Appendix I: Search strategy

Contained in this appendix are the search strategies used for the four databases searched in conducting this scoping review

Ovid MEDLINE(R) ALL <2020 to present>

Search conducted: 6th December 2023 – Results: 1970

Search number	Description
1	exp Burnout, Psychological/ or exp Burnout, Professional
2	Burnou*.mp.
3	Burnout.mp.
4	"Burn out".mp.
5	"Burned out".mp.
6	"Burnt out".mp.
7	1 or 2 or 3 or 4 or 5 or 6
8	Exp Work Engagement/
9	Engagement.mp.
10	Engage*.mp.
11	8 or 9 or 10
12	Vigor.mp.
13	Invigor*.mp.
14	12 or 13
15	Dedication.mp.
16	Dedicat*.mp.
17	15 or 16
18	Absorption.mp.
19	Absor*.mp.
20	18 or 19
21	14 and 17 and 20
22	7 or 11 or 21
23	exp Students, Medical/
24	"Medical student".mp.
25	"Medical students".mp.
26	23 or 24 or 25
27	22 and 26

Ovid EMBASE(R) ALL <2020 to present>

Search conducted: 6th December 2023 – Results: 2916

Search number	Description
1	exp burnout/
2	exp student burnout/
3	Burnout.mp.
4	"Burned out". mp.
5	“Burned out”.mp.
6	"Burn out".mp.
7	"Burnt out".mp.
8	1 or 2 or 3 or 4 or 5 or 6 or 7
9	exp work engagement/
10	Engagement.mp.
11	Engage*.mp.
12	9 or 10 or 11
13	8 or 12
14	Dedication.mp.
15	Dedicat*.mp.
16	14 or 15
17	Absorption.mp.
18	Absor*.mp.
19	17 or 18
20	Vigor.mp
21	Invigor*.mp
22	20 or 21
23	16 and 19 and 22
24	13 or 23
25	exp medical student/
26	“Medical student*”.mp
27	25 or 26
28	24 and 27

Ovid APA PsycInfo(R) ALL <2020 – present>

Search conducted: 6th December 2023 – Results: 364

Search number	Description
1	exp burnout/
2	Burnou*.mp.
3	"Burn out".mp.
4	"Burnt out".mp.
5	"Burned out".mp.
6	1 or 2 or 3 or 4 or 5
7	Exp Student Engagement/
8	Exp Psychological Engagement/
9	Engagement.mp.
10	Engage*.mp.
11	7 or 8 or 9 or 10
12	6 or 11
13	Vigor.mp.
14	Invigorate*.mp.
15	13 or 14
16	exp Commitment/
17	Dedication.mp.
18	Dedicat*.mp.
19	16 or 17 or 18
20	Absorption.mp.
21	Absorb*.mp.
22	20 or 21
23	15 and 19 and 22
24	12 or 23
25	exp Medical Students/
26	"Medical student".mp.
27	"Medical students*".mp
28	25 or 26 or 27
29	24 and 28

The Cochrane Library(R) ALL <2020 – present>

Search conducted: 6th December 2023 – Results: 151

Search number	Description
1	"Medical Student"
2	"Medical student"
3	1 or 2 in All text
4	Burnout
5	Engagement
6	"Burn out"
7	4 or 5 or 6 in All Text
8	3 and 7 in All Text

Appendix II: Excluded studies

Contained in this appendix is a list of all studies excluded following a full-text reading and the reason for their exclusion

Singer-Chang G, Dong F, Seffinger M, Nevins N, Blumer J, Musharbash H, Helf S. Empathy in Medicine Self and Other in Medical Education: Initial Emotional Intelligence Trend Analysis Widens the Lens Around Empathy and Burnout. J Am Osteopath Assoc. 2020 Jun 1;120(6):388-394.	Osteopathic medicine students outside inclusion criteria
Al-Jehani YM, Althwanay AM, Buainain HM, Abuhaimed AK, Almulhim AM, Abusrir FA, Alkhabbaz FL, Almustafa SS, Abdel Wahab MM. Burnout Prevalence and Associated Stressors in Medical Students of Traditional and Problem-Based Learning Curricula in a Saudi University. Saudi J Med Med Sci. 2020 May-Aug;8(2):125-132.	Study conducted in 2017, before our period of interest
Dinis T, Santiago LM, Caetano IR, Marôco J. Perfeccionismo, Burnout e as Atividades Extracurriculares nos Estudantes de Medicina da Universidade de Coimbra [Perfectionism, Burnout and Extracurricular Activities Among Medical Students from the University of Coimbra]. Acta Med Port. 2020 Jun 1;33(6):367-375.	Study data collected in 2018-19, before period of interest
Rodts G, Kornreich C. The prevalence of medical student mistreatment during internships and its correlation with burnout and depression. Revue Medicale de Bruxelles. 2020;41(4):199–208.	Full text not available in English
Chae H, Cloninger CR, Lee SJ. Effects of personality on the developmental trajectories of academic burnout among Korean medical students. PeerJ. 2020 Nov 12;8:e10362. doi: 10.7717/peerj.10362.	Study data collected in 2014
Eugene C. Lee, Anne M. Jacobson, Monica Maalouf. Addressing Burnout: A Narrative Medicine Curriculum for Millennial Medical Students. Journal of Psychology Research. 2020 Dec 28;10(12).	Study data were collected from 2019-2020 with no reference to the pandemic
Sheehy J, Yim E, Hayton A. Third-year resilience days: Fortifying students against burnout. Med Educ. 2020 Nov;54(11):1051-1052. doi: 10.1111/medu.14341.	Study carried out between 2018-19
Andersen SD, Lokos H, Hayton A. What matters most: An intervention for learners. Journal of Investigative Medicine.Conference: 2020 Western Medical Research Conference.Monterey, CA United States 2020;68(1):A15.	Only abstract available
Anzaldua A, LomenHoerth C, Hauer KE, Kryzhanovskaya I. Supporting the development of whole physicians through implementation of a longitudinal, spiral, skills-based well-being curriculum in arch weeks. Journal of General Internal Medicine.Conference: Annual Meeting of the Society of General Internal Medicine, SGIM 2020.Birmingham, AL United States 2020;35(SUPPL 1):S769.	Only abstract available
Moore E, Akyar S, Kim K, Iyer U, Hennen MA, Gavzy S, et al. Near-peer coaching: Using small groups to facilitate self-reflection on stress management techniques to prevent burnout. Journal of General Internal Medicine.Conference: Annual Meeting of the Society of General Internal Medicine, SGIM 2020.Birmingham, AL United States 2020;35(SUPPL 1):S754–S755.	Only abstract available
Patel VP, Brackman S, Shafi U, Allen LM, Dittmar A, Causey A, et al. Overview of an arts-based curriculum on mitigating burnout in medical trainees. Journal of General Internal Medicine.Conference: Annual Meeting of the Society of General Internal Medicine, SGIM 2020.Birmingham, AL United States 2020;35(SUPPL 1):S757.	Only abstract available
Tung S, Khamisani A, Chirico EN. The Effects of Physical Activity on Burnout and Stress in Second-Year Medical Students. FASEB Journal 2020;Conference:Eermenta.	Only abstract available
Khamisani A, Tung S, Chirico EN. The Effects of Exercise Regimens on Perceived Stress in First-Year Medical Students. FASEB Journal 2020;Conference:Eermenta.	Only abstract available

