

Chapter 6: References

1. Pedrelli P, Nyer M, Yeung A, Zulauf C, Wilens T. College students: mental health problems and treatment considerations. *Academic psychiatry*. 2015;39:503-11.
2. W. H. O. Disease burden by Cause, Age, Sex, by Country and by Region, 2000-2019, World Health Organization; 2020. Geneva: WHO; 2019 [Available from: <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/global-health-estimates-leading-causes-of-dalys>].
3. Ganguly D, Goli S, Sullivan O. Gender, Paid Work, and Mental Health of Adolescents and Young Adults in Resource-Poor Settings of India. *Child Indicators Research*. 2023;1-34.
4. Ventriglio A, Castaldelli-Maia JM, Torales J, Chumakov E, De Berardis D. Social aspects of depression. *Oxford Textbook of Social Psychiatry*. 2022:361.
5. American Psychiatric Association A, Association AP. Diagnostic and statistical manual of mental disorders: DSM-IV: American psychiatric association Washington, DC; 1994.
6. American Psychiatric Association D, Association AP. Diagnostic and statistical manual of mental disorders: DSM-5: American psychiatric association Washington, DC; 2013.
7. Association AP. Diagnostic and statistical manual of mental disorders, text revision (DSM-IV-TR®). 2010.
8. Gaidai O, Cao Y, Loginov S. Global cardiovascular diseases death rate prediction. *Current Problems in Cardiology*. 2023:101622.
9. Hajar R. Framingham contribution to cardiovascular disease. *Heart views: the official journal of the Gulf Heart Association*. 2016;17(2):78.
10. Thiene G, Rizzo S, Basso C. Pathology of sudden death, cardiac arrhythmias, and conduction system. *Cardiovascular pathology: Elsevier*; 2022. p. 447-534.
11. Krasinski Z, Urbanek T, Undas A, Rupa-Matysek J, Araszkiwicz A, Derwich K, et al. Guidelines on the prevention and treatment of venous thromboembolism in cancer patients treated surgically, including patients under 18 years of age. *Acta Angiologica*. 2021;27(3):81-112.
12. Lu L, Liu M, Sun R, Zheng Y, Zhang P. Myocardial infarction: symptoms and treatments. *Cell biochemistry and biophysics*. 2015;72:865-7.
13. Zuzelo PR. Gender and acute myocardial infarction symptoms. *Medsurg Nursing*. 2002;11(3):126.
14. Manolis TA, Manolis AA, Melita H, Manolis AS. Neuropsychiatric disorders in patients with heart failure: not to be ignored. *Heart Failure Reviews*. 2022:1-38.
15. Kim H, Lee K-N, Shin DW, Han K, Jeon HJ. Association of comorbid mental disorders with cardiovascular disease risk in patients with type 2 diabetes: A nationwide cohort study. *General Hospital Psychiatry*. 2022;79:33-41.
16. Zeldetz V, Natanel D, Boyko M, Zlotnik A, Shiyntum HN, Grinshpun J, et al. A new method for inducing a depression-like behavior in rats. *JoVE (Journal of Visualized Experiments)*. 2018(132):e57137.
17. Vetulani J. Early maternal separation: a rodent model of depression and a prevailing human condition. *Pharmacological reports*. 2013;65(6):1451-61.
18. Cassiers LL, Sabbe BG, Schmaal L, Veltman DJ, Penninx BW, Van Den Eede F. Structural and functional brain abnormalities associated with exposure to different childhood trauma subtypes: A systematic review of neuroimaging findings. *Frontiers in psychiatry*. 2018;9:329.

19. Banasr M, Valentine GW, Li X-Y, Gourley SL, Taylor JR, Duman RS. Chronic unpredictable stress decreases cell proliferation in the cerebral cortex of the adult rat. *Biological psychiatry*. 2007;62(5):496-504.
20. Singh G, Sharma M, Kumar GA, Rao NG, Prasad K, Mathur P, et al. The burden of neurological disorders across the states of India: the Global Burden of Disease Study 1990–2019. *The Lancet Global Health*. 2021;9(8):e1129-e44.
21. Sagar R, Dandona R, Gururaj G, Dhaliwal R, Singh A, Ferrari A, et al. The burden of mental disorders across the states of India: the Global Burden of Disease Study 1990–2017. *The Lancet Psychiatry*. 2020;7(2):148-61.
22. Sagar R, Selvakumar N. Prevalence of Depression in Indian Adolescents. *Indian Journal of Pediatrics*. 2021;88(5):427-8.
23. Shao H, Du H, Gan Q, Ye D, Chen Z, Zhu Y, et al. Trends of the global burden of disease attributable to cannabis use disorder in 204 countries and territories, 1990–2019: Results from the Disease Burden Study 2019. *International Journal of Mental Health and Addiction*. 2023:1-23.
24. Mallikarjun H, Manimegalai P. Manoglanistara-emotional wellness phases prediction of adolescent female students by using brain waves. *Current Signal Transduction Therapy*. 2020;15(3):315-23.
25. Kumar AS, Sinha N. Cardiovascular disease in India: a 360 degree overview. Elsevier; 2020. p. 1-3.
26. Pathak N, Pattnaik S, Chundawat BS, Chaturvedi D. Identification of risk factors about cardiovascular disease and diabetes mellitus among employees of selected banks in Indore, Madhya Pradesh. *International Journal of Community Medicine and Public Health*. 2023;10(1):225.
27. Ridker PM. LDL cholesterol: controversies and future therapeutic directions. *The Lancet*. 2014;384(9943):607-17.
28. Kalra A, Jose AP, Prabhakaran P, Kumar A, Agrawal A, Roy A, et al. The burgeoning cardiovascular disease epidemic in Indians–perspectives on contextual factors and potential solutions. *The Lancet Regional Health-Southeast Asia*. 2023.
29. Sathvik M, Kalva ECSS, Suma G. A Study on Acute Myocardial Infarction and Its Prognostic Predictors. *Cureus*. 2023;15(2).
30. Chakkravarthi D, Manikandan V, Jegadeesh J, Manikandan D, Nambirajan J, Hospital C. COMPARISON OF RISK FACTORS & ANGIOGRAPHIC PROFILES BETWEEN YOUNG PATIENTS WITH ST SEGMENT ELEVATION MYOCARDIAL INFARCTION AND NON-ST SEGMENT ELEVATION MYOCARDIAL INFARCTION.
31. Santulli G. Epidemiology of cardiovascular disease in the 21st century: Updated updated numbers and updated facts. *Journal of Cardiovascular Disease Research*. 2013;1(1).
32. CDC. National diabetes statistics report 2020 estimates of diabetes and its burden in the United States 2020. 2021.
33. Sharma M, Ganguly NK. Premature coronary artery disease in Indians and its associated risk factors. *Vascular health and risk management*. 2005;1(3):217-25.
34. Andersson C, Vasan RS. Epidemiology of cardiovascular disease in young individuals. *Nature Reviews Cardiology*. 2018;15(4):230-40.
35. Mahmood SS, Levy D, Vasan RS, Wang TJ. The Framingham Heart Study and the epidemiology of cardiovascular disease: a historical perspective. *The lancet*. 2014;383(9921):999-1008.
36. Cuijpers P, Javed A, Bhui K. The WHO World Mental Health Report: A call for action. *The British Journal of Psychiatry*. 2023;222(6):227-9.

37. Organization WH. World mental health report: transforming mental health for all. 2022.
38. Evans-Lacko S, Aguilar-Gaxiola S, Al-Hamzawi A, Alonso J, Benjet C, Bruffaerts R, et al. Socio-economic variations in the mental health treatment gap for people with anxiety, mood, and substance use disorders: results from the WHO World Mental Health (WMH) surveys. *Psychological medicine*. 2018;48(9):1560-71.
39. Roth GA, Mensah GA, Johnson CO, Addolorato G, Ammirati E, Baddour LM, et al. Global burden of cardiovascular diseases and risk factors, 1990–2019: update from the GBD 2019 study. *Journal of the American College of Cardiology*. 2020;76(25):2982-3021.
40. Organization WH. Global health estimates: life expectancy and leading causes of death and disability. 2019. URL <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates>. 2021.
41. Cardiology EA. European Society of Cardiology. 2022.
42. Umer H, Negash A, Birkie M, Belete A. Determinates of depressive disorder among adult patients with cardiovascular disease at outpatient cardiac clinic Jimma University Teaching Hospital, South West Ethiopia: cross-sectional study. *International Journal of Mental Health Systems*. 2019;13(1):1-12.
43. Carney RM, Freedland KE. Depression in patients with coronary heart disease. *The American journal of medicine*. 2008;121(11):S20-S7.
44. Rafiei S, Raofi S, Baghaei A, Masoumi M, Doustmehraban M, Nejatifar Z, et al. Depression prevalence in cardiovascular disease: global systematic review and meta-analysis. *BMJ Supportive & Palliative Care*. 2023.
45. John A, Eyles E, Webb RT, Okolie C, Schmidt L, Arensman E, et al. The impact of the COVID-19 pandemic on self-harm and suicidal behaviour: update of living systematic review. *F1000Research*. 2020;9.
46. Kraus C, Kadriu B, Lanzenberger R, Zarate Jr CA, Kasper S. Prognosis and improved outcomes in major depression: a review. *Translational psychiatry*. 2019;9(1):127.
47. Cai N, Choi KW, Fried EI. Reviewing the genetics of heterogeneity in depression: operationalizations, manifestations and etiologies. *Human molecular genetics*. 2020;29(R1):R10-R8.
48. Jiang Y, Zou D, Li Y, Gu S, Dong J, Ma X, et al. Monoamine neurotransmitters control basic emotions and affect major depressive disorders. *Pharmaceuticals*. 2022;15(10):1203.
49. Brigitta B. Pathophysiology of depression and mechanisms of treatment. *Dialogues in clinical neuroscience*. 2022.
50. Kucia AM, Hartley A. Risk factors for cardiovascular disease. *Cardiac Care: A Practical Guide for Nurses*. 2022:35-51.
51. Fitch AK, Bays HE. Obesity definition, diagnosis, bias, standard operating procedures (SOPs), and telehealth: an Obesity Medicine Association (OMA) Clinical Practice Statement (CPS) 2022. *Obesity Pillars*. 2022;1:100004.
52. Joseph DN, Whirlledge S. Stress and the HPA axis: balancing homeostasis and fertility. *International journal of molecular sciences*. 2017;18(10):2224.
53. de Oliveira RP, de Andrade JS, Spina M, Chamon JV, Silva PHD, Werder AK, et al. Clozapine prevented social interaction deficits and reduced c-Fos immunoreactivity expression in several brain areas of rats exposed to acute restraint stress. *Plos one*. 2022;17(3):e0262728.
54. Tasker JG, Herman JP. Mechanisms of rapid glucocorticoid feedback inhibition of the hypothalamic–pituitary–adrenal axis. *Stress*. 2011;14(4):398-406.

