study initially included 323 subjects. However, 158 were excluded due to incoherent data or the absence of psychological disturbances. Ultimately, the study included a total of 165 dental students, 38.18% in PP and 61.81% in CP, with 21.21% males and 78.78% females, and a mean age of 21.99 ± 2.36 years (Table 1).

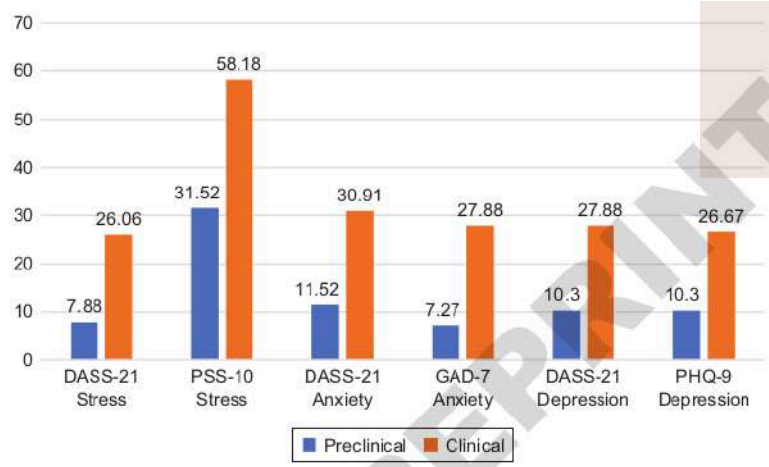
TABLE 1

Population Characteristics

VARIABLES	PRECLINICAL N = 63 N (%)	CLINICAL N = 102 N (%)
Gender		
Male	19 (30.2)	16 (15.7)
Female	44 (69.8)	86 (84.3)
Problems due to		
Academic	1 (1.6)	3 (2.9)
Clinical	–	11 (10.8)
Organization	10 (15.9)	7 (6.9)
Supervisor/lecturer	13 (20.6)	15 (14.7)
Friend/college	15 (23.8)	22 (21.6)
Family	23 (36.5)	19 (18.6)
Financial	32 (50.8)	12 (11.8)
Personal health	30 (47.6)	32 (31.4)
Other	2 (3.2)	0
Age [mean (SD)]	19.69 (1.06)	23.88 (1.55)
Semester [mean (SD)]	4.63 (1.70)	4 (1.06)
GPA [mean (SD)]	3.5 (0.32)	3.15 (0.75)

FIGURE 1

Percentage of Dental Students Categorized as Having More Than Moderate Impairment Based on Each Questionnaire Tool



The majority of dental students (31.52% and 58.18%) experienced stress in comparison to other mental health conditions (Figure 1). Person map analysis (Figure 2) revealed perceptual differences in anxiety and depression between groups, but not in stress. The PP group exhibited a higher tendency toward stress, whereas the CP group showed a greater inclination toward depression. Based on Figure 3, in the PP group, family was the sole factor correlating with stress ($r = 0.27$; $p = 0.032$). In the CP group, both supervisor ($p = 0.041$) and family ($p = 0.029$) were correlated with anxiety, while age ($r = 0.267$; $p = 0.009$) and self-health ($p = 0.016$) were linked to depression. Additionally, the number of semesters showed a significant correlation with both anxiety ($r = 0.244$; $p = 0.021$) and depression ($r = 0.276$; $p = 0.009$).