Hernandez-Calle D, Cano Arenas A, Carracedo Sanchidrian D, Bravo-Ortiz MF. Autolytic ideation among medical residents in spain: A cross-sectional study. European Psychiatry 2020;Conference:28th.	Only abstract available
Morgan TL, McFadden T, Fortier MS, Tomasone JR, Sweet SN. Positive mental health and burnout in first to fourth year medical students. Health Educ J 2020;79(8):948–962.	Study carried out between 2017-2018
Armstrong M, Reynolds K. Assessing Burnout and Associated Risk Factors in Medical Students. J Natl Med Assoc 2020;112(6):597–601.	Study carried out in 2017
Hancock J, Mattick K. Tolerance of ambiguity and psychological well-being in medical training: A systematic review. Med Educ 2020;54(2):125–137.	Systematic review that goes until 2018
Alqahtani NH, Abdulaziz AA, Hendi OM, Mahfouz MEM. Prevalence of Burnout Syndrome Among Students of Health Care Colleges and its Correlation to Musculoskeletal Disorders in Saudi Arabia. Int J Prev Med. 2020 Mar 16;11:38.	Study data collected in 2019
Eroglu HN, Dundar M, Kisioglu AN. Evaluation of burnout and anxiety levels in suleyman demirel university faculty of medicine students. Turkiye Klinikleri Journal of Medical Sciences 2020;40(2):175–182.	Full text not available in English
Flickinger TE, Kon RH, Jacobsen R, Owens J, Schorling J, Plews-Ogan M. Single-Item Burnout Measure Correlates Well with Emotional Exhaustion Domain of Burnout but Not Depersonalization Among Medical Students. J Gen Intern Med. 2020 Nov;35(11):3383-3385.	Study data collected from 2017-18
Lind KT, Osborne CM, Badesch B, Blood A, Lowenstein SR. Ending student mistreatment: early successes and continuing challenges. Med Educ Online. 2020 Dec;25(1):1690846.	Study period began in 2014 with no reference to post-pandemic results
McKerrow I, Carney PA, Caretta-Weyer H, Furnari M, Miller Juve A. Trends in medical students' stress, physical, and emotional health throughout training. Med Educ Online. 2020 Dec;25(1):1709278.	Study data collected in 2015 with no reference to post-pandemic results
Fletcher I, Castle M, Scarpa A, Myers O, Lawrence E. An exploration of medical student attitudes towards disclosure of mental illness. Med Educ Online. 2020 Dec;25(1):1727713.	Study data collected before inclusion period
Assing Hvidt E, Søndergaard J, Hvidt NC, Wehberg S, Büssing A, Andersen CM. Development in Danish medical students' empathy: study protocol of a cross-sectional and longitudinal mixed-methods study. BMC Med Educ. 2020 Feb 19;20(1):54.	Study not relevant to research questions
Sevrain-Goideau, M., Gohier, B., Bellanger, W. et al. Forum theater staging of difficult encounters with patients to increase empathy in students: evaluation of efficacy at The University of Angers Medical School. BMC Med Educ 20, 58 (2020).	Data collected between 2014-2017
Compton S, Sarraf-Yazdi S, Rustandy F, Radha Krishna LK. Medical students' preference for returning to the clinical setting during the COVID-19 pandemic. Med Educ. 2020 Oct;54(10):943-950.	Study not relevant to research questions
Shoua-Desmarais N, von Harscher H, Rivera M, Felix T, Havas N, Rodriguez P, Castro G, Zwingli E. First Year Burnout and Coping in One US Medical School. Acad Psychiatry. 2020 Aug;44(4):394-398.	Data collected between 2017-2018
Lawrence EC, Carvour ML, Camarata C, Andarsio E, Rabow MW. Requiring the Healer's Art Curriculum to Promote Professional Identity Formation Among Medical Students. J Med Humanit. 2020 Dec;41(4):531-541.	Study data collected in 2016
Jumat MR, Chow PK, Allen JC Jr, Lai SH, Hwang NC, Iqbal J, Mok MUS, Rapisarda A, Velkey JM, Engle DL, Compton S. Grit protects medical students from burnout: a longitudinal study. BMC Med Educ. 2020 Aug 12;20(1):266.	Data collected between 2017-2018
Guang SA, Eltorai AEM, Durand WM, Daniels AH. Medical student burnout: Impact of the gap year in burnout prevention. Work. 2020;66(3):611-616.	Study data collected prior to period
Gaston-Hawkins LA, Solorio FA, Chao GF, Green CR. The Silent Epidemic: Causes and Consequences of Medical Learner Burnout. Curr Psychiatry Rep. 2020 Nov 28;22(12):86.	Review containing data from before inclusion period
Nteveros A, Kyprianou M, Artemiadis A, Charalampous A, Christoforaki K, Cheilidis S, Germanos O, Bargiotas P, Chatzittofis A, Zis P. Burnout among medical	Some data collected prior to inclusion period

students in Cyprus: A cross-sectional study. PLoS One. 2020 Nov 18;15(11):e0241335.	
Ricardo L, Smecellato FB, Orlando. Medical education in COVID-19 pandemic: medical students' point of view. Medicina (Ribeirão Preto). 2020 Dec 11;53(4):490–4.	Does not answer research questions
Fontana MCP, Generoso IP, Sizilio A, Bivanco-Lima D. Burnout syndrome, extracurricular activities and social support among Brazilian internship medical students: a cross-sectional analysis. BMC Med Educ. 2020 Mar 18;20(1):81.	Study data collected in 2015 prior to inclusion period
Perni S, Pollack LR, Gonzalez WC, Dzeng E, Baldwin MR. Moral distress and burnout in caring for older adults during medical school training. BMC Med Educ. 2020 Mar 23;20(1):84.	Study data collected in 2016 prior to inclusion period
MacArthur KR, Sikorski J. A qualitative analysis of the coping reservoir model of pre-clinical medical student well-being: human connection as making it 'worth it'. BMC Med Educ. 2020 May 19;20(1):157.	Study data collected in 2017 prior to inclusion period
Yu J, Chae S. The mediating effect of resilience on the relationship between the academic burnout and psychological well-being of medical students. Korean J Med Educ. 2020 Mar;32(1):13-21.	Study data collected in 2017 prior to inclusion period
Guragai M, Achanta A, Gopez AY, Niyotwambaza J, Cardoso LG, Estavillo NL, Dykstra M. Medical Students' Response to the COVID-19 Pandemic: Experience and Recommendations from Five Countries. Perspect Biol Med. 2020;63(4):623-631.	Study not relevant to research questions
Brubaker JR, Swan A, Beverly EA. A brief intervention to reduce burnout and improve sleep quality in medical students. BMC Med Educ. 2020 Oct 6;20(1):345.	Study data collected in 2018
Duncan AR, Hellman CM. The Potential Protective Effect of Hope on Students' Experience of Perceived Stress and Burnout during Medical School. Perm J. 2020 Dec;24:1.	Study carried out in 2018
Mahfouz MS, Ali SA, Alqahtani HA, Kubaisi AA, Ashiri NM, Daghriri EH, Alzahrani SA, Sowaidi AA, Maashi AM, Alhazmi DA. Burnout and its associated factors among medical students of Jazan University, Jazan, Saudi Arabia. Ment Illn. 2020 Nov 30;12(2):35-42.	Study carried out in 2017-2018
Sepede JC, Petrides J, Collins PB, Jones MC, Cantor N, Boyd L. The role of extracurricular activities and lectures in mitigating medical student burnout. J Osteopath Med. 2021 Apr 26;121(7):617-623.	Study data collected in 2019
Nakhostin-Ansari A, Maghbouli N, Shayestefar M. Ambiguity tolerance among medical students and its relationship with personality and participation in the mentoring program: A cross-sectional study. Ann Med Surg (Lond). 2021 Jan 29;62:425-430.	Study data collected in 2019
Abbasi M, Eraky MA, Yasmeen R, Ashfaq R. The effective coping strategies against burnout: Perceptions of Pakistani medical students. J Pak Med Assoc. 2021 Jun;71(6):1583-1587.	Study carried out in 2018
Treat R, Hueston WJ, Fritz J, Prunuske A, Hanke CJ. Medical Student Burnout as Impacted by Trait Emotional Intelligence - Moderated by Three-Year and Four-Year Medical Degree Programs and Gender. WMJ. 2021 Oct;120(3):188-194.	Study carried out in 2018
Tran TM, Provosty W, Fang Y, Weissbecker K, Myint M. Covid-19 effects on mental health and wellbeing of tulane university school of medicine students. Journal of Investigative Medicine.Conference: 2021 Southern Medical Research Conference.Virtual 2021;69(2):450.	Only abstract available
Hagan S, Hester C. Evaluation of a humanities course in the clinical setting (hands on humanities). Journal of Investigative Medicine.Conference: 2021 Southern Medical Research Conference.Virtual 2021;69(2):597.	Only abstract available
Jayawardena O, Toh S, Fowler H, Fok M, Clifford R. Virtual learning during the COVID-19 pandemic amongst medical students in the United Kingdom. British Journal of Surgery.Conference: ASiT x MedAll Surgical Summit 2020.Virtual 2021;108(SUPPL 2):48–49.	Only abstract available