55. Herman JP, McKlveen JM, Ghosal S, Kopp B, Wulsin A, Makinson R, et al. Regulation of the hypothalamic-pituitary-adrenocortical stress response. *Comprehensive physiology*. 2016;6(2):603.
56. Mandelli L, Milaneschi Y, Hiles S, Serretti A, Penninx BW. Unhealthy lifestyle impacts on biological systems involved in stress response: hypothalamic–pituitary–adrenal axis, inflammation and autonomous nervous system. *International Clinical Psychopharmacology*. 2023;38(3):127.
57. McEwen BS. Protection and damage from acute and chronic stress: allostasis and allostatic overload and relevance to the pathophysiology of psychiatric disorders. *Annals of the New York Academy of Sciences*. 2004;1032(1):1-7.
58. Wang Y, Guo L, Zhang Z, Fu S, Huang P, Wang A, et al. A bibliometric analysis of myocardial ischemia/reperfusion injury from 2000 to 2023. *Frontiers in Cardiovascular Medicine*. 2023;10:1180792.
59. Badimon L, Vilahur G. Thrombosis formation on atherosclerotic lesions and plaque rupture. *Journal of internal medicine*. 2014;276(6):618-32.
60. Frangogiannis NG. The immune system and cardiac repair. *Pharmacological research*. 2008;58(2):88-111.
61. Zhang J, Ahmad S, Wang L-Y, Han Q, Zhang J-C, Luo Y-P. Cell death induced by α -terthienyl via reactive oxygen species-mediated mitochondrial dysfunction and oxidative stress in the midgut of *Aedes aegypti* larvae. *Free Radical Biology and Medicine*. 2019;137:87-98.
62. Kumar M, Kasala ER, Bodduluru LN, Dahiya V, Sharma D, Kumar V, et al. Animal models of myocardial infarction: Mainstay in clinical translation. *Regulatory Toxicology and Pharmacology*. 2016;76:221-30.
63. Hering D, Lachowska K, Schlaich M. Role of the sympathetic nervous system in stress-mediated cardiovascular disease. *Current hypertension reports*. 2015;17:1-9.
64. Black PH, Garbutt LD. Stress, inflammation and cardiovascular disease. *Journal of psychosomatic research*. 2002;52(1):1-23.
65. Bhatt S, Nagappa AN, Patil CR. Role of oxidative stress in depression. *Drug discovery today*. 2020;25(7):1270-6.
66. Keller J, Gomez R, Williams G, Lembke A, Lazzeroni L, Murphy GM, et al. HPA axis in major depression: cortisol, clinical symptomatology and genetic variation predict cognition. *Molecular psychiatry*. 2017;22(4):527-36.
67. Woo J-M, Postolache TT. The impact of work environment on mood disorders and suicide: Evidence and implications. *International Journal on Disability and Human Development*. 2008;7(2):185-200.
68. Duman RS, Deyama S, Fogaça MV. Role of BDNF in the pathophysiology and treatment of depression: Activity-dependent effects distinguish rapid-acting antidepressants. *European Journal of Neuroscience*. 2021;53(1):126-39.
69. Bakusic J, Ghosh M, Polli A, Bekaert B, Schaufeli W, Claes S, et al. Role of NR3C1 and SLC6A4 methylation in the HPA axis regulation in burnout. *Journal of Affective Disorders*. 2021;295:505-12.
70. Bakunina N, Pariante CM, Zunszain PA. Immune mechanisms linked to depression via oxidative stress and neuroprogression. *Immunology*. 2015;144(3):365-73.
71. Bhattacharyya A, Chattopadhyay R, Mitra S, Crowe SE. Oxidative stress: an essential factor in the pathogenesis of gastrointestinal mucosal diseases. *Physiological reviews*. 2014;94(2):329-54.

72. Demirci-Çekiç S, Özkan G, Avan AN, Uzunboy S, Çapanoğlu E, Apak R. Biomarkers of oxidative stress and antioxidant defense. *Journal of pharmaceutical and biomedical analysis*. 2022;209:114477.
73. Miller MW, Lin AP, Wolf EJ, Miller DR. Oxidative stress, inflammation, and neuroprogression in chronic PTSD. *Harvard review of psychiatry*. 2018;26(2):57.
74. Dubois-Deruy E, Peugnet V, Turkieh A, Pinet F. Oxidative stress in cardiovascular diseases. *Antioxidants*. 2020;9(9):864.
75. Sumner JA, Cleveland S, Chen T, Gradus JL. Psychological and biological mechanisms linking trauma with cardiovascular disease risk. *Translational Psychiatry*. 2023;13(1):25.
76. Shafiee M, Ahmadnezhad M, Tayefi M, Arekhi S, Vatanparast H, Esmaeili H, et al. Depression and anxiety symptoms are associated with prooxidant-antioxidant balance: A population-based study. *Journal of affective disorders*. 2018;238:491-8.
77. Daneshzad E, Keshavarz S-A, Qorbani M, Larijani B, Azadbakht L. Dietary total antioxidant capacity and its association with sleep, stress, anxiety, and depression score: A cross-sectional study among diabetic women. *Clinical nutrition ESPEN*. 2020;37:187-94.
78. Oliveira NGd, Teixeira IT, Theodoro H, Branco CS. Dietary total antioxidant capacity as a preventive factor against depression in climacteric women. *Dementia & Neuropsychologia*. 2019;13:305-11.
79. Zhou D-D, Luo M, Shang A, Mao Q-Q, Li B-Y, Gan R-Y, et al. Antioxidant food components for the prevention and treatment of cardiovascular diseases: effects, mechanisms, and clinical studies. *Oxidative medicine and cellular longevity*. 2021;2021.
80. Romaschenko OV, Pokrovsky MV, Nadezhdin SV, Rumbesht VV, Zhernakova NI, Alferov PK, et al. Personalized Approaches to the Use of the Antioxidant Ethoxidol in Patients with Coronary Heart Disease. *Journal of Nanostructures*. 2022;12(2):343-52.
81. Frangogiannis NG. Pathophysiology of myocardial infarction. *Comprehensive Physiology*. 2011;5(4):1841-75.
82. Manji HK, Quiroz JA, Sporn J, Payne JL, Denicoff K, Gray NA, et al. Enhancing neuronal plasticity and cellular resilience to develop novel, improved therapeutics for difficult-to-treat depression. *Biological psychiatry*. 2003;53(8):707-42.
83. Van den Bergh BR, Van Calster B, Smits T, Van Huffel S, Lagae L. Antenatal maternal anxiety is related to HPA-axis dysregulation and self-reported depressive symptoms in adolescence: a prospective study on the fetal origins of depressed mood. *Neuropsychopharmacology*. 2008;33(3):536-45.
84. Mello AdAFd, Mello MFd, Carpenter LL, Price LH. Update on stress and depression: the role of the hypothalamic-pituitary-adrenal (HPA) axis. *Brazilian Journal of Psychiatry*. 2003;25:231-8.
85. Heuser I, Yassouridis A, Holsboer F. The combined dexamethasone/CRH test: a refined laboratory test for psychiatric disorders. *Journal of psychiatric research*. 1994;28(4):341-56.
86. Chojnowska S, Ptaszyńska-Sarosiek I, Kępka A, Knaś M, Waszkiewicz N. Salivary biomarkers of stress, anxiety and depression. *Journal of clinical medicine*. 2021;10(3):517.
87. Groschl M. Current status of salivary hormone analysis. *Clinical chemistry*. 2008;54(11):1759-69.
88. Gozansky W, Lynn J, Laudenslager M, Kohrt W. Salivary cortisol determined by enzyme immunoassay is preferable to serum total cortisol for assessment of dynamic

- hypothalamic–pituitary–adrenal axis activity. *Clinical endocrinology*. 2005;63(3):336-41.
89. Schoofs D, Hartmann R, Wolf O. Neuroendocrine stress responses to an oral academic examination: No strong influence of sex, repeated participation and personality traits. *Stress*. 2008;11(1):52-61.
 90. Purba JS, Hoogendijk WJ, Hofman MA, Swaab DF. Increased number of vasopressin-and oxytocin-expressing neurons in the paraventricular nucleus of the hypothalamus in depression. *Archives of general psychiatry*. 1996;53(2):137-43.
 91. Raison CL, Miller AH. When not enough is too much: the role of insufficient glucocorticoid signaling in the pathophysiology of stress-related disorders. *American Journal of Psychiatry*. 2003;160(9):1554-65.
 92. Herman J, McKlveen J, Solomon M, Carvalho-Netto E, Myers B. Neural regulation of the stress response: glucocorticoid feedback mechanisms. *Brazilian journal of medical and biological research*. 2012;45:292-8.
 93. Nandam LS, Brazel M, Zhou M, Jhaveri DJ. Cortisol and major depressive disorder—translating findings from humans to animal models and back. *Frontiers in psychiatry*. 2020;10:974.
 94. Horstmann S, Dose T, Lucae S, Kloiber S, Menke A, Hennings J, et al. Suppressive effect of mirtazapine on the HPA system in acutely depressed women seems to be transient and not related to antidepressant action. *Psychoneuroendocrinology*. 2009;34(2):238-48.
 95. Reul J, Stec I, Söder M, Holsboer F. Chronic treatment of rats with the antidepressant amitriptyline attenuates the activity of the hypothalamic-pituitary-adrenocortical system. *Endocrinology*. 1993;133(1):312-20.
 96. Hellhammer DH, Wüst S, Kudielka BM. Salivary cortisol as a biomarker in stress research. *Psychoneuroendocrinology*. 2009;34(2):163-71.
 97. Moncrieff J, Cooper RE, Stockmann T, Amendola S, Hengartner MP, Horowitz MA. The serotonin theory of depression: a systematic umbrella review of the evidence. *Molecular psychiatry*. 2022:1-14.
 98. Coppen A. The biochemistry of affective disorders. *The British Journal of Psychiatry*. 1967;113(504):1237-64.
 99. Jauhar S, Cowen PJ, Browning M. Fifty years on: Serotonin and depression. *Journal of Psychopharmacology*. 2023;37(3):237-41.
 100. Cipriani A, Furukawa T, Salanti G, Chaimani A, Atkinson L, Ogawa Y, et al. CAS: 528: DC% 2BC1cXjsVCrt7k% 3D: Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder: a systematic review and network meta-analysis. vol. 391. *Lancet*. 2018:1357-66.
 101. Hieronymus F, Jauhar S, Østergaard SD, Young AH. One (effect) size does not fit at all: interpreting clinical significance and effect sizes in depression treatment trials. *Journal of Psychopharmacology*. 2020;34(10):1074-8.
 102. Jenkins TA, Nguyen JC, Polglaze KE, Bertrand PP. Influence of tryptophan and serotonin on mood and cognition with a possible role of the gut-brain axis. *Nutrients*. 2016;8(1):56.
 103. Lambe EK, Fillman SG, Webster MJ, Shannon Weickert C. Serotonin receptor expression in human prefrontal cortex: balancing excitation and inhibition across postnatal development. *PLoS One*. 2011;6(7):e22799.
 104. Bland ST, Hargrave D, Pepin JL, Amat J, Watkins LR, Maier SF. Stressor controllability modulates stress-induced dopamine and serotonin efflux and morphine-induced serotonin efflux in the medial prefrontal cortex. *Neuropsychopharmacology*. 2003;28(9):1589-96.