Discussion

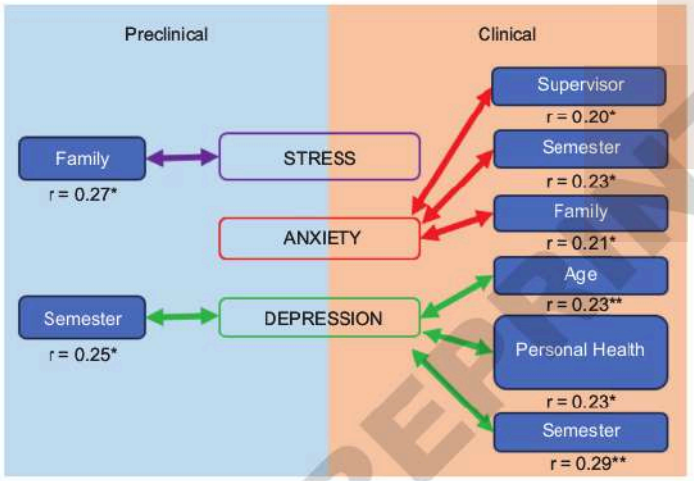
The findings of this study highlight significant differences in mental health experiences between preclinical and clinical dental students. In Table 1, preclinical dental students were more likely to have problems due to financial (50.8%), personal health (47.6%), and family (36.5%), while clinical dental students had problems due to personal health (31.4%), friends/colleagues (21.6%) and family (18.6%). Stress was found to be a prominent concern among both groups (31.52% and 58.18%), though it

FIGURE 2

Person Map Between Groups (A - Preclinical Program vs B - Clinical Program). D DASS-21; Q PHQ-9; G GAD-7; P PSS-10; s Stress; a Anxiety; d Depression. Red Box Indicate the Tendency of Psychological Issue Occurrence in Preclinical and Clinical Programs

FIGURE 3

Spearman Correlation Between Variables in Both Groups (*p < 0.05; **p < 0.01)



manifested differently (Figure 1). Based on previous publications, stress is a commonly observed mental health issue among medical and dental students, with a higher prevalence among those in clinical training.[25,26] Based on Rasch model analysis (Figure 2), preclinical dental students were likely prone to having stress, but clinical dental students to have stress and depression. According to Santabárbara et al., clinical dental students have a tendency to have depression with a prevalence of 37% (95% CI: 26–49%).[27]

In the preclinical group (Figure 3), family support was the primary factor correlated with stress ($r = 0.27$; $p = 0.029$), suggesting that support networks outside the academic environment play a crucial role in managing stress during the early stages of dental education. This finding aligns with previous studies indicating that familial support is a vital buffer against academic stress in young adults.[28,29] Family support may mitigate stress by providing emotional reassurance, financial stability, and practical assistance, which are particularly essential for students navigating the transition into a demanding academic setting.[30] Preclinical students, who are primarily focused on theoretical learning and skill acquisition, often encounter feelings of uncertainty and self-doubt. Unlike clinical students, they have limited exposure to real-life patient interactions, which may intensify feelings of inadequacy. In this context, family support can foster a sense of security, helping students build resilience and confidence as they prepare for the clinical phase

of their education. Furthermore, family support has been linked to the development of adaptive coping strategies, such as problem-solving and emotional regulation, which are essential for managing stressors in dental education.[30,31] When students perceive strong support from family members, they are more likely to engage in positive coping behaviors rather than maladaptive strategies like avoidance or withdrawal. As such, the presence of family support could reduce the physiological and psychological stress responses typically associated with academic pressures. However, it is also important to consider the variability of family support among students. Not all students have access to strong family support systems, which could lead to disparities in stress levels among the preclinical study participants.[32] Therefore, universities and dental faculties should consider providing additional support mechanisms, such as mentorship programs, peer support groups, and access to mental health counseling, to bridge this gap.

In contrast, clinical students experienced anxiety influenced by both family ($r = -0.21$; $p = 0.029$) and academic supervisors ($r = 0.20$; $p = 0.041$), suggesting that the added responsibility of patient care and clinical oversight may introduce new stressors not experienced in the preclinical phase. Supervisors often play dual roles as evaluators and mentors, which can create a pressure-filled environment for students, heightening stress and anxiety. This duality aligns with literature suggesting that supervisory relationships in clinical settings contribute to increased mental health strain among students due to the fear of negative evaluations and the desire to meet clinical expectations.[33,34] Anxiety in clinical settings has been well-documented, with studies suggesting that students often experience anticipatory anxiety regarding patient interactions and fear of making mistakes.[33] This study's findings are consistent with the notion that family support may act as a buffer against such anxieties, while the role of supervisors may inadvertently contribute to heightened anxiety due to evaluative pressures.