Jaishankar D, Dave S, Tatineni S, Alkureishi M, Zhu M, Chretien K, et al. Burnout, stress, and loneliness among u.s. medical students during the COVID-19 pandemic: A national survey. Journal of General Internal Medicine.Conference: 2021 Annual Meeting of the Society of General Internal Medicine, SGIM 2021.Virtual 2021;36(SUPPL 1):S161.	Only abstract available
JezziniMartinez S, QuirogaGarza A, JacoboBaca G, GuzmanLopez S, SalinasAlvarez Y, MartinezGarza J, et al. COVID-19 Causing Burnout Among Medical Students. FASEB Journal 2021;Conference:Eermenta.	Only abstract available
Rashid H, Kibble J. Understanding Reasons for Electing Gap Years Between Undergraduate Education and Medical School and the Perceived Impact of Gap Years on the Student Experience of Medical Education: An Interview Study. FASEB Journal 2021;Conference:Eermenta.	Does not answer research questions
Ruiz Gonzalez EP, Romero Otalvaro AM, Crespi MC, Munoz Argel MN, Velez Carvajal JD. Relationship between emotional exhaustion and empathy in medical students from Monteria - Colombia. European Psychiatry 2021;Conference:29th.	Only abstract available
Klasen JM, Meienberg A, Bogie BJM. Medical student engagement during COVID-19: Lessons learned and areas for improvement. Med Educ. 2021 Jan;55(1):115-118.	Does not answer research questions
Shibu A. Medical student engagement during the COVID-19 pandemic-A student perspective. Med Educ. 2021 Jun;55(6):768.	Does not answer research questions
Holloway BR. Medical student engagement during the COVID-19 pandemic-Conflict in the workplace. Med Educ. 2021 Aug;55(8):982.	Does not answer research questions
Morgenstern BZ, Beck Dallaghan G. Should Medical Educators Help Learners Reframe Imposterism? Teach Learn Med. 2021 Aug-Sep;33(4):445-452.	Does not answer research questions
Aghajani Liasi G, Mahdi Nejad S, Sami N, Khakpour S, Ghorbani Yekta B. The prevalence of educational burnout, depression, anxiety, and stress among medical students of the Islamic Azad University in Tehran, Iran. BMC Med Educ. 2021 Sep 5;21(1):471.	Study data collected in 2017 prior to inclusion period
Blanchard C, Kravets V, Schenker M, Moore T Jr. Emotional intelligence, burnout, and professional fulfillment in clinical year medical students. Med Teach. 2021 Sep;43(9):1063-1069.	Study carried out in 2019
Harolds JA. Quality and Safety in Healthcare, Part LXV: Prevalence of Burnout, Suicidal Ideation, and Evidence of Depression in Medical Students. Clin Nucl Med. 2021 Jan;46(1):31-33.	Article does not contain study data within inclusion period
Molodynski A, Lewis T, Kadhum M, Farrell SM, Lemtiri Chelieh M, Falcão De Almeida T, Masri R, Kar A, Volpe U, Moir F, Torales J, Castaldelli-Maia JM, Chau SWH, Wilkes C, Bhugra D. Cultural variations in wellbeing, burnout and substance use amongst medical students in twelve countries. Int Rev Psychiatry. 2021 Feb-Mar;33(1-2):37-42.	Study carried out in 2019
Khosravi M. Burnout among Iranian medical students: Prevalence and its relationship to personality dimensions and physical activity. Eur J Transl Myol. 2021 Mar 26;31(1):9411.	Study carried out in 2019
Carro AC, Nunes RD. Suicidal ideation as a factor associated with Burnout syndrome in medical students. Jornal Brasileiro de Psiquiatria. 2021 Apr 16;70:91-8.	Full text not available in English
Harolds JA. Quality and Safety in Healthcare, Part LXVI: Contributing Causes of Poor Well-being in Medical Students. Clin Nucl Med. 2021 Feb 1;46(2):133-135.	Article does not contain study data within inclusion period
Raditya M, Sutarina N. Relationship between burnout and physical activity level among pre-clinical medical students. J Pak Med Assoc. 2021 Feb;71(Suppl 2)(2):S62-S68.	Study carried out in 2019
Saeed M, Maroof JA, Batool F, Bilal H, Farooq S. Burnout, academic motivation and academic achievement among medical students. Rawal Medical Journal. 2021 Oct 14;46(4):951-951.	Study carried out in 2019

Latif MZ, Sarfraz F, Ikram S, Iqbal N, Saleem J. Burnout syndrome among students of a private medical college at lahore. Pakistan Journal of Medical and Health Sciences 2021;15(9):2896–2899.	Study carried out from 2019-2020 with no reference to the pandemic
Picton A. Work-life balance in medical students: self-care in a culture of self-sacrifice. BMC Med Educ. 2021 Jan 6;21(1):8.	Study carried out in 2016
Luibl L, Traversari J, Paulsen F, Scholz M, Burger P. Resilience and sense of coherence in first year medical students - a cross-sectional study. BMC Med Educ. 2021 Mar 4;21(1):142.	Study carried out in 2017
Gil-Calderón J, Alonso-Molero J, Dierssen-Sotos T, Gómez-Acebo I, Llorca J. Burnout syndrome in Spanish medical students. BMC Med Educ. 2021 Apr 22;21(1):231.	Study carried out in 2019
Merrick D, Mbaki Y, Pratten MK, Simpson TG. Exploring wellbeing in first year medical students amidst a curriculum change. BMC Med Educ. 2021 May 1;21(1):252.	Study carried out from 2015-2020
Yusoff, M.S.B., Hadie, S.N.H. & Yasin, M.A.M. The roles of emotional intelligence, neuroticism, and academic stress on the relationship between psychological distress and burnout in medical students. BMC Med Educ 21, 293 (2021).	Study carried out from 2016-2017
Aljadani AH, Alsolami A, Almehmadi S, Alhuwaydi A, Fathuldeen A. Epidemiology of Burnout and Its Association with Academic Performance Among Medical Students at Hail University, Saudi Arabia. Sultan Qaboos Univ Med J. 2021 May;21(2):e231-e236.	Study carried out in 2019
Neel N, Maury JM, Heskett KM, Iglewicz A, Lander L. The impact of a medical improv curriculum on wellbeing and professional development among pre-clinical medical students. Med Educ Online. 2021 Dec;26(1):1961565.	Does not answer research questions
Kelly EL, Casola AR, Smith K, Kelly S, de la Cruz MSD. A qualitative analysis of third-year medical students' reflection essays regarding the impact of COVID-19 on their education. BMC Med Educ. 2021 Sep 9;21(1):481. doi: 10.1186/s12909-021-02906-2.	Does not answer research questions
Zalts R, Green N, Tackett S, Lubin R. The association between medical students' motivation with learning environment, perceived academic rank, and burnout. Int J Med Educ. 2021 Jan 28;12:25-30.	Study carried out in 2014
Dyrbye L, Satele D, West CP. A Longitudinal National Study Exploring Impact of the Learning Environment on Medical Student Burnout, Empathy, and Career Regret. Academic medicine : journal of the Association of American Medical Colleges.S 2021;96(11):S204–S205.	Only abstract available
Todorovic J, Terzic-Supic Z, Divjak J, Stamenkovic Z, Mandic-Rajcevic S, Kocic S, Ukropina S, Markovic R, Radulovic O, Arnaut A, Piperac P, Mirkovic M, Nesic D. Validation of the Study Burnout Inventory and the Copenhagen Burnout Inventory for the use among medical students. Int J Occup Med Environ Health. 2021 Dec 13;34(6):737-745.	Study carried out in 2019
Ahlers CG, Lawson V, Lee J, March C, Schultz J, Anderson K, Neeley M, Fleming AE, Drolet BC. A Virtual Wellness and Learning Communities Program for Medical Students during the COVID-19 Pandemic. South Med J. 2021 Dec;114(12):807-811.	Does not answer research questions
Seo C, Di Carlo C, Dong SX, Fournier K, Haykal KA. Risk factors for suicidal ideation and suicide attempt among medical students: A meta-analysis. PLoS One. 2021 Dec 22;16(12):e0261785.	Study data from outside inclusion period
Irshad K, Ashraf I, Azam F, Shaheen A. Burnout prevalence and associated factors in medical students in integrated modular curriculum: A cross-sectional study. Pak J Med Sci. 2022 Mar-Apr;38(4Part-II):801-806.	Does not answer research questions
Stephens GC, Sarkar M, Lazarus MD. Medical Student Experiences of Uncertainty Tolerance Moderators: A Longitudinal Qualitative Study. Front Med (Lausanne). 2022 Apr 25;9:864141.	Does not answer research questions

Shrestha R, Bohaju A, K C S, Pathak A. Finding and Maintaining Motivation in Medical School. JNMA J Nepal Med Assoc. 2022 Jun 1;60(250):584-587.	Does not answer research questions
Domínguez-Torres LC, Vega-Peña NV, Sierra-Barbosa DO, Montiel MA. The effect of grit on students' work-engagement in surgery: A cross-sectional study. DOAJ (DOAJ: Directory of Open Access Journals). 2022 Jul 1;	Full text not available in English
Grush KA, Christensen W, Lockspeiser T, Adams J. EVIDENCE OF SECONDARY TRAUMATIC STRESS IN MEDICAL STUDENTS OVER THE COURSE OF CLINICAL CLERKSHIPS. Journal of General Internal Medicine 2022;Conference: 2022 Annual Meeting of the Society of General Internal Medicine. Orlando, FL United States:Date of Publication:June 2022.	Only abstract available
Dagher T, Alkureishi L, Vayani O, Chalmers K, Zhu M, Woodruff JN, et al. CHANGES IN MEDICAL STUDENT WELL-BEING DURING THE COVID-19 PANDEMIC: A MULTISITE SURVEY. Journal of General Internal Medicine 2022;Conference: 2022 Annual Meeting of the Society of General Internal Medicine. Orlando, FL United States:Date of Publication:June 2022.	Only abstract available
Hogea L, Corsaro L. The impact of burnout syndrome among medical students - meta-analysis. European Psychiatry 2022;Conference:30th.	Only abstract available
Barrett JH, Park MJ, Singh A, Joshi A, Amor W. Improving Medical Student Wellness: The Treatment of Circadian Rhythm Sleep-Wake Disorders Is Needed. J Am Acad Child Adolesc Psychiatry 2022;Conference: The Scientific Proceedings of the 69th Annual Meeting of the American Academy of Child & Adolescent Psychiatry. Toronto Canada:Date of Publicaton: Otober 2022.	Only abstract available
Walters M, Alonge T, Zeller M. Impact of COVID-19 on Medical Education: Perspectives From Students. Acad Med. 2022 Mar 1;97(3S):S40-S48.	Does not answer research questions
Maalouf E, Hallit S, Obeid S. Personality traits and quality of life among Lebanese medical students: any mediating effect of emotional intelligence? A path analysis approach. BMC Psychol. 2022 Feb 11;10(1):28.	Study carried out in 2019
Wimberly CE, Rajapakse H, Park LP, Price A, Proeschold-Bell RJ, Østbye T. Mental well-being in Sri Lankan medical students: a cross-sectional study. Psychol Health Med. 2022 Jul;27(6):1213-1226.	Study carried out in 2018
Dias AR, Fernandes SM, Fialho-Silva I, Cerqueira-Silva T, Miranda-Scippa Â, Almeida AG. Burnout syndrome and resilience in medical students from a Brazilian public college in Salvador, Brazil. Trends Psychiatry Psychother. 2022 Jun 17;44:e20200187.	Study carried out in 2018
Smith GS, Houmanfar RA, Jacobs NN, Froehlich M, Szarko AJ, Smith BM, Kemmelmeier M, Baker TK, Piasecki M, Schwenk TL. Assessment of medical student burnout: toward an implicit measure to address current issues. Adv Health Sci Educ Theory Pract. 2022 May;27(2):375-386.	Study carried out from 2016-2018
Bolatov AK, Seisembekov TZ, Smailova DS, Hosseini H. Burnout syndrome among medical students in Kazakhstan. BMC Psychol. 2022 Aug 6;10(1):193.	Study carried out in 2019
Dahanayake D, Rajapakse H, Wickramasinghe A, Chandradasa M, Rohanachandra Y, Perera S, Nillo AM, Molodynski A. Psychological wellbeing and mental health amongst medical undergraduates: A descriptive study assessing more than 1,000 medical students in Sri Lanka. Int J Soc Psychiatry. 2022 Sep;68(6):1263-1269.	Does not answer research questions
Lynch-Kelly K. Identifying burnout in current clinical medical students. Med Teach. 2022 Aug;44(8):938-939.	Does not answer research questions
Kloping NA, Citraningtyas T, Lili R, Farrell SM, Molodynski A. Mental health and wellbeing of Indonesian medical students: A regional comparison study. Int J Soc Psychiatry. 2022 Sep;68(6):1295-1299.	Does not answer research questions
Almutairi H, Alsubaiei A, Abduljawad S, Alshatti A, Fekih-Romdhane F, Husni M, Jahrami H. Prevalence of burnout in medical students: A systematic review and meta-analysis. Int J Soc Psychiatry. 2022 Sep;68(6):1157-1170.	Study contains data prior to inclusion period and makes no temporal separation of the data