105. Underwood MD, Kassir SA, Bakalian MJ, Galfalvy H, Dwork AJ, Mann JJ, et al. Serotonin receptors and suicide, major depression, alcohol use disorder and reported early life adversity. *Translational psychiatry*. 2018;8(1):279.
106. Cavaleri D, Moretti F, Bartocchetti A, Mauro S, Crocamo C, Carrà G, et al. The role of BDNF in major depressive disorder, related clinical features, and antidepressant treatment: Insight from meta-analyses. *Neuroscience & Biobehavioral Reviews*. 2023:105159.
107. Zuccato C, Cattaneo E. Brain-derived neurotrophic factor in neurodegenerative diseases. *Nature Reviews Neurology*. 2009;5(6):311-22.
108. Tsai S-J. Critical issues in BDNF Val66Met genetic studies of neuropsychiatric disorders. *Frontiers in molecular neuroscience*. 2018;11:156.
109. Gelle T, Samey RA, Plansont B, Bessette B, Jauberteau-Marchan M-O, Lalloué F, et al. BDNF and pro-BDNF in serum and exosomes in major depression: Evolution after antidepressant treatment. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2021;109:110229.
110. Marosi K, Mattson MP. BDNF mediates adaptive brain and body responses to energetic challenges. *Trends in Endocrinology & Metabolism*. 2014;25(2):89-98.
111. Cattaneo A, Cattane N, Begni V, Pariante CM, Riva M. The human BDNF gene: peripheral gene expression and protein levels as biomarkers for psychiatric disorders. *Translational psychiatry*. 2016;6(11):e958-e.
112. Molendijk M, Spinhoven P, Polak M, Bus B, Penninx B, Elzinga B. Serum BDNF concentrations as peripheral manifestations of depression: evidence from a systematic review and meta-analyses on 179 associations (N= 9484). *Molecular psychiatry*. 2014;19(7):791-800.
113. Elfving B, Plougmann PH, Müller HK, Mathé AA, Rosenberg R, Wegener G. Inverse correlation of brain and blood BDNF levels in a genetic rat model of depression. *International Journal of Neuropsychopharmacology*. 2010;13(5):563-72.
114. Kim Y-K, Lee H-P, Won S-D, Park E-Y, Lee H-Y, Lee B-H, et al. Low plasma BDNF is associated with suicidal behavior in major depression. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2007;31(1):78-85.
115. Jacob R, Khan M. Cardiac biomarkers: what is and what can be. *Indian Journal of Cardiovascular Disease in Women-WINCARS*. 2018;3(04):240-4.
116. Braunwald E, Antman EM, Beasley JW, Califf RM, Cheitlin MD, Hochman JS, et al. ACC/AHA guidelines for the management of patients with unstable angina and non-ST-segment elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on the Management of Patients With Unstable Angina). *Journal of the American College of Cardiology*. 2000;36(3):970-1062.
117. Sarda AK, Thute P, SARDA AK. Importance of ECG in the Diagnosis of Acute Pericarditis and Myocardial Infarction: A Review Article. *Cureus*. 2022;14(10).
118. Choudhury T, West NE, El-Omar M. ST elevation myocardial infarction. *Clinical Medicine*. 2016;16(3):277.
119. Yunoki K, Naruko T, Sugioka K, Inaba M, Itoh A, Haze K, et al. Thrombus Aspiration Therapy and Coronary Thrombus Components in Patients with Acute ST-Elevation Myocardial Infarction—A Systematic Review—. *Journal of atherosclerosis and thrombosis*. 2013;20(6):524-37.
120. Groenland FT, Ziedses des Plantes AC, Neleman T, Scoccia A, Ligthart JM, Witberg KT, et al. Culprit lesion plaque characterization and thrombus grading by high-definition intravascular ultrasound in patients with ST-segment elevation myocardial infarction. *Catheterization and Cardiovascular Interventions*. 2023.

121. Schroder R. Prognostic impact of early ST-segment resolution in acute ST-elevation myocardial infarction. *Circulation*. 2004;110(21):e506-e10.
122. Fozzard HA. Cardiac muscle: Excitability and passive electrical properties. *Progress in cardiovascular diseases*. 1977;19(5):343-59.
123. Abdul Kadir L, Stacey M, Barrett-Jolley R. Emerging roles of the membrane potential: action beyond the action potential. *Frontiers in physiology*. 2018;9:1661.
124. Pappano AJ, Wier WG. *Cardiovascular physiology-e-book: Elsevier Health Sciences*; 2018.
125. Dixon RE, Navedo MF, Binder MD, Santana LF. Mechanisms and physiological implications of cooperative gating of clustered ion channels. *Physiological reviews*. 2022;102(3):1159-210.
126. Kang C. *Ion channels, protein kinase C and caveolae in cardioprotection: The Ohio State University*; 2015.
127. Ghaderi S, Alidadiani N, Dilaver N, Heidari H, Parvizi R, Rahbarghazi R, et al. Role of glycogen synthase kinase following myocardial infarction and ischemia-reperfusion. *Apoptosis*. 2017;22:887-97.
128. Fathima SN. An Update on Myocardial Infarction. *Current Research and Trends in Medical Science and Technology*. 2021;1.
129. Wright SH. Generation of resting membrane potential. *Advances in physiology education*. 2004;28(4):139-42.
130. Vogel B, Claessen BE, Arnold SV, Chan D, Cohen DJ, Giannitsis E, et al. ST-segment elevation myocardial infarction. *Nature reviews Disease primers*. 2019;5(1):39.
131. Kurbel S. A vector-free ECG interpretation with P, QRS & T waves as unbalanced transitions between stable configurations of the heart electric field during PR, ST & TP segments. *Theoretical Biology and Medical Modelling*. 2014;11:1-21.
132. de Blik EC. ST elevation: Differential diagnosis and caveats. A comprehensive review to help distinguish ST elevation myocardial infarction from nonischemic etiologies of ST elevation. *Turkish journal of emergency medicine*. 2018;18(1):1-10.
133. Martín FJF, Martínez AL, Llopis MV, Rodriguez JCC, Viejo CB, Vershinin YA. An ECG Lab Project for Teaching Signal Conditioning Systems in a Master's Degree in Mechatronic Engineering. *Advances in Engineering Education*. 2015;4(3):n3.
134. Stroobandt RX, Barold SS, Sinnaeve AF. *ECG from basics to essentials: step by step: John Wiley & Sons*; 2016.
135. Raghav KPS, Makkuni P, Figueredo VM. A review of electrocardiography in pulmonary embolism: recognizing pulmonary embolus masquerading as ST-elevation myocardial infarction. *Reviews in cardiovascular medicine*. 2011;12(3):157-63.
136. Liu B, Zhang Y, Wu Q, Wang L, Hu B. Alleviation of isoprenaline hydrochloride induced myocardial ischemia injury by brucine through the inhibition of Na⁺/K⁺-ATPase. *Experimental Gerontology*. 2021;149:111332.
137. Sharma S, Jackson P, Makan J. *Cardiac troponins. BMJ Publishing Group*; 2004. p. 1025-6.
138. Undhad VV, Fefar DT, Jivani B, Gupta H, Ghodasara DJ, Joshi BP, et al. Cardiac troponin: an emerging cardiac biomarker in animal health. *Veterinary world*. 2012;5(8):508-11.
139. Etievent J-P, Chocron S, Toubin G, Taberlet C, Alwan K, Clement F, et al. Use of cardiac troponin I as a marker of perioperative myocardial ischemia. *The Annals of thoracic surgery*. 1995;59(5):1192-4.

140. Hajar R. Evolution of myocardial infarction and its biomarkers: A historical perspective. *Heart views: the official journal of the Gulf Heart Association*. 2016;17(4):167.
141. Labugger R, Organ L, Collier C, Atar D, Van Eyk JE. Extensive troponin I and T modification detected in serum from patients with acute myocardial infarction. *Circulation*. 2000;102(11):1221-6.
142. Antman EM, Tanasijevic MJ, Thompson B, Schactman M, McCabe CH, Cannon CP, et al. Cardiac-specific troponin I levels to predict the risk of mortality in patients with acute coronary syndromes. *New England Journal of Medicine*. 1996;335(18):1342-9.
143. Maghamiour N, Safaie N. High creatine kinase (CK)-MB and lactate dehydrogenase in the absence of myocardial injury or infarction: a case report. *Journal of cardiovascular and thoracic research*. 2014;6(1):69.
144. Yucel C. Cardiac biomarkers: definition, detection, diagnostic use, and efficiency. *The Detection of Biomarkers*: Elsevier; 2022. p. 113-30.
145. Li H, Liu Z, Wang J, Wong GT, Cheung C-W, Zhang L, et al. Susceptibility to myocardial ischemia reperfusion injury at early stage of type 1 diabetes in rats. *Cardiovascular diabetology*. 2013;12:1-11.
146. Prabhu S, Jainu M, Sabitha K, Devi CS. Role of mangiferin on biochemical alterations and antioxidant status in isoproterenol-induced myocardial infarction in rats. *Journal of ethnopharmacology*. 2006;107(1):126-33.
147. Djakpo DK, Wang ZQ, Shrestha M. The significance of transaminase ratio (AST/ALT) in acute myocardial infarction. *Archives of Medical Science-Atherosclerotic Diseases*. 2020;5(1):279-83.
148. Lofthus DM, Stevens SR, Armstrong PW, Granger CB, Mahaffey KW. Pattern of liver enzyme elevations in acute ST-elevation myocardial infarction. *Coronary artery disease*. 2012;23(1):22-30.
149. Zhu T, Han Q, Zhang X, Hou Q. Effects of Xinnaoning combined with trimetazidine on the levels of CK and its isoenzymes, AST, ALT and LDH in patients with myocardial ischemia. *American Journal of Translational Research*. 2021;13(4):2875.
150. Giesen P, Peltenburg H, De Zwaan C, Janson P, Flendrig J, Hermens W. Greater than expected alanine aminotransferase activities in plasma and in hearts of patients with acute myocardial infarction. *Clinical chemistry*. 1989;35(2):279-83.
151. Gupta GL, Fernandes J. Protective effect of *Convolvulus pluricaulis* against neuroinflammation associated depressive behavior induced by chronic unpredictable mild stress in rat. *Biomedicine & Pharmacotherapy*. 2019;109:1698-708.
152. Jia H-m, Li Q, Zhou C, Yu M, Yang Y, Zhang H-w, et al. Chronic unpredictable mild stress leads to altered hepatic metabolic profile and gene expression. *Scientific reports*. 2016;6(1):23441.
153. Jia H-m, Yu M, Ma L-Y, Zhang H-w, Zou Z-m. Chaihu-Shu-Gan-San regulates phospholipids and bile acid metabolism against hepatic injury induced by chronic unpredictable stress in rat. *Journal of Chromatography B*. 2017;1064:14-21.
154. Squire IB, Evans J, Ng LL, Loftus IM, Thompson MM. Plasma MMP-9 and MMP-2 following acute myocardial infarction in man: correlation with echocardiographic and neurohumoral parameters of left ventricular dysfunction. *Journal of cardiac failure*. 2004;10(4):328-33.
155. Spinale FG. Myocardial matrix remodeling and the matrix metalloproteinases: influence on cardiac form and function. *Physiological reviews*. 2007;87(4):1285-342.