Depression among clinical students was also significantly associated with age ($r = 0.23$; $p = 0.009$) and personal health ($r = 0.23$; $p = 0.016$), indicating that older students and those with personal health concerns may be more susceptible to depressive symptoms. This correlation may reflect the cumulative effect of prolonged academic pressures and the physical demands of clinical work.[34] Clinical students are often required to balance patient care, academic performance, and personal obligations, all of which increase in intensity as students progress in their education. Older students may face additional responsibilities, such as family commitments or financial burdens, further exacerbating stress and depressive symptoms. Studies have suggested that students who have health concerns or who perceive themselves as physically unwell may

experience a higher vulnerability to depression,[29] further emphasizing the importance of holistic health support in academic settings. Health problems may disrupt students' daily routines, interfere with academic performance, and reduce the time available for self-care and relaxation. Chronic health conditions, in particular, may contribute to a sense of hopelessness, loss of control, and increased mental fatigue, all of which are risk factors for depression.[35] This relationship emphasizes the need for educational institutions to provide better access to health care and wellness programs tailored to students' unique needs. By addressing both physical and mental health, educational institutions may create a more supportive learning environment that promotes overall well-being. Age-related differences in depressive symptoms may also be linked to cognitive and emotional development.[36] Older students may demonstrate greater self-awareness and introspection, which can be beneficial for critical thinking.

Furthermore, the study found that the number of semesters correlated with anxiety ($p = 0.021$) and depression ($p = 0.009$), suggesting that as students progress through their dental education, the sustained pressures and increased responsibilities may contribute to cumulative mental health challenges. This finding supports the concept of academic burnout, where prolonged exposure to stressors without adequate coping mechanisms or support leads to mental exhaustion, a known risk factor for anxiety and depression.[37] The longer students remain in an academic program, the greater the cumulative effects of academic, clinical, and personal stressors, which may erode their psychological well-being over time. In dental education, each semester brings new challenges, such as more complex coursework, higher clinical demands, and growing expectations for academic performance. As these stressors accumulate, students may experience mental fatigue, which may impair cognitive function, increase emotional reactivity, and reduce the ability to manage stress.

The identified stressors and mental health outcomes among dental students underscore the need for tailored interventions at different stages of dental education. Early intervention programs focusing on stress management, resilience building, and coping strategies may be particularly beneficial for preclinical students, helping them develop skills to manage the rigors of clinical training.[38] Additionally, support systems that include accessible counseling, peer support groups, and structured mentorship programs could help mitigate the anxiety and depressive symptoms observed in clinical students.[39]

Implementing training for supervisors on supportive and non-evaluative feedback methods may also help reduce the stress and anxiety associated with clinical evaluations.[40] By promoting a more nurturing

clinical environment, students may feel more comfortable seeking guidance and support without fear of judgment, potentially reducing mental health risks and enhancing their learning experiences.

This study also has several limitations. The sample was drawn from only one dental education institution, which aimed to minimize potential bias from other factors such as socioeconomic status and resilience to psychological issues. Additionally, the sample size was limited because a portion of the subjects did not experience any psychological disturbances. Finally, these findings highlight the importance of holistic support that addresses both academic and personal aspects of student well-being. Institutions could consider initiatives such as mental health awareness campaigns, workshops on managing academic stress, and resources focused on promoting self-care practices among students. Such comprehensive approaches are essential to equip dental students with the tools necessary to navigate the challenges of their education while safeguarding their mental health.

Conclusion

Stress was the primary mental health concern among dental students, particularly during both preclinical and clinical programs. Anxiety and depression, though less common in the preclinical stage, increased significantly in the clinical phase. Identifying factors such as family, supervisors, age, self-health, and academic progression is essential for developing effective strategies to support dental students' mental health. ✤

Declaration of Conflicts of Interests

No potential conflict of interest was reported by the authors.