Taylor CE, Scott EJ, Owen K. Physical activity, burnout and quality of life in medical students: A systematic review. Clin Teach. 2022 Dec;19(6):e13525.	Review contains data prior to inclusion period and makes no temporal separation of the data
Shin HS, Park H, Lee YM. The relationship between medical students' empathy and burnout levels by gender and study years. Patient Educ Couns. 2022 Feb;105(2):432-439.	Study carried out in 2018
Ochoa M, Reyes F, Arenas P, McMichael M, Latini F. Frecuencia de síndrome de burnout en estudiantes de medicina en la provincia de San Luis. Neurología Argentina. 2021 Dec;14(2).	Full text not available in English
O'Marr JM, Chan SM, Crawford L, Wong AH, Samuels E, Boatright D. Perceptions on Burnout and the Medical School Learning Environment of Medical Students Who Are Underrepresented in Medicine. JAMA Netw Open. 2022 Feb 1;5(2):e220115.	Study data collected in 2016 and 2017
Abrams MP, Salzman J, Espina Rey A, Daly K. Impact of Providing Peer Support on Medical Students' Empathy, Self-Efficacy, and Mental Health Stigma. Int J Environ Res Public Health. 2022 Apr 23;19(9):5135.	Does not answer research questions
Ong RSR, Wong RSM, Chee RCH, Quek CWN, Burla N, Loh CYL, Wong YA, Chok AK, Teo AYT, Panda A, Chan SWK, Shen GS, Teoh N, Chin AMC, Krishna LKR. A systematic scoping review moral distress amongst medical students. BMC Med Educ. 2022 Jun 17;22(1):466.	Study contains data prior to inclusion period and makes no temporal separation of the data
Hathaisaard C, Wannarit K, Pattanaseri K. Mindfulness-based interventions reducing and preventing stress and burnout in medical students: A systematic review and meta-analysis. Asian J Psychiatr. 2022 Mar;69:102997.	Study only contains data up until December 2019
Peng P, Hao Y, Liu Y, Chen S, Wang Y, Yang Q, Wang X, Li M, Wang Y, He L, Wang Q, Ma Y, He H, Zhou Y, Wu Q, Liu T. The prevalence and risk factors of mental problems in medical students during COVID-19 pandemic: A systematic review and meta-analysis. J Affect Disord. 2023 Jan 15;321:167-181.	Does not answer research questions
Gugliucci M, Manukhin D, Dyer E, Swartzlander B. End of Life Virtual Reality Training: Medical Student Increased Empathic Ability. Innov Aging. 2021 Dec 17;5(Suppl 1):820–1.	Does not answer research questions
Silva E, Aguiar J, Reis LP, Sá JOE, Gonçalves J, Carvalho V. Stress among Portuguese Medical Students: the EuStress Solution. J Med Syst. 2020 Jan 2;44(2):45.	Does not answer research questions
Din MU, Ahsan K, Aslam W, Siddique U, Majeed S, Mujahid A. A Survey to Assess the Prevalence of Stress and Stressors among Medical Students. Pakistan Journal of Medical and Health Sciences 2022;16(12):218–220.	Does not answer research questions
Runyon CR, Paniagua MA, Dyrbye LN. Exploring the Validity Based on Internal Structure of the Oldenburg Burnout Inventory - Medical Student (OLBI-MS). Teach Learn Med 2023;35(1):37–51.	Does not answer research questions
Edmonds VS, Chatterjee K, Girardo ME, Butterfield RJ 3rd, Stonnington CM. Evaluation of a Novel Wellness Curriculum on Medical Student Wellbeing and Engagement Demonstrates a Need for Student-Driven Wellness Programming. Teach Learn Med. 2023 Jan-Mar;35(1):52-64.	Study data collected between 2018-2019
Tokumasu K, Nishimura Y, Sakamoto Y, Obika M, Kataoka H, Otsuka F. Differences in Stress Perception of Medical Students Depending on In-Person Communication and Online Communication during the COVID-19 Pandemic: A Japanese Cross-Sectional Survey. Int J Environ Res Public Health. 2023 Jan 15;20(2):1579.	Does not answer research questions
Khan S, Iftikhar Z, Shehzad Z, Rehman U, Ayub S, Zulfiqar U. Assessment of Physical and Emotional Wellbeing of Medical Students using SF-36 Questionnaire. Pakistan Journal of Medical and Health Sciences. 2023 Feb 28;17(2):126–8.	Does not answer research questions

Neufeld A, Babenko O, Lai H, Svrcek C, Malin G. Why Do We Feel Like Intellectual Frauds? A Self-Determination Theory Perspective on the Impostor Phenomenon in Medical Students. Teach Learn Med. 2023 Apr-May;35(2):180-192.	Does not answer research questions
Ye WQW, Rietze BA, McQueen S, Zhang K, Quilty LC, Wickens CM. Barriers to Accessing Mental Health Support Services in Undergraduate Medical Training: A Multicenter, Qualitative Study. Acad Med. 2023 Apr 1;98(4):491-496.	Data collected from 2019-2020 with no temporal separation of the data
Esguerra S, Chiu FT, Espinoza A, Williams D, Clithero-Eridon A. Are medical students happy despite unhappy conditions: a qualitative exploration of medical student cohorts during disruptive conditions. BMC Med Educ. 2023 Apr 5;23(1):214.	Does not answer research questions
Ilić IM, Ilić MD. The relationship between the burnout syndrome and academic success of medical students: a cross-sectional study. Arh Hig Rada Toksikol. 2023 Jun 26;74(2):134-141.	Does not answer research questions
Ahmad M, Donohue G, O'Donnell B. THE PREVALENCE AND SEVERITY OF BURNOUT AMONG MEDICAL STUDENTS AT UNIVERSITY COLLEGE DUBLIN. Ir J Med Sci 2022;Conference:Summer.	Only abstract available
Smith JF Jr, Piemonte NM. The Problematic Persistence of Tiered Grading in Medical School. Teach Learn Med. 2023 Aug-Sep;35(4):467-476.	Does not answer research questions
Wizner MH, Kawalec A, Rodak N, Wilczyński KM, Janas-Kozik M. Depression, anger and coping strategies of students in polish medical faculties. Eur Psychiatry. 2023 Jul 19;66(Suppl 1):S544–5.	Does not answer research questions
Bhugra D, Molodynski A. Well-being and burnout in medical students: challenges and solutions. Ir J Psychol Med. 2024 Jun;41(2):175-178.	Does not answer research questions
Meyer M, Iglewicz A, Sebasky M, Jassal SK, Ervin A. PRESERVING EMPATHY IN THE THIRD YEAR OF MEDICAL SCHOOL: A PILOT INTERVENTION. Journal of General Internal Medicine 2023;Conference:Annua.	Only abstract available
Ma TL, Bell K, Dong T, Durning SJ, Soh M. Military Medical Students' Coping With Stress to Maintain Well-being. Mil Med. 2023 May 18;188(Suppl 2):26-34.	Study data collected in 2019
Ruiz Gonzalez EP, Krikorian A, Romero AM, Lemos M, Roman JP. Compassion and burnout syndrome in medical students from the Colombian Caribbean coast. Eur Psychiatry. 2023 Jul 19;66(Suppl 1):S354.	Only abstract available
Khosravi M, Adibi A, Abbasi N, Farhangi E. The relationship of personality traits, demographic factors, and current substance/medication use with academic burnout among medical students: The moderating role of physical activity. Journal of Isfahan Medical School. 2023 Jun 22;41(720):382-93.	Full text not available in English
Sperling EL, Hulett JM, Sherwin LB, Thompson S, Bettencourt BA. The effect of mindfulness interventions on stress in medical students: A systematic review and meta-analysis. PLoS One. 2023 Oct 5;18(10):e0286387.	Study contains data prior to inclusion period and makes no temporal separation of the data
Derwahl L, Topalidou C, Dilba P, Buchholz I, Strauß B, Gumz A. Der Zusammenhang von Persönlichkeitsstruktur, Burnout und Prokrastination bei Psychologie- und Medizinstudierenden unter Einbeziehung von sozialer Unterstützung und Entscheidungsspielraum im Studium [The Relationship between Personality Structure, Burnout and Procrastination in Psychology and Medical Students, Taking into Account Social Support and Scope for Decision-Making in Studies]. Psychother Psychosom Med Psychol. 2024 Jan;74(1):17-24.	Full text not available in English
Frajerman A. Mental Health of Health and Medical Students during the COVID-19 Pandemic: National Studies. European Psychiatry 2023;Conference:31st.	Only abstract available