156. DeCoux A, Lindsey ML, Villarreal F, Garcia RA, Schulz R. Myocardial matrix metalloproteinase-2: inside out and upside down. *Journal of molecular and cellular cardiology*. 2014;77:64-72.
157. Cleutjens JP, Creemers EE. Integration of concepts: cardiac extracellular matrix remodeling after myocardial infarction. *Journal of cardiac failure*. 2002;8(6):S344-S8.
158. Wang W, Schulze CJ, Suarez-Pinzon WL, Dyck JR, Sawicki G, Schulz R. Intracellular action of matrix metalloproteinase-2 accounts for acute myocardial ischemia and reperfusion injury. *Circulation*. 2002;106(12):1543-9.
159. Fan Z, Fu M, Xu Z, Zhang B, Li Z, Li H, et al. Sustained release of a peptide-based matrix metalloproteinase-2 inhibitor to attenuate adverse cardiac remodeling and improve cardiac function following myocardial infarction. *Biomacromolecules*. 2017;18(9):2820-9.
160. Matsumura S-i, Iwanaga S, Mochizuki S, Okamoto H, Ogawa S, Okada Y. Targeted deletion or pharmacological inhibition of MMP-2 prevents cardiac rupture after myocardial infarction in mice. *The Journal of clinical investigation*. 2005;115(3):599-609.
161. Rossom RC, Solberg LI, Vazquez-Benitez G, Whitebird RR, Crain AL, Beck A, et al. Predictors of poor response to depression treatment in primary care. *Psychiatric Services*. 2016;67(12):1362-7.
162. Sharma V, Khan M, Baczynski C, Boate I. Predictors of response to antidepressants in women with postpartum depression: a systematic review. *Archives of Women's Mental Health*. 2020;23:613-23.
163. Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. *Slack Incorporated Thorofare, NJ*; 2002. p. 509-15.
164. Williams N. PHQ-9. *Occupational medicine*. 2014;64(2):139-40.
165. Zimmerman M, Martinez JH, Young D, Chelminski I, Dalrymple K. Severity classification on the Hamilton depression rating scale. *Journal of affective disorders*. 2013;150(2):384-8.
166. Frank E, Novick D, Kupfer DJ. Antidepressants and psychotherapy: a clinical research review. *Dialogues in clinical neuroscience*. 2022.
167. Elkin I, Shea MT, Watkins JT, Imber SD, Sotsky SM, Collins JF, et al. National Institute of Mental Health treatment of depression collaborative research program: General effectiveness of treatments. *Archives of general psychiatry*. 1989;46(11):971-82.
168. Duan J, Xie P. The potential for metabolomics in the study and treatment of major depressive disorder and related conditions. *Expert Review of Proteomics*. 2020;17(4):309-22.
169. Balamurugan G, Radhakrishnan G, Vijayarani M. Models and roles in national mental health programme. *Indian Journal of Psychiatric Nursing*. 2019;16(1).
170. Priyadarshini U, Rao AP, Dash S. Recommendations for maternal mental health policy in India. *Journal of Public Health Policy*. 2023:1-12.
171. DeLucia V, Kelsberg G, Safranek S. Which SSRIs most effectively treat depression in adolescents? 2016.
172. Antosik-Wójcińska A, Stefanowski B, Świącicki Ł. Efficacy and safety of antidepressant's use in the treatment of depressive episodes in bipolar disorder—review of research. *Psychiatr Pol*. 2015;49(6):1223-39.
173. Xue W, Wang P, Li B, Li Y, Xu X, Yang F, et al. Identification of the inhibitory mechanism of FDA approved selective serotonin reuptake inhibitors: an insight from molecular dynamics simulation study. *Physical Chemistry Chemical Physics*. 2016;18(4):3260-71.

174. Hitchings A, Lonsdale D, Burrage D, Baker E. The top 100 drugs: clinical pharmacology and practical prescribing: Elsevier Health Sciences; 2018.
175. Chen X. The anti-depression function of selective serotonin reuptake inhibitor. *Highlights in Science, Engineering and Technology*. 2023;36:1121-6.
176. Wagner K, Brent D. Depressive disorders and suicide. *Kaplan and Sadock's Comprehensive Textbook of Psychiatry*. 2009;2:3652-63.
177. Soheli AJ, Shutter MC, Molla M. Fluoxetine. 2017.
178. Robertson OD, Coronado NG, Sethi R, Berk M, Dodd S. Putative neuroprotective pharmacotherapies to target the staged progression of mental illness. *Early intervention in psychiatry*. 2019;13(5):1032-49.
179. Cao B, Zhu J, Zuckerman H, Rosenblat JD, Brietzke E, Pan Z, et al. Pharmacological interventions targeting anhedonia in patients with major depressive disorder: a systematic review. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2019;92:109-17.
180. Wei A, Peng J, Gu Z, Li J. QTc prolongation and torsades de pointes due to a coadministration of fluoxetine and amiodarone in a patient with implantable cardioverter-defibrillator: Case report and review of the literature. *Medicine*. 2017;96(49).
181. Carvalho AF, Sharma MS, Brunoni AR, Vieta E, Fava GA. The safety, tolerability and risks associated with the use of newer generation antidepressant drugs: a critical review of the literature. *Psychotherapy and psychosomatics*. 2016;85(5):270-88.
182. Gøtzsche PC, Healy D. Restoring the two pivotal fluoxetine trials in children and adolescents with depression. *International Journal of Risk & Safety in Medicine*. 2022(Preprint):1-24.
183. Chockalingam R, Gott BM, Conway CR. Tricyclic antidepressants and monoamine oxidase inhibitors: are they too old for a new look? *Antidepressants: From Biogenic Amines to New Mechanisms of Action*. 2019:37-48.
184. Hiemke C, Bergemann N, Clement H, Conca A, Deckert J, Domschke K, et al. Consensus guidelines for therapeutic drug monitoring in neuropsychopharmacology: update 2017. *Pharmacopsychiatry*. 2018;51(01/02):9-62.
185. Cipriani A, Furukawa TA, Salanti G, Chaimani A, Atkinson LZ, Ogawa Y, et al. Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder: a systematic review and network meta-analysis. *Focus*. 2018;16(4):420-9.
186. Tisdale JE, Chung MK, Campbell KB, Hammad M, Joglar JA, Leclerc J, et al. Drug-induced arrhythmias: a scientific statement from the American Heart Association. *Circulation*. 2020;142(15):e214-e33.
187. DANA-HAERI J, WARRINGTON SJ. tricyclic antidepressants in elderly people. *Antidepressants for Elderly People*. 2013:163.
188. Isaac MT. Treating depression with SNRIs: who will benefit most? *CNS spectrums*. 2008;13(S11):15-21.
189. Bhat NP, Preethishree P. Depression and its pharmacological management: a critical review. *Journal of Drug Delivery and Therapeutics*. 2015:54-60.
190. Shulman KI, Herrmann N, Walker SE. Current place of monoamine oxidase inhibitors in the treatment of depression. *CNS drugs*. 2013;27:789-97.
191. Thase ME. The role of monoamine oxidase inhibitors in depression treatment guidelines. *The Primary Care Companion for CNS Disorders*. 2012;14(Suppl 1: Editor Choice):27265.

192. Kumar A, Bhatia M, Kapoor A, Kumar P, Kumar S. Monoamine oxidase inhibitors: A concise review with special emphasis on structure activity relationship studies. *European Journal of Medicinal Chemistry*. 2022;242:114655.
193. Finberg JP. Update on the pharmacology of selective inhibitors of MAO-A and MAO-B: focus on modulation of CNS monoamine neurotransmitter release. *Pharmacology & therapeutics*. 2014;143(2):133-52.
194. Youdim MB, Weinstock M. Therapeutic applications of selective and non-selective inhibitors of monoamine oxidase A and B that do not cause significant tyramine potentiation. *Neurotoxicology*. 2004;25(1-2):243-50.
195. Sanal S, Aronow WS. Effect of an educational program on the prevalence of use of antiplatelet drugs, beta blockers, angiotensin-converting enzyme inhibitors, lipid-lowering drugs, and calcium channel blockers prescribed during hospitalization and at hospital discharge in patients with coronary artery disease. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*. 2003;58(11):M1046-M8.
196. Weisse AB. Cardiac surgery: a century of progress. *Texas Heart Institute Journal*. 2011;38(5):486.
197. Coskun K, Coskun S, El Arousy M, Parsa MA, Schulz U, Deyerling W, et al., editors. Cardiac surgery after heart transplantation: coronary artery bypass grafting and heart valve replacement. *Heart Surgery Forum*; 2007: FORUM MULTIMEDIA PUBLISHING.
198. Sayyed SMS, editor *Cardiovascular Disease (CVDs). " Conference on Universal Science Research 2023"*; 2023.
199. Boudonas G. β -Blockers in coronary artery disease management. *Hippokratia*. 2010;14(4):231.
200. Members WC, Otto CM, Nishimura RA, Bonow RO, Carabello BA, Erwin III JP, et al. 2020 ACC/AHA guideline for the management of patients with valvular heart disease: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *journal of the American College of Cardiology*. 2021;77(4):e25-e197.
201. OPIE LH. B-Blocking Agents. *Drugs for the Heart: Expert Consult-Online and Print*. 2013.
202. Kusunose K, Okushi Y, Okayama Y, Zheng R, Nakai M, Sumita Y, et al. Benefits of guideline-directed medical therapy to loop diuretics in management of heart failure. *The Journal of Medical Investigation*. 2023;70(1.2):41-53.
203. Kovács Á, Barta J. Renin–Angiotensin–Aldosterone System as an Old New Target in Heart Failure Therapy: RAAS Inhibition in Heart Failure. *The Renin Angiotensin System in Cardiovascular Disease*: Springer; 2023. p. 307-30.
204. Vilmosh N, Delev D, Kostadinov I, Zlatanova H, Kotetarova M, Kandilarov I, et al. Anxiolytic Effect of *Satureja montana* Dry Extract and its Active Compounds Rosmarinic Acid and Carvacrol in Acute Stress Experimental Model. *Journal of Integrative Neuroscience*. 2022;21(5):124.
205. Lin S-Y, Wang Y-Y, Chen W-Y, Liao S-L, Chou S-T, Yang C-P, et al. Hepatoprotective activities of rosmarinic acid against extrahepatic cholestasis in rats. *Food and Chemical Toxicology*. 2017;108:214-23.
206. Shang A-J, Yang Y, Wang H-Y, Tao B-Z, Wang J, Wang Z-F, et al. Spinal cord injury effectively ameliorated by neuroprotective effects of rosmarinic acid. *Nutritional neuroscience*. 2017;20(3):172-9.
207. Zhang J, Wang L, Tan W, Li Q, Dong F, Guo Z. Preparation of chitosan-rosmarinic acid derivatives with enhanced antioxidant and anti-inflammatory activities. *Carbohydrate Polymers*. 2022;296:119943.