References

1. Danwiek J, Amtha R, Gunardi I. Management of oral mucositis: a systematic review. *Minerva Dental and Oral Science*. 2023;72(5):255–270. doi:10.23736/S2724-6329.23.04695-8
2. Defar S, Abraham Y, Reta Y, et al. Health related quality of life among people with mental illness: the role of socio-clinical characteristics and level of functional disability. *Front Public Health*. 2023;11:1134032. doi:10.3389/fpubh.2023.1134032
3. Nathaniel FA, Amtha R, Gunardi I, Hartanto FK, Sari EF. Enhanced knowledge inversed attitude of oral cancer risk habit associated with sociocultural: a quantitative and qualitative pilot study. *J Int Soc Prev Community Dent*. 2023;13(5):380–387. doi:10.4103/jispcd.JISPCD_20_23
4. Chu T, Liu X, Takayanagi S, Matsushita T, Kishimoto H. Association between mental health and academic performance among university undergraduates: the interacting role of lifestyle behaviors. *Int J Methods Psychiatr Res*. 2023;32(1):e1938. doi:10.1002/mpr.1938
5. Patel M, Swift S, Digesu A. Mental health among clinicians: what do we know and what can we do? *Int Urogynecol J*. 2021;32(5):1055–1059. doi:10.1007/s00192-021-04805-y
6. Shah P, Sapkota A, Chhetri A. Depression, anxiety, and stress among first-year medical students in a tertiary care hospital: a descriptive cross-sectional study. *JNMA J Nepal Med Assoc*. 2021;59(236):346–349. doi:10.31729/jnma.6420