Yang D, Ryus C, Boatright DH. Association Between Disaggregated Asian American Medical Student Population, Mistreatment, and Burnout (ADIEM Sponsored). Acad Emerg Med 2023;Conference:Soety.	Only abstract available
Laird-Gion JN, Garabedian LF, Conrad R, Shaffer AC, Witkowski ML, Mateo CM, Jones DS, Hundert E, Kasper J. Snuff burnout and reignite passion in medical students. Med Educ. 2023 May;57(5):465-466.	Does not answer research questions
Chisholm LP, Jackson KR, Davidson HA, Churchwell AL, Fleming AE, Drolet BC. Evaluation of Racial Microaggressions Experienced During Medical School Training and the Effect on Medical Student Education and Burnout: A Validation Study. J Natl Med Assoc. 2021 Jun;113(3):310-314.	Does not answer research questions
Gheihman G, Singh TA, Cooper CA, McKeon BA, Hirsh DA, Simpkin AL. Everyday Resilience: Equipping Faculty With Practical Exercises to Promote Resilience Among Medical Students. MedEdPORTAL. 2021 Jan 25;17:11076.	Does not answer research questions
Griffith CH. The Learning Environment and Medical Student Burnout. JAMA Netw Open. 2021;4(8):e2119344.	Does not answer research questions
Kakoschke N, Hassed C, Chambers R, Lee K. The importance of formal versus informal mindfulness practice for enhancing psychological wellbeing and study engagement in a medical student cohort with a 5-week mindfulness-based lifestyle program. PLoS One. 2021 Oct 21;16(10):e0258999.	Does not answer research questions
Castro MRH, Calthorpe LM, Fogh SE, McAllister S, Johnson CL, Isaacs ED, Ishizaki A, Kozas A, Lo D, Rennke S, Davis J, Chang A. Lessons From Learners: Adapting Medical Student Education During and Post COVID-19. Acad Med. 2021 Dec 1;96(12):1671-1679.	Does not answer research questions
Ashrafi A, Kadhum M, Molodynski A, Bhugra D. Mental health and wellbeing among Iranian medical students: a descriptive study. Int J Soc Psychiatry. 2022 Sep;68(6):1248-1252.	Does not answer research questions
Stephens GC, Sarkar M, Lazarus MD. 'A whole lot of uncertainty': A qualitative study exploring clinical medical students' experiences of uncertainty stimuli. Med Educ. 2022 Jul;56(7):736-746.	Does not answer research questions
Rosales-Ricardo Y, Ferreira JP. Effects of Physical Exercise on Burnout Syndrome in University Students. MEDICC Rev. 2022 Jan 31;24(1):36-39.	Study data collected in 2018
Afshar, K., Wiese, B., Stiel, S. et al. Perceived stress and study-related behavior and experience patterns of medical students: a cross-sectional study. BMC Med Educ 22, 122 (2022).	Study data collected from 2018-2019
Sumin AN, Prokashko IY, Shcheglova AV. Evaluation of Coping Strategies among Students with Type D Personality. Int J Environ Res Public Health. 2022 Apr 18;19(8):4918.	Data collected from 2019-2020 with no temporal separation of the data
Atienza-Carbonell B, Guillén V, Irigoyen-Otiñano M, Balanzá-Martínez V. Screening of substance use and mental health problems among Spanish medical students: A multicenter study. J Affect Disord. 2022 Aug 15;311:391-398.	Data collected from 2019-2020 with no temporal separation of the data
Ungar P, Schindler AK, Polujanski S, Rotthoff T. Online programs to strengthen the mental health of medical students: A systematic review of the literature. Med Educ Online. 2022 Dec;27(1):2082909.	Study contains data prior to inclusion period and makes no temporal separation of the data
Kim HW, Hong JW, Nam EJ, Kim KY, Kim JH, Kang JI. Medical students' perceived stress and perceptions regarding clinical clerkship during the COVID-19 pandemic. PLoS One. 2022 Oct 31;17(10):e0277059.	Does not answer research questions

Gilbey, P., Moffat, M., Sharabi-Nov, A. et al. Burnout in Israeli medical students: a national survey. BMC Med Educ 23, 55 (2023).	Data collection carried out in 2019
Knight AP, Rea M, Allgood JA, Sciolla AF, Haywood A, Stephens MB, Rajasekaran S. Bringing Needed Change to Medical Student Well-Being: A Call to Expand Accreditation Requirements. Teach Learn Med. 2023 Jan-Mar;35(1):101-107.	Does not answer research questions
Šimić Š, Černy Obrdalj E, Bevanda M, Bevanda D, Rizikalo A, Marijanović I. Impact of COVID-19 Pandemic on Mental Health of Medical Students at the University of Mostar. Psychiatr Danub. 2021 Sep;33(Suppl 10):114-119.	Does not answer research questions
Sam CP, Mamat NH, Nadarajah VD. An exploratory study on the challenges faced and coping strategies used by preclinical medical students during the COVID-19 crisis. Korean J Med Educ. 2022 Jun;34(2):95-106.	Does not answer research questions
Cummerow J, Obst K, Voltmer E, Kötter T. Medical students' coping with stress and its predictors: a cross-sectional study. Int J Med Educ. 2023 Feb 28;14:11-18.	Study data collected from 2016-2017
Coe TM, McKinley SK, Hamdi I, Sinyard RD, Jogerst KM, Pradarelli AA, Petrusa E, Moses J, Saillant N, Phitayakorn R. The Big Sibling program: Impact of a medical student-resident mentorship program during the surgery clerkship. Am J Surg. 2023 Apr;225(4):650-655.	Does not answer research questions
Barbier JM, Carrard V, Schwarz J, Berney S, Clair C, Berney A. Exposure of medical students to sexism and sexual harassment and their association with mental health: a cross-sectional study at a Swiss medical school. BMJ Open. 2023 Apr 27;13(4):e069001.	Does not answer research questions
Watanabe T, Akechi T. The mediating role of psychological flexibility in the association of autistic-like traits with burnout and depression in medical students during clinical clerkships in Japan: a university-based cross-sectional study. BMC Psychiatry. 2023 May 1;23(1):302.	Data collected from 2019-2022 with no temporal separation of the data
Vidhukumar K, Hamza M. Prevalence and Correlates of Burnout among Undergraduate Medical Students - A Cross-sectional Survey. Indian J Psychol Med. 2020 Mar 9;42(2):122-127.	Study data collected in 2017
Manning-Geist B, Meyer F, Chen J, Pelletier A, Kosman K, Chen XP, Johnson NR. Pre-clinical Stress Management Workshops Increase Medical Students' Knowledge and Self-awareness of Coping with Stress. Med Sci Educ. 2020;30(1):235-241.	Does not answer research questions
Pipas CF, Damianos JA, Montalbano L, Matous AL, Hua J, Shoop GH. A Curriculum to Promote a Culture of Wellness Among Medical Students and Faculty. PRiMER. 2020 Jul 10;4:13.	Does not answer research questions
Yusoff MSB. A comparative study on the psychological health status of pre-clinical medical students enrolled through different admission tests. J Taibah Univ Med Sci. 2020 Oct 16;15(6):439-446.	Does not answer research questions
Coronado-Vázquez V, Antón-Rodríguez C, Gómez-Salgado J, Ramírez-Durán MDV, Álvarez-Montero S. Evaluation of learning outcomes of humanities curricula in medical students. A meta-review of narrative and systematic reviews. Front Med (Lausanne). 2023 Apr 17;10:1145889.	Study contains data prior to inclusion period and makes no temporal separation of the data
Wongtrakul W, Dangprapai Y, Saisavoey N, Sa-Nguanpanich N. Reliability and validity study of the Thai adaptation of the Maslach Burnout Inventory-Student Survey among preclinical medical students at a medical school in Thailand. Front Psychol. 2023 May 3;14:1054017.	Does not answer research questions
Wothe JK, Wanberg LJ, Hohle RD, Sakher AA, Bosacker LE, Khan F, Olson AP, Satin DJ. Academic and Wellness Outcomes Associated with use of Anki Spaced Repetition Software in Medical School. J Med Educ Curric Dev. 2023 May 8;10:23821205231173289.	Does not answer research questions