208. Zhang Z-k, Zhou Y, Cao J, Liu D-y, Wan L-h. Rosmarinic acid ameliorates septic-associated mortality and lung injury in mice via GRP78/IRE1 α /JNK pathway. *Journal of Pharmacy and Pharmacology*. 2021;73(7):916-21.
209. Chen C-P, Lin Y-C, Peng Y-H, Chen H-M, Lin J-T, Kao S-H. Rosmarinic Acid Attenuates the Lipopolysaccharide-Provoked Inflammatory Response of Vascular Smooth Muscle Cell via Inhibition of MAPK/NF- κ B Cascade. *Pharmaceuticals*. 2022;15(4):437.
210. González-Minero FJ, Bravo-Díaz L, Ayala-Gómez A. Rosmarinus officinalis L.(Rosemary): An ancient plant with uses in personal healthcare and cosmetics. *Cosmetics*. 2020;7(4):77.
211. Marzag H, Warnault P, Bougrin K, Martinet N, Benhida R. Natural polyphenols as potent inhibitors of DNA methyltransferases. *Studies in Natural Products Chemistry*. 2014;41:195-223.
212. Rose AL, Hopko DR, Lejuez CW, Magidson JF. Major depressive disorder. *Functional Analysis in Clinical Treatment*: Elsevier; 2020. p. 339-73.
213. Metrics IfH, Evaluation. Global health data exchange. Global Burden of Disease Study 2017 Data Resources. 2019.
214. Amran MS, Bahar NB, Akash S. Physiology and Pathology of the Cardiovascular System. *Cardiovascular Diseases*: IntechOpen; 2022.
215. Roth GA, Mensah GA, Fuster V. The Global Burden of Cardiovascular Diseases and Risks: A Compass for Global Action. American College of Cardiology Foundation Washington DC; 2020.
216. Vaccarino V, Badimon L, Bremner JD, Cenko E, Cubedo J, Dorobantu M, et al. Depression and coronary heart disease: 2018 position paper of the ESC working group on coronary pathophysiology and microcirculation. *European heart journal*. 2020;41(17):1687-96.
217. Gan Y, Gong Y, Tong X, Sun H, Cong Y, Dong X, et al. Depression and the risk of coronary heart disease: a meta-analysis of prospective cohort studies. *BMC psychiatry*. 2014;14(1):1-11.
218. Wu Y, Zhu B, Chen Z, Duan J, Luo A, Yang L, et al. New insights into the comorbidity of coronary heart disease and depression. *Current problems in cardiology*. 2021;46(3):100413.
219. Members TF, Piepoli MF, Hoes AW, Agewall S, Albus C, Brotons C, et al. 2016 European Guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts): Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR). *European journal of preventive cardiology*. 2016;23(11):NP1-NP96.
220. Mendis S, Puska P, Norrving B, Organization WH. Global atlas on cardiovascular disease prevention and control: World Health Organization; 2011.
221. Najjar F, Ahmad M, Lagace D, Leenen FH. Role of myocardial infarction-induced neuroinflammation for depression-like behavior and heart failure in ovariectomized female rats. *Neuroscience*. 2019;415:201-14.
222. López-López AL, Jaime HB, Villanueva MdCE, Padilla MB, Palacios GV, Aguilar FJA. Chronic unpredictable mild stress generates oxidative stress and systemic inflammation in rats. *Physiology & Behavior*. 2016;161:15-23.

223. Nemeroff CB, Goldschmidt-Clermont PJ. Heartache and heartbreak—the link between depression and cardiovascular disease. *Nature Reviews Cardiology*. 2012;9(9):526-39.
224. Bü rger A, Benicke M, Deten A, Zimmer H-G. Catecholamines stimulate interleukin-6 synthesis in rat cardiac fibroblasts. *American Journal of Physiology-Heart and Circulatory Physiology*. 2001;281(1):H14-H21.
225. Nichols CD. Serotonin 5-HT_{2A} receptor function as a contributing factor to both neuropsychiatric and cardiovascular diseases. *Cardiovascular psychiatry and neurology*. 2009;2009.
226. Sanner JE, Frazier L. The role of serotonin in depression and clotting in the coronary artery disease population. *Journal of Cardiovascular Nursing*. 2011;26(5):423-9.
227. Che Y, Zhou Z, Shu Y, Zhai C, Zhu Y, Gong S, et al. Chronic unpredictable stress impairs endogenous antioxidant defense in rat brain. *Neuroscience letters*. 2015;584:208-13.
228. de Mello MMB, Parente JM, Schulz R, Castro MM. Matrix metalloproteinase (MMP)-2 activation by oxidative stress decreases aortic calponin-1 levels during hypertrophic remodeling in early hypertension. *Vascular pharmacology*. 2019;116:36-44.
229. Ali MA, Kandasamy AD, Fan X, Schulz R. Hydrogen peroxide-induced necrotic cell death in cardiomyocytes is independent of matrix metalloproteinase-2. *Toxicology in Vitro*. 2013;27(6):1686-92.
230. Aimo A, Castiglione V, Borrelli C, Saccaro LF, Franzini M, Masi S, et al. Oxidative stress and inflammation in the evolution of heart failure: from pathophysiology to therapeutic strategies. *European Journal of Preventive Cardiology*. 2020;27(5):494-510.
231. McMurray J, Chopra M, Abdullah I, Smith W, Dargie H. Evidence of oxidative stress in chronic heart failure in humans. *European heart journal*. 1993;14(11):1493-8.
232. Al-Sereiti M, Abu-Amer K, Sena P. Pharmacology of rosemary (*Rosmarinus officinalis* Linn.) and its therapeutic potentials. 1999.
233. Nguyen HC, Nguyen HNT, Huang MY, Lin KH, Pham DC, Tran YB, et al. Optimization of aqueous enzyme-assisted extraction of rosmarinic acid from rosemary (*Rosmarinus officinalis* L.) leaves and the antioxidant activity of the extract. *Journal of Food Processing and Preservation*. 2021;45(3):e15221.
234. Kondo S, El Omri A, Han J, Isoda H. Antidepressant-like effects of rosmarinic acid through mitogen-activated protein kinase phosphatase-1 and brain-derived neurotrophic factor modulation. *Journal of Functional Foods*. 2015;14:758-66.
235. Alagawany M, Abd El-Hack ME, Farag MR, Gopi M, Karthik K, Malik YS, et al. Rosmarinic acid: modes of action, medicinal values and health benefits. *Animal Health Research Reviews*. 2017;18(2):167-76.
236. Sik B, Kapcsándi V, Székelyhidi R, Hanczné EL, Ajtony Z. Recent advances in the analysis of rosmarinic acid from herbs in the Lamiaceae family. *Natural Product Communications*. 2019;14(7):1934578X19864216.
237. Wang J, Wang S, Guo H, Li Y, Jiang Z, Gu T, et al. Rosmarinic acid protects rats against post-stroke depression after transient focal cerebral ischemic injury through enhancing antioxidant response. *Brain Research*. 2021;1757:147336.
238. Machado DG, Cunha MP, Neis VB, Balen GO, Colla AR, Grando J, et al. *Rosmarinus officinalis* L. hydroalcoholic extract, similar to fluoxetine, reverses depressive-like behavior without altering learning deficit in olfactory bulbectomized mice. *Journal of ethnopharmacology*. 2012;143(1):158-69.

239. Javidanpour S, Dianat M, Badavi M, Mard SA. The cardioprotective effect of rosmarinic acid on acute myocardial infarction and genes involved in Ca²⁺ homeostasis. *Free radical research*. 2017;51(11-12):911-23.
240. K peli Akkol E, G ra a  Dereli FT, Ilhan M. Assessment of antidepressant effect of the aerial parts of *micromeria myrtifolia* Boiss. & Hohen on mice. *Molecules*. 2019;24(10):1869.
241. Rocha J, Eduardo-Figueira M, Barateiro A, Fernandes A, Brites D, Bronze R, et al. Anti-inflammatory effect of rosmarinic acid and an extract of *Rosmarinus officinalis* in rat models of local and systemic inflammation. *Basic & clinical pharmacology & toxicology*. 2015;116(5):398-413.
242. Zhang Y, Chen X, Yang L, Zu Y, Lu Q. Effects of rosmarinic acid on liver and kidney antioxidant enzymes, lipid peroxidation and tissue ultrastructure in aging mice. *Food & function*. 2015;6(3):927-31.
243. Garcia LS, Comim CM, Valvassori SS, R us GZ, Stertz L, Kapczinski F, et al. Ketamine treatment reverses behavioral and physiological alterations induced by chronic mild stress in rats. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2009;33(3):450-5.
244. Jung SJ, Woo H-t, Cho S, Park K, Jeong S, Lee YJ, et al. Association between body size, weight change and depression: systematic review and meta-analysis. *The British Journal of Psychiatry*. 2017;211(1):14-21.
245. Sharma V, Dewangan HK, Maurya L, Vats K, Verma H. Rational design and in-vivo estimation of Ivabradine Hydrochloride loaded nanoparticles for management of stable angina. *Journal of Drug Delivery Science and Technology*. 2019;54:101337.
246. Metias E, Aboelmaaty N, Hussein A, Abdallah E, Abdelaziz A. Modulation of ECG, myocardial oxidative stress markers and connexin 43 expression by ascorbic acid and ferulic acid in isoproterenol-induced myocardial infarction in rats. *Biochem Physiol*. 2016;5(210):2.
247. El-Agamy DS, El-Harbi KM, Khoshhal S, Ahmed N, Elkablawy MA, Shaaban AA, et al. Pristimerin protects against doxorubicin-induced cardiotoxicity and fibrosis through modulation of Nrf2 and MAPK/NF-kB signaling pathways. *Cancer management and research*. 2019;11:47.
248. Konopelski P, Ufnal M. Electrocardiography in rats: a comparison to human. *Physiological research*. 2016;65(5).
249. Slattery DA, Cryan JF. Using the rat forced swim test to assess antidepressant-like activity in rodents. *Nature protocols*. 2012;7(6):1009-14.
250. Shivavedi N, Kumar M, Tej GNVC, Nayak PK. Metformin and ascorbic acid combination therapy ameliorates type 2 diabetes mellitus and comorbid depression in rats. *Brain Research*. 2017;1674:1-9.
251. Porsolt RD, Anton G, Blavet N, Jalfre M. Behavioural despair in rats: a new model sensitive to antidepressant treatments. *European journal of pharmacology*. 1978;47(4):379-91.
252. Flugy A, Gagliano M, Cannizzaro C, Novara V, Cannizzaro G. Antidepressant and anxiolytic effects of alprazolam versus the conventional antidepressant desipramine and the anxiolytic diazepam in the forced swim test in rats. *European journal of pharmacology*. 1992;214(2-3):233-8.
253. El Khoury A, Gruber SH, M rk A, Math  AA. Adult life behavioral consequences of early maternal separation are alleviated by escitalopram treatment in a rat model of depression. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2006;30(3):535-40.