7. Basudan S, Binanzan N, Alhassan A. Depression, anxiety and stress in dental students. *Int J Med Educ*. 2017;8:179–186. doi:10.5116/ijme.5910.b961
8. De Gregorio D, Aguilar-Valles A, Preller KH, et al. Hallucinogens in mental health: preclinical and Clinical Studies on LSD, Psilocybin, MDMA, and Ketamine. *J Neurosci*. 2021;41(5):891–900. doi:10.1523/JNEUROSCI.1659-20.2020
9. Alotaibi AD, Alosaimi FM, Alajlan AA, Bin Abdulrahman KA. The relationship between sleep quality, stress, and academic performance among medical students. *J Family Community Med*. 2020;27(1):23–28. doi:10.4103/jfcm.JFCM_132_19
10. Ishak W, Nikravesh R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. *Clin Teach*. 2013;10(4):242–245. doi:10.1111/tct.12014
11. Ghanbari S, Haghani F, Barekatain M, Jamali A. A systematized review of cognitive load theory in health sciences education and a perspective from cognitive neuroscience. *J Educ Health Promot*. 2020;9:176. doi:10.4103/jehp.jehp_643_19
12. An A, Hoang H, Trang L, et al. Investigating the effect of mindfulness-based stress reduction on stress level and brain activity of college students. *IBRO Neurosci Rep*. 2022;12:399–410. doi:10.1016/j.ibneur.2022.05.004
13. Ahmady S, Khajeali N, Kalantarion M, Sharifi F, Yaseri M. Relation between stress, time management, and academic achievement in preclinical medical education: a systematic review and meta-analysis. *J Educ Health Promot*. 2021;10:32. doi:10.4103/jehp.jehp_600_20
14. Lin Y, Gao W. The effects of physical exercise on anxiety symptoms of college students: a meta-analysis. *Front Psychol*. 2023;14. doi:10.3389/fpsyg.2023.1136900
15. Osborn TG, Li S, Saunders R, Fonagy P. University students' use of mental health services: a systematic review and meta-analysis. *Int J Ment Health Syst*. 2022;16(1):57. doi:10.1186/s13033-022-00569-0
16. Kulkarni S, Dagli N, Duraiswamy P, Desai H, Vyas H, Baroudi K. Stress and professional burnout among newly graduated dentists. *J Int Soc Prev Community Dent*. 2016;6(6):535. doi:10.4103/2231-0762.195509
17. Ifdil I, Syahputra Y, Fadli RP, et al. The depression anxiety stress scales (DASS-21): an Indonesian validation measure of the depression anxiety stress. *COUNS-EDU: The International Journal of Counseling and Education*. 2022;5(4):205–215. doi:10.23916/0020200536840
18. Budikayanti A, Larasari A, Malik K, Syeban Z, Indrawati LA, Octaviana F. Screening of generalized anxiety disorder in patients with epilepsy: using a valid and reliable Indonesian version of generalized anxiety disorder-7 (GAD-7). *Neurol Res Int*. 2019;2019:5902610. doi:10.1155/2019/5902610
19. Prasetya AB, Purnama DS, Prasetyo FW. Validity and reliability of the perceived stress scale with RASCH model. *PSIKOPEDAGOGIA Jurnal Bimbingan dan Konseling*. 2020;8(2). doi:10.12928/psikopedagogia.v8i2.17903
20. Khumaidi K, Yona S, Arista L, Nurlaelah S. Patient Health Questionnaire-9 (PHQ-9) untuk Skrining depresi pada orang dengan HIV positif: validitas dan reliabilitas instrumen. *Journal of Nursing Innovation*. 2023;2(1):14–19. doi:10.61923/jni.v2i1.10
21. Rao S, Ramesh N. Depression, anxiety and stress levels in industrial workers: a pilot study in Bangalore, India. *Ind Psychiatry J*. 2015;24(1):23–28. doi:10.4103/0972-6748.160927
22. Spitzer RL, Kroenke K, Williams JBW, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med*. 2006;166(10):1092–1097. doi:10.1001/archinte.166.10.1092
23. Jatic Z, Trifunovic N, Erkocevic H, Hasanovic E, Dzambo I, Pilav A. Construct validity of the perceived stress scale (PSS-10) in a sample of health professionals in family medicine in Bosnia and Herzegovina. *Public Health in Practice*. 2023;6:100413. doi:10.1016/j.puhip.2023.100413
24. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606–613. doi:10.1046/j.1525-1497.2001.016009606.x
25. Alamoush RA, Al-Sawaeir S, Baker DA, Aljamani SA, Alomoush SA, Al-Omiri MK. Stress experienced by dental students performing clinical training in different dental disciplines: a cross-sectional study. *J Occup Health*. 2024;66(1). doi:10.1093/joccuh/uiae006
26. Dewan H, Loka SR, Mandal NB, Mogla S, Lenin KR, Loganathan J, Mahajan A. Prevalence of stress and coping disorders among dental students: an original research. *J Pharm Bioallied Sci*. 2022;14(Suppl 1):S277–S279. doi:10.4103/jpbs.jpbs_730_21
27. Santabárbara J, Ozamiz-Etxebarria N, Idoiaga N, Olaya B, Bueno-Novitol J. Meta-analysis of prevalence of depression in dental students during COVID-19 pandemic. *Medicina (Kaunas)*. 2021;57(11). doi:10.3390/medicina57111278
28. Gunardi I, Amtha R, Widyadhana HGV. Perception as mediator between knowledge and attitude of community about COVID-19 in Dentistry. *e-GiGi*. 2021;10(1):6. doi:10.35790/eg.v10i1.37089
29. Ozbay F, Johnson DC, Dimoulas E, Morgan CA, Charney D, Southwick S. Social support and resilience to stress: from neurobiology to clinical practice. *Psychiatry (Edgmont)*. 2007;4(5):35–40.
30. Deng Y, Cherian J, Khan NUN, et al. Family and academic stress and their impact on students' depression level and academic performance. *Front Psychiatry*. 2022;13:869337. doi:10.3389/fpsyt.2022.869337