Bhugra D, Molodynski A, Ventriglio A. Well-being and burnout in medical students. Ind Psychiatry J. 2021 Jul-Dec;30(2):193-197.	Article primarily uses data from before the inclusion period
Stacey A, D'Eon M, Madojemu G. Medical student stress and burnout: Before and after COVID-19. Can Med Educ J. 2020 Dec 7;11(6):e204-e205.	Does not answer research questions
Polle E, Gair J. Mindfulness-based stress reduction for medical students: a narrative review. Can Med Educ J. 2021 Apr 30;12(2):e74-e80.	Study comprised of data prior to inclusion period
Natalia D, Syakurah RA. Mental health state in medical students during COVID-19 pandemic. J Educ Health Promot. 2021 Jun 30;10:208.	Does not answer research questions
Vazquez Morgan M. Promoting Student Wellness and Self-Care During COVID 19: The Role of Institutional Wellness. Front Psychiatry. 2021 Dec 22;12:797355.	Does not answer research questions
Wang Q, Wu H. Associations Between Maladaptive Perfectionism and Life Satisfaction Among Chinese Undergraduate Medical Students: The Mediating Role of Academic Burnout and the Moderating Role of Self-Esteem. Front Psychol. 2022 Jan 7;12:774622.	Study carried out in 2019
Ferriby A, Schaefer AF. The Relationship Between Anatomical Self-efficacy and Feelings of Burnout in First-year Medical Students. Med Sci Educ. 2022 Feb 2;32(2):437-446.	Study carried out in 2019
van Dijk I, van Beek MHCT, Arts-de Jong M, Lucassen PLBJ, van Weel C, Speckens AEM. Experiences of Clinical Clerkship Students With Mindfulness-Based Stress Reduction: A Qualitative Study on Long-Term Effects. Front Psychol. 2022 Mar 31;13:785090.	Study carried out between 2011-2014
Poluch M, Feingold-Link J, Papanagnou D, Kilpatrick J, Ziring D, Ankam N. Intolerance of Uncertainty and Self-Compassion in Medical Students: Is There a Relationship and Why Should We Care? J Med Educ Curric Dev. 2022 May 16;9:23821205221077063.	Does not answer research questions
Lynch TV, Beach IR, Kajtezovic S, Larkin OG, Rosen L. Step Siblings: a Novel Peer-Mentorship Program for Medical Student Wellness During USMLE Step 1 Preparation. Med Sci Educ. 2022 Jun 13;32(4):803-810. doi: 10.1007/s40670-022-01571-4.	Does not answer research questions
Volpe RL, de Boer C, Wasserman E, Van Scoy LJ. Can an Arts Course Help Mitigate Medical Student Burnout? Med Sci Educ. 2022 Jul 30;32(5):1023-1032.	Study carried out from 2018-2020 with no temporal separation of the data
D'Eon MF, Waller J, Stacey A, Kelly C, Desmarais N, Debenbaum B, Agrawal H. Medical student stress, burnout, and workplace factors. Can Med Educ J. 2022 Sep 1;13(5):116-117.	Does not answer research questions
Stacey A, D'Eon M, Andersen M, Koehncke N, Campoli J, Thompson G, Riou K. Warning: medical education is hazardous to your mental health. Medical students should make an informed decision to begin and continue training. Can Med Educ J. 2022 Sep 1;13(5):39-44.	Does not answer research questions
Briggs LG, Riew GJ, Seward MW; Medicine in Motion Writing Group. Combatting Burnout by Maximizing Medical Student Participation in Exercise Events. Am J Lifestyle Med. 2021 Oct 28;16(6):779-784.	Does not answer research questions
Lyndon MP, Henning MA, Alyami H, Krishna S, Zeng I, Yu TC, Hill AG. Burnout, quality of life, motivation, and academic achievement among medical students: A person-oriented approach. Perspect Med Educ. 2017 Apr;6(2):108-114.	Study data collected in 2014

Lane CB, Brauer E, Mascaro JS. Discovering compassion in medical training: a qualitative study with curriculum leaders, educators, and learners. Front Psychol. 2023 Jun 28;14:1184032.	Does not answer research questions
Al Lawati A, Al Wahaibi A, Al Kharusi F, Fai Chan M, Al Sinawi H. Investigating Impostorism Among Undergraduate Medical Students at Sultan Qaboos University: A Questionnaire-Based Study. Cureus. 2023 Sep 22;15(9):e45752.	Does not answer research questions
Kachel T, Huber A, Strecker C, Höge T, Höfer S. Development of Cynicism in Medical Students: Exploring the Role of Signature Character Strengths and Well-Being. Front Psychol. 2020 Feb 27;11:328.	Study conducted between 2015-2017
Oró P, Esquerda M, Mas B, Viñas J, Yuguero O, Pifarré J. Effectiveness of a Mindfulness-Based Programme on Perceived Stress, Psychopathological Symptomatology and Burnout in Medical Students. Mindfulness (N Y). 2021;12(5):1138-1147.	Does not answer research questions
Rezaei S, Childress A, Kaul B, Rosales KM, Newell A, Rose S. Using Visual Arts Education and Reflective Practice to Increase Empathy and Perspective Taking in Medical Students. MedEdPORTAL. 2023 Sep 22;19:11346.	Does not answer research questions
Ozan KG, McGough JEG, Gabel J, Snow M, Michel N, Cooper L, Robinson K. Identified strategies to mitigate medical student mental health and burnout symptoms. J Osteopath Med. 2023 Oct 4;124(2):95-96.	Does not answer research questions
Anderson KG, Lemos J, Pickell S, Stave C, Sgroi M. Athletes in medicine: A systematic review of performance of athletes in medicine. Med Educ. 2023 Sep;57(9):807-819.	Study contains data prior to inclusion period and makes no temporal separation of the data
Jahrami H, AlKaabi J, Trabelsi K, Pandi-Perumal SR, Saif Z, Seeman MV, Vitiello MV. The worldwide prevalence of self-reported psychological and behavioral symptoms in medical students: An umbrella review and meta-analysis of meta-analyses. J Psychosom Res. 2023 Oct;173:111479.	Study contains data prior to inclusion period and makes no temporal separation of the data
Meadows A, Barreto M, Dovidio JF, Burkle S, Wittlin NM, Herrin J, et al. Signaling hostility: The relationship between witnessing weight-based discrimination in medical school and medical student well-being. Journal of Applied Social Psychology. 2021 Dec 16;53(3):215–30.	Study data collected primarily prior to inclusion period
Szarko AJ, Houmanfar RA, Smith GS, Jacobs NN, Smith BM, Assemi K, et al. Impact of Acceptance and Commitment Training on psychological flexibility and burnout in medical education. Journal of Contextual Behavioral Science. 2022 Jan;23:190–9.	Study conducted between 2017-2020 with no temporal separation of data in analysis
Watanabe T, Kondo M, Sakai M, Tatsuo Akechi. Acceptance and commitment training for reducing burnout in medical students during a clinical clerkship in psychiatry and palliative care: A pilot study. Journal of Contextual Behavioral Science. 2023 Oct 1;30:20–30.	Study began in 2019
Sekhar P, Tee QX, Ashraf G, Trinh D, Shachar J, Jiang A, Hewitt J, Green S, Turner T. Mindfulness-based psychological interventions for improving mental well-being in medical students and junior doctors. Cochrane Database Syst Rev. 2021 Dec 10;12(12):CD013740.	Studies from prior to inclusion period present with no temporal separation of the data
Smoktunowicz E, Maciejewski J, Lesnierowska M, Carlbring P. Bridging the adherence gap in internet interventions: A randomized controlled trial study protocol investigating context-specific self-efficacy. Internet Interv. 2023 Dec 4;35:100697.	Does not answer research questions
Rong R, Chen W, Dai Z, Gu J, Chen W, Zhou Y, Kuang M, Xiao H. Improvement of the management of mental well-being and empathy in Chinese medical students: a randomized controlled study. BMC Med Educ. 2021 Jul 10;21(1):378.	Study carried out in 2016
Arif NMNA, Roslan NS, Ismail SB, Nayak RD, Jamian MR, Mohamad Ali Roshidi AS, Edward TC, Kamal MA, Mohd Amin MM, Shaari S, Shaharudin Basri MF. Prevalence and Associated Factors of Psychological Distress and Burnout among	Study carried out in 2018