254. Liu M-Y, Yin C-Y, Zhu L-J, Zhu X-H, Xu C, Luo C-X, et al. Sucrose preference test for measurement of stress-induced anhedonia in mice. *Nature protocols*. 2018;13(7):1686-98.
255. Sáenz JCB, Villagra OR, Trías JF. Factor analysis of forced swimming test, sucrose preference test and open field test on enriched, social and isolated reared rats. *Behavioural brain research*. 2006;169(1):57-65.
256. Cox BM, Alsawah F, McNeill PC, Galloway MP, Perrine SA. Neurochemical, hormonal, and behavioral effects of chronic unpredictable stress in the rat. *Behavioural brain research*. 2011;220(1):106-11.
257. Yang X-h, Song S-Q, Xu Y. Resveratrol ameliorates chronic unpredictable mild stress-induced depression-like behavior: involvement of the HPA axis, inflammatory markers, BDNF, and Wnt/ β -catenin pathway in rats. *Neuropsychiatric disease and treatment*. 2017;13:2727.
258. Nickle TR, Stanley EM, Middlemas DS. Corticosterone induces depressive-like behavior in female peri-pubescent rats, but not in pre-pubescent rats. *Chronic Stress*. 2020;4:2470547020923711.
259. Bellia F, Suarez A, D'Addario C, Pautassi RM, Fabio MC. Transient serotonin depletion at adolescence, but not at early infancy, reduced subsequent anxiety-like behavior and alcohol intake in female mice. *Psychopharmacology*. 2021;238(1):215-25.
260. Wood SK. The role of inflammation and oxidative stress in depression and cardiovascular disease. *Cardiovascular Implications of Stress and Depression*: Elsevier; 2020. p. 175-209.
261. Billici M, Efe H, Koroğlu MA, Uydu HA, Bekaroğlu M, Değer O. Antioxidative enzyme activities and lipid peroxidation in major depression: alterations by antidepressant treatments. *Journal of affective disorders*. 2001;64(1):43-51.
262. Ohkawa H, Ohishi N, Yagi K. Assay for lipid peroxides in animal tissues by thiobarbituric acid reaction. *Analytical biochemistry*. 1979;95(2):351-8.
263. Ellman G. Tissue sulphhydryl groups *Arch Biochem Biophys* 82: 70–77. 1959.
264. Kumar M M, Kasala ER, Bodduluru LN, Dahiya V, Lahkar M. Baicalein protects isoproterenol induced myocardial ischemic injury in male Wistar rats by mitigating oxidative stress and inflammation. *Inflammation Research*. 2016;65(8):613-22.
265. Lowry O, Rosebrough N, Farr A, Randall R. Protein measurement with the Folin phenol reagent. *J Biol Chem*. 1951;193:265-75.
266. Maes M, Ruckoanich P, Chang YS, Mahanonda N, Berk M. Multiple aberrations in shared inflammatory and oxidative & nitrosative stress (IO&NS) pathways explain the co-association of depression and cardiovascular disorder (CVD), and the increased risk for CVD and due mortality in depressed patients. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2011;35(3):769-83.
267. Shao M, Lin X, Jiang D, Tian H, Xu Y, Wang L, et al. Depression and cardiovascular disease: Shared molecular mechanisms and clinical implications. *Psychiatry research*. 2020;285:112802.
268. Acharya UR, Fujita H, Oh SL, Hagiwara Y, Tan JH, Adam M. Application of deep convolutional neural network for automated detection of myocardial infarction using ECG signals. *Information Sciences*. 2017;415:190-8.
269. Acharya UR, Kannathal N, Hua LM, Yi LM. Study of heart rate variability signals at sitting and lying postures. *Journal of bodywork and Movement Therapies*. 2005;9(2):134-41.

270. Sheline YI. 3D MRI studies of neuroanatomic changes in unipolar major depression: the role of stress and medical comorbidity. *Biological psychiatry*. 2000;48(8):791-800.
271. Lee AL, Ogle WO, Sapolsky RM. Stress and depression: possible links to neuron death in the hippocampus. *Bipolar disorders*. 2002;4(2):117-28.
272. Zhou QG, Hu Y, Hua Y, Hu M, Luo CX, Han X, et al. Neuronal nitric oxide synthase contributes to chronic stress-induced depression by suppressing hippocampal neurogenesis. *Journal of neurochemistry*. 2007;103(5):1843-54.
273. Tõnissaar M, Mällo T, Eller M, Häidkind R, Kõiv K, Harro J. Rat behavior after chronic variable stress and partial lesioning of 5-HT-ergic neurotransmission: effects of citalopram. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2008;32(1):164-77.
274. Isingrini E, Camus V, Le Guisquet A-M, Pingaud M, Devers S, Belzung C. Association between repeated unpredictable chronic mild stress (UCMS) procedures with a high fat diet: a model of fluoxetine resistance in mice. *PLoS One*. 2010;5(4):e10404.
275. Willner P. Validity, reliability and utility of the chronic mild stress model of depression: a 10-year review and evaluation. *Psychopharmacology*. 1997;134(4):319-29.
276. Willner P. Chronic mild stress (CMS) revisited: consistency and behavioural-neurobiological concordance in the effects of CMS. *Neuropsychobiology*. 2005;52(2):90-110.
277. American Psychiatric Association A. *Diagnostic and statistical manual of mental disorders*: American Psychiatric Association Washington, DC; 1980.
278. Tolentino JC, Schmidt SL. DSM-5 criteria and depression severity: implications for clinical practice. *Frontiers in psychiatry*. 2018;9:450.
279. Truschel J. Depression definition and DSM-5 diagnostic criteria. 2020.
280. Wu G-F, Ren S, Tang R-Y, Xu C, Zhou J-Q, Lin S-M, et al. Antidepressant effect of taurine in chronic unpredictable mild stress-induced depressive rats. *Scientific reports*. 2017;7(1):1-14.
281. Zeng M-J, Zhou L-P, Li Y-Q, Zhao F, Shang Z-Y, Deng X-Y, et al. Baicalin exerts neuroprotective effects via inhibiting activation of GSK3 β /NF- κ B/NLRP3 signal pathway in a rat model of depression. *International immunopharmacology*. 2018;64:175-82.
282. Gamaro G, Manoli L, Torres I, Silveira R, Dalmaz C. Effects of chronic variate stress on feeding behavior and on monoamine levels in different rat brain structures. *Neurochemistry international*. 2003;42(2):107-14.
283. Bekris S, Antoniou K, Daskas S, Papadopoulou-Daifoti Z. Behavioural and neurochemical effects induced by chronic mild stress applied to two different rat strains. *Behavioural brain research*. 2005;161(1):45-59.
284. Raynaud A, Meunier N, Acquistapace A, Bombail V. Chronic variable stress exposure in male Wistar rats affects the first step of olfactory detection. *Behavioural brain research*. 2015;291:36-45.
285. Wang C, Wang X-R, Song D-D, Wang J-L, Wang Y, Tao T-Q, et al. The establishment of rat model in myocardial ischemia with psychological stress. *Annals of Translational Medicine*. 2020;8(6):322.
286. O'connor T, O'halloran D, Shanahan F. The stress response and the hypothalamic-pituitary-adrenal axis: from molecule to melancholia. *Qjm*. 2000;93(6):323-33.

287. Ulrich-Lai YM, Figueiredo HF, Ostrander MM, Choi DC, Engeland WC, Herman JP. Chronic stress induces adrenal hyperplasia and hypertrophy in a subregion-specific manner. *American journal of physiology-endocrinology and metabolism*. 2006;291(5):E965-E73.
288. Gautam RK, Gupta G, Sharma S, Hatware K, Patil K, Sharma K, et al. Rosmarinic acid attenuates inflammation in experimentally induced arthritis in Wistar rats, using Freund's complete adjuvant. *International journal of rheumatic diseases*. 2019;22(7):1247-54.
289. Delgado PL. Depression: the case for a monoamine deficiency. *Journal of clinical Psychiatry*. 2000;61(6):7-11.
290. Shetty RA, Sadananda M. Brief social isolation in the adolescent Wistar-Kyoto rat model of endogenous depression alters corticosterone and regional monoamine concentrations. *Neurochemical research*. 2017;42(5):1470-7.
291. Bernatova I, Puzserova A, Balis P, Sestakova N, Horvathova M, Kralovicova Z, et al. Chronic stress produces persistent increases in plasma corticosterone, reductions in brain and cardiac nitric oxide production, and delayed alterations in endothelial function in young prehypertensive rats. *Frontiers in physiology*. 2018;9:1179.
292. Lowrance SA, Ionadi A, McKay E, Douglas X, Johnson JD. Sympathetic nervous system contributes to enhanced corticosterone levels following chronic stress. *Psychoneuroendocrinology*. 2016;68:163-70.
293. Idayu NF, Hidayat MT, Moklas M, Sharida F, Raudzah AN, Shamima A, et al. Antidepressant-like effect of mitragynine isolated from *Mitragyna speciosa* Korth in mice model of depression. *Phytomedicine*. 2011;18(5):402-7.
294. Taylor D, Hyslop D, Riblet L, editors. Bupirone: A model for anxioselective drug action. *Soc Neurosci Abstr*; 1980.
295. George MS, Ketter TA, Post RM. Prefrontal cortex dysfunction in clinical depression. *Depression*. 1994;2(2):59-72.
296. Michel TM, Frangou S, Thiemeyer D, Camara S, Jecel J, Nara K, et al. Evidence for oxidative stress in the frontal cortex in patients with recurrent depressive disorder—a postmortem study. *Psychiatry research*. 2007;151(1-2):145-50.
297. Krishnan V, Nestler EJ. The molecular neurobiology of depression. *Nature*. 2008;455(7215):894-902.
298. Moradi-Kor N, Dadkhah M, Ghanbari A, Rashidipour H, Bandegi AR, Barati M, et al. Protective effects of spirulina platensis, voluntary exercise and environmental interventions against adolescent stress-induced anxiety and depressive-like symptoms, oxidative stress and alterations of BDNF and 5HT-3 receptors of the prefrontal cortex in female rats. *Neuropsychiatric Disease and Treatment*. 2020;16:1777.
299. Li J, Lin H, Zhu X, Li L, Wang X, Sun W, et al. Association study of functional polymorphisms in serotonin transporter gene with temporal lobe epilepsy in Han Chinese population. *European journal of neurology*. 2012;19(2):351-3.
300. Sasaki K, El Omri A, Kondo S, Han J, Isoda H. Rosmarinus officinalis polyphenols produce anti-depressant like effect through monoaminergic and cholinergic functions modulation. *Behavioural Brain Research*. 2013;238:86-94.
301. Lin S-H, Chou M-L, Chen W-C, Lai Y-S, Lu K-H, Hao C-W, et al. A medicinal herb, *Melissa officinalis* L. ameliorates depressive-like behavior of rats in the forced swimming test via regulating the serotonergic neurotransmitter. *Journal of ethnopharmacology*. 2015;175:266-72.
302. Moreno S, Scheyer T, Romano CS, Vojnov AA. Antioxidant and antimicrobial activities of rosemary extracts linked to their polyphenol composition. *Free radical research*. 2006;40(2):223-31.