31. Kpeno A, Sahoo S, Sahu AK, Sahu PK. Problem-solving and coping skills training for youth with deliberate self-harm behaviors: a scoping review. *Journal of Indian Association for Child and Adolescent Mental Health*. 2024;20(4):304–313. doi:10.1177/09731342241278964
32. Liu Y, Cao Z. The impact of social support and stress on academic burnout among medical students in online learning: the mediating role of resilience. *Front Public Health*. 2022;10:938132. doi:10.3389/fpubh.2022.938132
33. Downing VR, Cooper KM, Cala JM, Gin LE, Brownell SE. Fear of negative evaluation and student anxiety in community college active-learning science courses. *CBE Life Sci Educ*. 2020;19(2):ar20. doi:10.1187/cbe.19-09-0186
34. Park SY, Andalibi N, Zou Y, Ambulkar S, Huh-Yoo J. Understanding students' mental well-being challenges on a university campus: interview study. *JMIR Form Res*. 2020;4(3):e15962. doi:10.2196/15962
35. Ma Y, Xiang Q, Yan C, Liao H, Wang J. Relationship between chronic diseases and depression: the mediating effect of pain. *BMC Psychiatry*. 2021;21(1):436. doi:10.1186/s12888-021-03428-3
36. Garber J, Keiley MK, Martin NC. Developmental trajectories of adolescents' depressive symptoms: Predictors of change. *J Consult Clin Psychol*. 2002;70(1):79–95. doi:10.1037/0022-006X.70.1.79
37. Liu Z, Xie Y, Sun Z, Liu D, Yin H, Shi L. Factors associated with academic burnout and its prevalence among university students: a cross-sectional study. *BMC Med Educ*. 2023;23(1):317. doi:10.1186/s12909-023-04316-y
38. Tamminga SJ, Emal LM, Boschman JS, et al. Individual-level interventions for reducing occupational stress in healthcare workers. *Cochrane Database Syst Rev*. 2023;5(5):CD002892. doi:10.1002/14651858.CD002892.pub6
39. Gautam S, Jain A, Gautam M, Vahia VN, Grover S. Clinical Practice Guidelines for the management of Depression. *Indian J Psychiatry*. 2017;59(Suppl 1):S34–S50. doi:10.4103/0019-5545.196973
40. Kuehnl A, Seubert C, Rehfuess E, von Elm E, Nowak D, Glaser J. Human resource management training of supervisors for improving health and well-being of employees. *Cochrane Database Syst Rev*. 2019;9(9):CD010905. doi:10.1002/14651858.CD010905.pub2

Comparison of Stress, Anxiety and Depression in Preclinical and Clinical Dental Students

ORIGINALITY REPORT

10%	7%	9%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Laredo Community College Student Paper	1%
2	www.pure.ed.ac.uk Internet Source	1%
3	www.frontiersin.org Internet Source	1%
4	repository.essex.ac.uk Internet Source	1%
5	www.elsevier.es Internet Source	1%
6	journals.lww.com Internet Source	1%
7	Submitted to The Chicago School of Professional Psychology Student Paper	1%
8	Armelia Sari Widyarman, Muhammad Ihsan Rizal, Moehammad Orliando Roeslan, Carolina Damayanti Marpaung. "Quality Improvement in Dental and Medical Knowledge, Research, Skills and Ethics Facing Global Challenges", CRC Press, 2024 Publication	1%
9	www.mdpi.com	

	Internet Source	<1%
10	scholarworks.utrgv.edu Internet Source	<1%
11	Pu Peng, Zhangming Chen, Silan Ren, Ying He et al. "Sex difference in the longitudinal association between depressive symptoms and internet gaming disorder among Chinese adolescents: An explanatory analysis at the aggregate and symptom level", Addictive Behaviors, 2026 Publication	<1%
12	etd.lib.metu.edu.tr Internet Source	<1%
13	files.eric.ed.gov Internet Source	<1%
14	old.rrjournals.com Internet Source	<1%

Exclude quotes	On	Exclude matches	< 15 words
Exclude bibliography	On		