Medical Students: Findings from Two Campuses. Int J Environ Res Public Health. 2021 Aug 10;18(16):8446.	
Wang J, Shi W, Huang X, Jiao Y. The prevalence of imposter syndrome and associated factors in Chinese medical students and residents: A single-center pilot study. Med Teach 2023 Sep 18;1-7.	Does not answer research questions
Rahm AK, Töllner M, Hubert MO, Klein K, Wehling C, Sauer T, Hennemann HM, Hein S, Kender Z, Günther J, Wagenlechner P, Bugaj TJ, Boldt S, Nikendei C, Schultz JH. Effects of realistic e-learning cases on students' learning motivation during COVID-19. PLoS One. 2021 Apr 21;16(4):e0249425.	Does not answer research questions
van der Merwe LJ, Botha A, Joubert G. Resilience and coping strategies of undergraduate medical students at the University of the Free State. S Afr J Psychiatr. 2020 Jul 28;26:1471.	Does not answer research questions
Dyrbye LN, Lipscomb W, Thibault G. Redesigning the Learning Environment to Promote Learner Well-Being and Professional Development. Acad Med. 2020 May;95(5):674-678.	Review article utilising pre-2020 data
Sivahop J, Broadfoot K, Bowser J. A Tale of Two Curriculums: The Implications of Curriculum Design on Student Burnout. J Physician Assist Educ. 2022 Sep 1;33(3):248-252.	Physician assistant students outside of inclusion criteria
Romanski PA, Bartz D, Pelletier A, Johnson NR. The "Invisible Student": Neglect as a Form of Medical Student Mistreatment, a Call to Action. J Surg Educ. 2020 Nov-Dec;77(6):1327-1330.	Does not answer research questions
Basra R, Joachim J, Pindolia M. Medical school and mental health: Our student perspective. International Journal of Social Psychiatry. 2022 Jan 21;002076402110701.	Does not answer research questions
Morcos G, Awan OA. Burnout in Medical School: A Medical Student's Perspective. Acad Radiol. 2023 Jun;30(6):1223-1225.	Viewpoint article primarily citing literature from prior to the inclusion period
Sierra T, McCall TC, Brown H, Smith NE. The Role of Interpersonal Toxicity on Healthcare Students' Well-Being. J Physician Assist Educ. 2022 Sep 1;33(3):198-204.	Physician assistant students outside of inclusion criteria
Ma TL, Dong T, Soh M, Artino AR, Landoll RR, Schreiber-Gregory DN, Durning SJ. Profiles of Military Medical Students' Well-being, Burnout, and Retention. Mil Med. 2023 May 18;188(Suppl 2):35-42.	Data collected in 2019 prior to inclusion period
Farooq F, Rathore FA, Mansoor SN. Challenges of Online Medical Education in Pakistan During COVID-19 Pandemic. J Coll Physicians Surg Pak. 2020 Jun;30(6):67-69.	Does not answer research questions
Geraghty JR, Young AN, Berkel TDM, Wallbruch E, Mann J, Park YS, Hirshfield LE, Hyderi A. Empowering medical students as agents of curricular change: a value-added approach to student engagement in medical education. Perspect Med Educ. 2020 Feb;9(1):60-65.	Does not answer research questions
Duncan AR, Bell SB, Hellman CM. Intersections of perceived stress, burnout, dispositional hope, intellectual humility, locus of control, and lifestyle factors in undergraduate medical education. Current Psychology. 2022 Jun 18;	Data collected prior to inclusion period
Kilic R, Nasello JA, Melchior V, Triffaux JM. Academic burnout among medical students: respective importance of risk and protective factors. Public Health. 2021 Sep;198:187-195.	Data collected prior to inclusion period
Gradiski IP, Borovecki A, Ćurković M, San-Martín M, Delgado Bolton RC, Vivanco L. Burnout in International Medical Students: Characterization of Professionalism and Loneliness as Predictive Factors of Burnout. Int J Environ Res Public Health. 2022 Jan 26;19(3):1385.	Data collected prior to inclusion period
Haghnegahdar M, Sharma P, Hubbard KP, White WA. The Influence of Religious Belief on Burnout in Medical Students. Mo Med. 2021 Jan-Feb;118(1):63-67.	Data collected prior to inclusion period

Appendix III: Review details

Contained in this appendix are the criteria used to conduct the scoping review

Scoping Review title	Drivers of medical student burnout and engagement since the pandemic: a scoping review.
Review objective/s	To identify the drivers of medical student burnout and engagement since the pandemic, evaluate the extent of literature since the pandemic focused on medical student burnout and engagement, to understand how often and in what ways engagement is discussed and identify gaps in the existing literature.
Review question/s	What are the gaps within and extent of the literature about medical student burnout and engagement since the pandemic, in terms of study design and key focus? What are the key concepts and vocabulary used in relation to engagement as the antithesis of burnout? To what extent do included studies align with the drivers of burnout or engagement in the Mayo Clinic model of clinician wellbeing?
Inclusion/Exclusion Criteria:	
Population	Included studies must have a study sample of solely medical students.
Concept	Included studies must have either burnout or engagement as a key focus and be able to answer at least one of the review questions, as well as matching our predetermined definitions of those concepts.
Context	Included studies must have either only collected data after 30/01/2020 or must include a clear temporal separation between the data collected before and after this date (i.e. separating pre and post-pandemic data). All included studies must have been published in English due to a lack of accurate and reliable translation methods within the resources of this review.
Types of evidence source	Grey literature was excluded, but this was the only exclusion based on the literature type.

Appendix IV: Data extraction instrument

Contained in this appendix are all the included articles in the review and the data points extracted from them

Citation	Participants	Study type	Concept covered	Mayo Clinic drivers	Burnout survey type used	Engagement survey type used
Bolatov, 2021[20] Kazakhstan	Participants: 798 Gender: 76% female, 24% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Control and flexibility, Work-life integration, Social support and community at work	Copenhagen burnout inventory	None
Forycka et al, 2022[21] Poland	Participants: 1858 Gender: 78% female, 22% male, <1% other Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory	None
Ruiz, 2022[75] Guatemala	Participants: 132 Gender: Unspecified Pre-clinical or clinical: Both	Longitudinal	Burnout	Organisational culture and values	Maslach burnout inventory	None
Greenmyer, 2022[22] United States	Participants: 157 Gender: 53% female, 46% male, 1% other	Cross-sectional	Burnout	None	Oldenburg burnout inventory	None

	Pre-clinical or clinical: Both					
Carrard, 2022[23] Switzerland	Particpants: 937 Gender: 68% female, 31% male, 1% non-binary Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands,	Maslach burnout inventory	None
Abreu Alves, 2022[24] Portugal	Participants: 417 Gender: 71% female Pre-clinical or clinical: Pre-clinical	Cross-sectional	Burnout	Workload and job demands, Social support and community at work	Maslach burnout inventory	None
Zhang et al, 2021[25] China	Participants: 1062 Gender: 60% female, 40% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands	Learning burnout questionnaire	None
Yu et al, 2023[26] China	Participants: 249 Gender: 54% male, 46% female Pre-clinical or clinical: Both	Cross-sectional	Burnout and engagement	Workload and job demands, Organisational culture and values, Meaning in work	Undergraduate learning burnout scale	Undergraduate professional commitment scale

Zhang et al, 2021[27] China	Participants: 684 Gender: 58% female, 42% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Social support and community at work	Learning burnout scale	None
Zúñiga et al, 2021[83] Chile	Participants: 102 Gender: 51% male, 49% female Pre-clinical or clinical: Clinical	Pre-post study	Burnout	Efficiency and resources	Maslach burnout inventory	None
Puranitee et al, 2022[28] Thailand	Participants: 763 Gender: 50.5% female, 49.5% male Pre-clinical or clinical: Both	Cross-sectional	Burnout and engagement	Workload and job demands, Social support and community at work, Organisational culture and values, Meaning in work	Maslach burnout inventory. Students with highest and lowest burnout levels were selected for interviews	Utrecht work engagement scale
Kjaer et al, 2022[29] Denmark	Participants: 647 Gender: 77% female, 23% male, <1% other/ no response Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Oldenburg burnout inventory	None
Salzman et al, 2021[76] United States	Participants: 82 Gender: 51% female, 49% male Pre-clinical or	Longitudinal	Burnout	Social support and community at work	Modified school burnout inventory	None

	clinical: Pre-clinical					
Alkhamees et al, 2020[30] Saudi Arabia	Participants: 305 Gender: 53% female, 47% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Work-life integration	Maslach burnout inventory student survey	None
Yu et al, 2022[31] China	Participants: 2031 Gender: 54% female, 46% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Social support and community at work, Organisational culture and values	College student burnout scale	None
Muaddi et al, 2023[32] Saudi Arabia	Participants: 444 Gender: 55% female, 45% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Work-life integration, Meaning in work	Arabic translated version of the MBI-SS	None
Khalafallah et al, 2021[33] United States	Participants: 254 Gender: 55% male, 45% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands	Abbreviated Maslach burnout inventory	None
Sathaporn et al, 2022[34] Thailand	Participants: 466 Gender: 56% female, 44% male, <1% no response Pre-clinical or clinical: Clinical	Cross-sectional	Burnout	None	Maslach burnout inventory – Thai version	None

Ayinde et al, 2022[35] Nigeria	Participants: 505 Gender: 56% male, 43% female, <1% other Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Oldenburg burnout inventory	None
Healy et al, 2023[36] Ireland	Participants: 521 Gender: 58% female, 41% male, 1% non-binary/other Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Copenhagen burnout inventory	None
Liu et al, 2022[37] China	Participants: 817 Gender: 58% female, 42% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Social support and community at work	Maslach burnout inventory - student survey	None
Periasamy, 2021[38] India	Participants: 154 Gender: 59% female, 41% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Work-life integration	Maslach burnout inventory - student survey	None
Briggs et al, 2023[39] United States	Participants: 1178 Gender: 61% female, 38% male, 1% other/missing	Cross-sectional	Burnout	Workload and job demands, Social support and community at work, Organisational	Two-item Maslach burnout inventory	None