303. Ozturk H, Ozturk H, Terzi EH, Ozgen U, Duran A, Uygun I. Protective effects of rosmarinic acid against renal ischaemia/reperfusion injury in rats. *J Pak Med Assoc.* 2014;64(3):260-5.
304. López V, Martín S, Gómez-Serranillos MP, Carretero ME, Jäger AK, Calvo MI. Neuroprotective and neurological properties of *Melissa officinalis*. *Neurochemical research.* 2009;34(11):1955-61.
305. Takeda H, Tsuji M, Inazu M, Egashira T, Matsumiya T. Rosmarinic acid and caffeic acid produce antidepressive-like effect in the forced swimming test in mice. *European journal of pharmacology.* 2002;449(3):261-7.
306. Bandaruk Y, Mukai R, Kawamura T, Nemoto H, Terao J. Evaluation of the inhibitory effects of quercetin-related flavonoids and tea catechins on the monoamine oxidase-A reaction in mouse brain mitochondria. *Journal of agricultural and food chemistry.* 2012;60(41):10270-7.
307. Falé PL, Madeira PJA, Florêncio MH, Ascensão L, Serralheiro MLM. Function of *Plectranthus barbatus* herbal tea as neuronal acetylcholinesterase inhibitor. *Food & function.* 2011;2(2):130-6.
308. Glassman AH, Shapiro PA. Depression and the course of coronary artery disease. *American Journal of Psychiatry.* 1998;155(1):4-11.
309. Peacock WF, Hollander JE, Smalling RW, Bresler MJ. Reperfusion strategies in the emergency treatment of ST-segment elevation myocardial infarction. *The American journal of emergency medicine.* 2007;25(3):353-66.
310. Patel V, Upaganlawar A, Zalawadia R, Balaraman R. Cardioprotective effect of melatonin against isoproterenol induced myocardial infarction in rats: a biochemical, electrocardiographic and histoarchitectural evaluation. *European journal of pharmacology.* 2010;644(1-3):160-8.
311. Regolisti G, Maggiore U, Greco P, Maccari C, Parenti E, Di Mario F, et al. Electrocardiographic T wave alterations and prediction of hyperkalemia in patients with acute kidney injury. *Internal and emergency medicine.* 2020;15(3):463-72.
312. Hunter RW, Bailey MA. Hyperkalemia: pathophysiology, risk factors and consequences. *Nephrology Dialysis Transplantation.* 2019;34(Supplement_3):iii2-iii11.
313. Klabunde R. *Cardiovascular physiology concepts*: Lippincott Williams & Wilkins; 2011.
314. Goldberger AL, Goldberger ZD, Shvilkin A. *Clinical electrocardiography: a simplified approach e-book*: Elsevier Health Sciences; 2017.
315. Chacko S, Haseeb S, Glover BM, Wallbridge D, Harper A. The role of biomarkers in the diagnosis and risk stratification of acute coronary syndrome. *Future science OA.* 2017;4(1):FSO251.
316. Ali M, Schulz R. Activation of MMP-2 as a key event in oxidative stress injury to the heart. *Front Biosci.* 2009;14(1):699-716.
317. Moretti M, Colla A, de Oliveira Balen G, dos Santos DB, Budni J, de Freitas AE, et al. Ascorbic acid treatment, similarly to fluoxetine, reverses depressive-like behavior and brain oxidative damage induced by chronic unpredictable stress. *Journal of psychiatric research.* 2012;46(3):331-40.
318. Sarandol A, Sarandol E, Eker SS, Erdinc S, Vatansever E, Kirli S. Major depressive disorder is accompanied with oxidative stress: short-term antidepressant treatment does not alter oxidative-antioxidative systems. *Human Psychopharmacology: Clinical and Experimental.* 2007;22(2):67-73.
319. Ramanauskienė K, Raudonis R, Majiene D. Rosmarinic acid and *Melissa officinalis* extracts differently affect glioblastoma cells. *Oxidative medicine and cellular longevity.* 2016;2016.

320. Araniti F, Costas-Gil A, Cabeiras-Freijanes L, Lupini A, Sunseri F, Reigosa MJ, et al. Rosmarinic acid induces programmed cell death in Arabidopsis seedlings through reactive oxygen species and mitochondrial dysfunction. *PloS one*. 2018;13(12):e0208802.
321. Fadel O, El Kirat K, Morandat S. The natural antioxidant rosmarinic acid spontaneously penetrates membranes to inhibit lipid peroxidation in situ. *Biochimica et Biophysica Acta (BBA)-Biomembranes*. 2011;1808(12):2973-80.
322. Luño V, Gil L, Olaciregui M, González N, Jerez RA, De Blas I. Rosmarinic acid improves function and in vitro fertilising ability of boar sperm after cryopreservation. *Cryobiology*. 2014;69(1):157-62.
323. Maria Michel T, Pulschen D, Thome J. The role of oxidative stress in depressive disorders. *Current pharmaceutical design*. 2012;18(36):5890-9.
324. Bhatt S, Nagappa AN, Patil CR. Role of oxidative stress in depression. *Drug discovery today*. 2020.
325. Freitas AE, Bettio LE, Neis VB, Santos DB, Ribeiro CM, Rosa PB, et al. Agmatine abolishes restraint stress-induced depressive-like behavior and hippocampal antioxidant imbalance in mice. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2014;50:143-50.
326. Carney RM, Freedland KE. Depression and coronary heart disease. *Nature Reviews Cardiology*. 2017;14(3):145.
327. Schmidt D, Reber SO, Botteron C, Barth T, Peterlik D, Uschold N, et al. Chronic psychosocial stress promotes systemic immune activation and the development of inflammatory Th cell responses. *Brain, behavior, and immunity*. 2010;24(7):1097-104.
328. Dowlati Y, Herrmann N, Swardfager W, Liu H, Sham L, Reim EK, et al. A meta-analysis of cytokines in major depression. *Biological psychiatry*. 2010;67(5):446-57.
329. Miller AH, Raison CL. The role of inflammation in depression: from evolutionary imperative to modern treatment target. *Nature reviews immunology*. 2016;16(1):22.
330. Boonyarikpunchai W, Sukrong S, Towiwat P. Antinociceptive and anti-inflammatory effects of rosmarinic acid isolated from *Thunbergia laurifolia* Lindl. *Pharmacology Biochemistry and Behavior*. 2014;124:67-73.
331. Tsai T-H, Chuang L-T, Lien T-J, Liing Y-R, Chen W-Y, Tsai P-J. Rosmarinus officinalis extract suppresses *Propionibacterium acnes*-induced inflammatory responses. *Journal of medicinal food*. 2013;16(4):324-33.
332. Friedman T. The Effect of Rosmarinic Acid on Immunological and Neurological Systems. *Journal of Restorative Medicine*. 2015;4(1):50-9.
333. Rahbardar MG, Amin B, Mehri S, Mirnajafi-Zadeh SJ, Hosseinzadeh H. Anti-inflammatory effects of ethanolic extract of *Rosmarinus officinalis* L. and rosmarinic acid in a rat model of neuropathic pain. *Biomedicine & Pharmacotherapy*. 2017;86:441-9.
334. Draijer N, Langeland W. Childhood trauma and perceived parental dysfunction in the etiology of dissociative symptoms in psychiatric inpatients. *American Journal of Psychiatry*. 1999;156(3):379-85.
335. Banihashemi L, Sheu LK, Midei AJ, Gianaros PJ. Childhood physical abuse predicts stressor-evoked activity within central visceral control regions. *Social Cognitive and Affective Neuroscience*. 2015;10(4):474-85.

336. Aisa B, Tordera R, Lasheras B, Del Río J, Ramírez MJ. Cognitive impairment associated to HPA axis hyperactivity after maternal separation in rats. *Psychoneuroendocrinology*. 2007;32(3):256-66.
337. Crombie GK, Palliser HK, Shaw JC, Hodgson DM, Walker DW, Hirst JJ. Effects of prenatal stress on behavioural and neurodevelopmental outcomes are altered by maternal separation in the neonatal period. *Psychoneuroendocrinology*. 2021;124:105060.
338. Cohen L, Brown J, Haukness H, Walsh L, Robinson JK. Sun protection counseling by pediatricians has little effect on parent and child sun protection behavior. *The Journal of pediatrics*. 2013;162(2):381-6.
339. De Bellis MD. The psychobiology of neglect. *Child maltreatment*. 2005;10(2):150-72.
340. Baunach PJ. *Mothers in prison*: Routledge; 2020.
341. Livezey KB. Toward the reduction of marking-induced abandonment of newborn ungulates. *Wildlife Society Bulletin (1973-2006)*. 1990;18(2):193-203.
342. Wigger DC, Gröger N, Lesse A, Krause S, Merz T, Gündel H, et al. Maternal separation induces long-term alterations in the cardiac oxytocin receptor and cystathionine γ -lyase expression in mice. *Oxidative medicine and cellular longevity*. 2020;2020.
343. Trombini M, Hulshof H, Graiani G, Carnevali L, Meerlo P, Quaini F, et al. Early maternal separation has mild effects on cardiac autonomic balance and heart structure in adult male rats. *Stress*. 2012;15(4):457-70.
344. Eskandari F, Salimi M, Binayi F, Abdollahifar M-A, Eftekhary M, Hedayati M, et al. Investigating the Effects of Maternal Separation on Hypothalamic-Pituitary-Adrenal Axis and Glucose Homeostasis under Chronic Social Defeat Stress in Young Adult Male Rat Offspring. *Neuroendocrinology*. 2023;113(3):361-80.
345. Arabi M, Nasab SH, Lorigooini Z, Boroujeni SN, Mortazavi SM, Anjomshoa M, et al. Auraptene exerts protective effects on maternal separation stress-induced changes in behavior, hippocampus, heart and serum of mice. *International Immunopharmacology*. 2021;93:107436.
346. Erjavec GN, Sagud M, Perkovic MN, Strac DS, Konjevod M, Tudor L, et al. Depression: Biological markers and treatment. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*. 2021;105:110139.
347. Liu CH, Zhang E, Wong GTF, Hyun S. Factors associated with depression, anxiety, and PTSD symptomatology during the COVID-19 pandemic: Clinical implications for US young adult mental health. *Psychiatry research*. 2020;290:113172.
348. Friedrich MJ. Depression is the leading cause of disability around the world. *Jama*. 2017;317(15):1517-.
349. Suls J, Bunde J. Anger, anxiety, and depression as risk factors for cardiovascular disease: the problems and implications of overlapping affective dispositions. *Psychological bulletin*. 2005;131(2):260.
350. Pimple P, Lima BB, Hammadah M, Wilmot K, Ramadan R, Levantsevych O, et al. Psychological distress and subsequent cardiovascular events in individuals with coronary artery disease. *Journal of the American Heart Association*. 2019;8(9):e011866.
351. Thygesen K, Alpert JS, Jaffe AS, Chaitman BR, Bax JJ, Morrow DA, et al. Fourth universal definition of myocardial infarction (2018). *Journal of the American College of Cardiology*. 2018;72(18):2231-64.
352. Roger VL. Epidemiology of heart failure. *Circulation research*. 2013;113(6):646-59.