	Pre-clinical or clinical: Both			culture and values		
Kuehn et al, 2023[82] United States	Participants: 252 Gender: 61% female, 39% male Pre-clinical or clinical: Both	Pre-post study	Burnout	Work-life integration, Social support and community at work	Copenhagen burnout inventory	None
Hosseini et al, 2022[40] Iran	Participants: 140 Gender: 61% female, 39% male Pre-clinical or clinical: Clinical	Cross-sectional	Burnout	None	The modified professional burnout questionnaire	None
Nasr et al, 2023[41] Lebanon	Participants: 120 Gender: 62% female, 38% male Pre-clinical or clinical: Clinical	Cross-sectional	Burnout	Social support and community at work	Copenhagen burnout inventory	None
Wu et al, 2022[42] China	Participants: 588 Gender: 62% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Learning burnout scale	None
Ramos-Vidal et al, 2023[43] Colombia	Participants: 235 Gender: 62% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands	Maslach burnout inventory adapted to the Colombian population	None
Jezzini-Martinez et al, 2023[44] Mexico	Participants: 613 Gender: 62% female, 38% male	Cross-sectional	Burnout	None	Maslach burnout inventory – student survey	None

	Pre-clinical or clinical: Both					
Pitanupong et al, 2023[45] Thailand	Participants: 335 Gender: 62% female, 38% male Pre-clinical or clinical: Clinical	Cross-sectional	Burnout	None	Maslach burnout inventory – Thai version	None
Schindler et al, 2021[77] Germany	Participants: 63 Gender: 63% female Pre-clinical or clinical: Pre-clinical	Longitudinal	Burnout	Workload and job demands, Meaning in work	Maslach burnout inventory	None
Remitha et al, 2020[46] Indonesia	Participants: 175 Gender: 64% female, 36% male Pre-clinical or clinical: Pre-clinical	Cross-sectional	Burnout	Workload and job demands, Social support and community at work	Burnout scale	None
Ye et al, 2023[86] China	Participants: 343 Gender: 64% female, 36% male Pre-clinical or clinical: Both	Two cross-sectional surveys and a four-week mindfulness intervention	Burnout	Social support and community at work	Learning burnout scale	None
Shrestha et al, 2021[47] Nepal	Participants: 560 Gender: 65% male, 35% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Work-life integration	Oldenburg burnout inventory	None

Qu et al, 2022[48] China	Participants: 995 Gender: 66% female, 34% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Control and flexibility, Organisational culture and values, Meaning in work	Student burnout inventory	None
Tee et al, 2022[49] Malaysia	Participants: 378 Gender: 66% female, 34% male Pre-clinical or clinical: Clinical	Cross-sectional	Burnout	Social support and community at work	Copenhagen burnout inventory	None
Ernst et al, 2021[50] Switzerland	Participants: 574 Gender: 67% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Assessed using two single items developed to measure emotional exhaustion and depersonalization in medical personnel (West et al., 2009)	None
Kelly-Hedrick et al, 2023[78] United States	Participants: 107 Gender: 68% female, 29% male, 3% non-binary/other Pre-clinical or clinical: Both	Longitudinal	Burnout	None	Maslach burnout inventory (Emotional exhaustion and depersonalisation)	None

Pharasi et al, 2020[51] India	Participants: 196 Gender: 68% male, 32% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory	None
Peng et al, 2023[52] China	Participants: 3536 Gender: 69% female, 31% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Meaning in work	Learning burnout scale	None
Zis et al, 2021[79] Cyprus	Participants: 154 Gender: 70% female Pre-clinical or clinical: Both	Longitudinal	Burnout	Workload and job demands, Control and flexibility, Meaning in work	Maslach burnout inventory – student survey	None
Kajjimu et al, 2021[53] Uganda	Participants: 145 Gender: 70% male, 30% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory – student survey	None
Lili et al, 2021[54] Indonesia	Participants: 1729 Gender: 71% female, 28% male, <1% other Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Oldenburg burnout inventory	None

Wercelens et al, 2023[55] Brazil	Participants: 150 Gender: 71% female, 29% male Pre-clinical or clinical: Clinical	Cross-sectional	Burnout	Workload and job demands	Maslach burnout inventory – human services survey	None
Zuljevic et al, 2021[80] Croatia	Participants: 437 (160 eligible for pairing) Gender: 71% female, 29% male Pre-clinical or clinical: Both	Longitudinal	Burnout	Workload and job demands	Copenhagen burnout inventory, Oldenburg burnout inventory	None
Rolland et al, 2022[56] France	Participants: 11754 Gender: 71% female, 29% male, <1% unknown Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory	None
Daryanto et al, 2023[57] Indonesia	Participants: 425 Gender: 71% female, 29% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory – student survey	None
Mhata et al, 2023[58] Namibia	Participants: 229 Gender: 72% female, 28% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory – student survey	None

Medisauskaite et al, 2023[81] United Kingdom	Participants: 792 (407 follow-up) Gender: 74% female, 1% missing Pre-clinical or clinical: Both	Longitudinal	Burnout	Workload and job demands, Control and flexibility, Social support and community at work, Organisational culture and values	Maslach burnout inventory – general survey for students	None
Cipta et al, 2022[59] Indonesia	Participants: 1947 Gender: 75% female, 25% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory – student survey	None
Capdevila-Gaudens et al, 2021[60] Spain	Participants: 5216 Gender: 76% women, 23% men, 1% other/no response Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Organisational culture and values	Maslach burnout inventory – student survey	None
Nebhinani et al, 2021[61] India	Participants: 100 Gender: 77% male, 23% female Pre-clinical or	Cross-sectional	Burnout	None	Maslach burnout inventory – student survey	None

	clinical: Pre-clinical					
Abdel Aziz et al, 2023[62] United States	Participants: 385 Gender: 80% female, 20% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Oldenburg burnout inventory	None
Ditton et al, 2023[85] Australia	Participants: 19 enrolled, 11 actively engaged Gender: 91% female Pre-clinical or clinical: Pre-clinical	Single-arm feasibility trial	Burnout	None	Maslach burnout inventory – general survey	None
Joshi et al, 2023[63] United States, Saudi Arabia, India	Participants: 487 Gender: 57.5% female, 42.5% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Social support and community at work	Burnout assessment tool (Derived from Maslach and Oldenburg burnout inventories)	None
Collins et al, 2023[64] United States	Participants: 312 Gender: Not specified Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Control and flexibility	Non-proprietary single-item measure of burnout, with each participant using their own definition of burnout to choose	None

					on option on a five-point scale	
Veal, 2021[87] United states	Participants: Not applicable Gender: Not specified Pre-clinical or clinical: Pre-clinical	Opinion piece	Burnout	Social support and community at work	None	None
Zaidi et al, 2023[65] Pakistan	Participants: 284 Gender: 75% female, 25% male Pre-clinical or clinical: Clinical	Cross-sectional	Burnout	Workload and job demands	Oldenburg burnout inventory	None
D'Alva – Teixeira et al, 2023[66] Portugal	Participants: 767 Gender: 84% female, 15% male, 1% other Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Maslach burnout inventory – student survey	None
Rojas et al, 2023[84] Spain	Participants: 44 Gender: 93% female Pre-clinical or clinical: Both	Pilot two-arm randomised controlled trial	Burnout	None	Maslach burnout inventory - student survey	None
Wang et al, 2023[67] China, Hong Kong	Participants: 282 Gender: Not specified Pre-clinical or clinical: Both	Cross-sectional	Burnout	Meaning in work	Maslach burnout inventory - student survey	None

Sani et al, 2020[88] United Kingdom	Participants: Not applicable Gender: Not specified Pre-clinical or clinical: Not specified	Opinion piece	Burnout	Efficiency and resources, Workload and job demands, Work-life integration, Social support and community at work	None	None
Chen et al, 2022[68] China	Participants: 613 Gender: 54% female, 46% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	None	Sixteen-item modified Chinese version of Academic burnout scale	None
Bagby-Stone, 2021[89] United States	Participants: Not applicable Gender: Not specified Pre-clinical or clinical: Both	Opinion piece	Burnout	Social support and community at work, Organisational culture and values	None	None
Samara et al, 2021[90]	Participants: Not applicable Gender: Not specified Pre-clinical or clinical: Not specified	Letter to the editor	Burnout and engagement	Efficiency and resources, Workload and job demands, Work-life integration, Social support and community at work, Organisational	None	None

				culture and values		
Yu et al, 2023[69] China	Participants: 2411 Gender: 51% female, 49% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Social support and community at work, Organisational culture and values	Academic burnout scale	None
Kadhum et al, 2022[70] Canada, Denmark, India, Indonesia, Iran, Nepal, Nigeria, Russia, Sri Lanka	Participants: 4942 Gender: 66% female Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands,	Oldenburg burnout inventory	None
Wilkes et al, 2021[71] Canada	Participants: 101 Gender: 71% female, 27% male, 1% other Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Social support and community at work	Oldenburg burnout inventory	None
Duarte et al, 2022[72] Portugal	Participants: 462 Gender: 75% female, 25% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Work-life integration	Oldenburg burnout inventory	None

Wang et al, 2022[73] China	Participants: 583 Gender: 55% female, 45% male Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Social support and community at work	Maslach burnout inventory – student survey	None
Alkureishi et al, 2022[74] United States	Participants: 3826 Gender: 62% female, 37% male, other 1%, missing 1% Pre-clinical or clinical: Both	Cross-sectional	Burnout	Workload and job demands, Work-life integration	Maslach burnout inventory – human services survey	None