353. Rahman K. Studies on free radicals, antioxidants, and co-factors. *Clinical interventions in aging*. 2007;2(2):219.
354. Thompson JA, Hess ML. The oxygen free radical system: a fundamental mechanism in the production of myocardial necrosis. *Progress in cardiovascular diseases*. 1986;28(6):449-62.
355. Mohanty I, Arya DS, Dinda A, Talwar KK, Joshi S, Gupta SK. Mechanisms of cardioprotective effect of *Withania somnifera* in experimentally induced myocardial infarction. *Basic & clinical pharmacology & toxicology*. 2004;94(4):184-90.
356. Todd GL, Cullan GE, Cullan GM. Isoproterenol-induced myocardial necrosis and membrane permeability alterations in the isolated perfused rabbit heart. *Experimental and molecular pathology*. 1980;33(1):43-54.
357. Trajanovska AS, Kostov J, Perevska Z. Depression in survivors of acute myocardial infarction. *Materia socio-medica*. 2019;31(2):110.
358. Liu M. Spotlight on the relationship between heart disease and mental stress. *Heart and Mind*. 2021;5(1):1.
359. Jung I, Kwon H, Park SE, Han K-D, Park Y-G, Kim Y-H, et al. Increased risk of cardiovascular disease and mortality in patients with diabetes and coexisting depression: a nationwide population-based cohort study. *Diabetes & metabolism journal*. 2021;45(3):379-89.
360. Kumar M, Nayak PK. Psychological sequelae of myocardial infarction. *Biomedicine & Pharmacotherapy*. 2017;95:487-96.
361. Lippi G, Montagnana M, Favaloro EJ, Franchini M, editors. *Mental depression and cardiovascular disease: a multifaceted, bidirectional association*. Seminars in thrombosis and hemostasis; 2009: © Thieme Medical Publishers.
362. Lin D, Wang L, Yan S, Zhang Q, Zhang JH, Shao A. The role of oxidative stress in common risk factors and mechanisms of cardio-cerebrovascular ischemia and depression. *Oxidative medicine and cellular longevity*. 2019;2019.
363. Jugdutt BI, Jugdutt BA. Role of Oxidative Stress in Myocardial Ischemia and Infarction. *Oxidative Stress in Heart Diseases*: Springer; 2019. p. 325-62.
364. Zhou L, Wu Z, Wang G, Xiao L, Wang H, Sun L, et al. Long-term maternal separation potentiates depressive-like behaviours and neuroinflammation in adult male C57/BL6J mice. *Pharmacology Biochemistry and Behavior*. 2020;196:172953.
365. Park SW, Seo MK, Lee JG, Hien LT, Kim YH. Effects of maternal separation and antidepressant drug on epigenetic regulation of the brain-derived neurotrophic factor exon I promoter in the adult rat hippocampus. *Psychiatry and clinical neurosciences*. 2018;72(4):255-65.
366. Hofer MA, Brunelli SA, Shair HN. Potentiation of isolation-induced vocalization by brief exposure of rat pups to maternal cues. *Developmental Psychobiology: The Journal of the International Society for Developmental Psychobiology*. 1994;27(8):503-17.
367. Yoo SB, Kim B-T, Kim JY, Ryu V, Kang D-W, Lee J-H, et al. Adolescence fluoxetine increases serotonergic activity in the raphe-hippocampus axis and improves depression-like behaviors in female rats that experienced neonatal maternal separation. *Psychoneuroendocrinology*. 2013;38(6):777-88.
368. Kumar M, Kasala ER, Bodduluru LN, Dahiya V, Lahkar M. Baicalein protects isoproterenol induced myocardial ischemic injury in male Wistar rats by mitigating oxidative stress and inflammation. *Inflammation Research*. 2016;65(8):613-22.
369. Kumar M, Kasala ER, Bodduluru LN, Kumar V, Lahkar M. Molecular and biochemical evidence on the protective effects of quercetin in isoproterenol-induced

- acute myocardial injury in rats. *Journal of biochemical and molecular toxicology*. 2017;31(1):1-8.
370. Liang J, Yuan X, Shi S, Wang F, Chen Y, Qu C, et al. Effect and mechanism of fluoxetine on electrophysiology in vivo in a rat model of postmyocardial infarction depression. *Drug Design, Development and Therapy*. 2015;9:763.
371. Strik JJ, Honig A, Lousberg R, Lousberg AH, Cheriex EC, Tuynman-Qua HG, et al. Efficacy and safety of fluoxetine in the treatment of patients with major depression after first myocardial infarction: findings from a double-blind, placebo-controlled trial. *Psychosomatic Medicine*. 2000;62(6):783-9.
372. Hanania T, Manfredi P, Inturrisi C, Vitolo OV. The N-methyl-D-aspartate receptor antagonist d-methadone acutely improves depressive-like behavior in the forced swim test performance of rats. *Experimental and clinical psychopharmacology*. 2020;28(2):196.
373. Zhang Y, Zhu X, Bai M, Zhang L, Xue L, Yi J. Maternal deprivation enhances behavioral vulnerability to stress associated with miR-504 expression in nucleus accumbens of rats. *PLoS One*. 2013;8(7):e69934.
374. Ellman GL. Tissue sulfhydryl groups. *Archives of biochemistry and biophysics*. 1959;82(1):70-7.
375. Lee B-H, Kim Y-K. The roles of BDNF in the pathophysiology of major depression and in antidepressant treatment. *Psychiatry investigation*. 2010;7(4):231.
376. Dion-Albert L, Cadoret A, Doney E, Kaufmann FN, Dudek KA, Daigle B, et al. Vascular and blood-brain barrier-related changes underlie stress responses and resilience in female mice and depression in human tissue. *Nature Communications*. 2022;13(1):1-18.
377. Gonul AS, Akdeniz F, Taneli F, Donat O, Eker Ç, Vahip S. Effect of treatment on serum brain-derived neurotrophic factor levels in depressed patients. *European archives of psychiatry and clinical neuroscience*. 2005;255(6):381-6.
378. Russo-Neustadt A, Ha T, Ramirez R, Kessler JP. Physical activity-antidepressant treatment combination: impact on brain-derived neurotrophic factor and behavior in an animal model. *Behavioural brain research*. 2001;120(1):87-95.
379. Hang P, Zhao J, Cai B, Tian S, Huang W, Guo J, et al. Brain-derived neurotrophic factor regulates TRPC3/6 channels and protects against myocardial infarction in rodents. *International journal of biological sciences*. 2015;11(5):536.
380. Wleklík M, Uchmanowicz I, Jankowska-Polańska B, Andrae C, Regulska-Iłow B. The role of nutritional status in elderly patients with heart failure. *The journal of nutrition, health & aging*. 2018;22(5):581-8.
381. Lakhan SE, Vieira KF. Nutritional therapies for mental disorders. *Nutrition journal*. 2008;7(1):1-8.
382. Granata R, Trovato L, Gallo MP, Destefanis S, Settanni F, Scarlatti F, et al. Growth hormone-releasing hormone promotes survival of cardiac myocytes in vitro and protects against ischaemia-reperfusion injury in rat heart. *Cardiovascular research*. 2009;83(2):303-12.
383. Zaugg M, Xu W, Lucchinetti E, Shafiq SA, Jamali NZ, Siddiqui M. β -Adrenergic receptor subtypes differentially affect apoptosis in adult rat ventricular myocytes. *Circulation*. 2000;102(3):344-50.
384. Ning B-B, Zhang Y, Wu D-D, Cui J-G, Liu L, Wang P-W, et al. Luteolin-7-diglucuronide attenuates isoproterenol-induced myocardial injury and fibrosis in mice. *Acta Pharmacologica Sinica*. 2017;38(3):331-41.
385. Sahu BD, Putcha UK, Kuncha M, Rachamalla SS, Sistla R. Carnosic acid promotes myocardial antioxidant response and prevents isoproterenol-induced

myocardial oxidative stress and apoptosis in mice. *Molecular and cellular biochemistry*. 2014;394(1):163-76.

386. Cinar I, Halici Z, Dincer B, Sirin B, Cadirci E. The role of 5-HT7 receptors on isoproterenol-induced myocardial infarction in rats with high-fat diet exacerbated coronary endothelial dysfunction. *Human & Experimental Toxicology*. 2020;39(8):1005-18.

387. Murphy MO, Cohn DM, Loria AS. Developmental origins of cardiovascular disease: Impact of early life stress in humans and rodents. *Neuroscience & Biobehavioral Reviews*. 2017;74:453-65.

388. Low CA, Salomon K, Matthews KA. Chronic life stress, cardiovascular reactivity, and subclinical cardiovascular disease in adolescents. *Psychosomatic medicine*. 2009;71(9):927.

389. Parrish C, Surkan P, Martins S, Gattaz F, Andrade L, Viana M. Childhood Adversity and Adult Onset of Hypertension and Heart Disease in São Paulo, Brazil. *Centers Dis Control Prev*. 2013; 10: 1–5. 2017.

390. O'Mahony SM, Hyland NP, Dinan TG, Cryan JF. Maternal separation as a model of brain–gut axis dysfunction. *Psychopharmacology*. 2011;214(1):71-88.

391. Amiri S, Amini-Khoei H, Mohammadi-Asl A, Alijanpour S, Haj-Mirzaian A, Rahimi-Balaei M, et al. Involvement of D1 and D2 dopamine receptors in the antidepressant-like effects of selegiline in maternal separation model of mouse. *Physiology & behavior*. 2016;163:107-14.

392. Bian Y, Yang L, Wang Z, Wang Q, Zeng L, Xu G. Repeated three-hour maternal separation induces depression-like behavior and affects the expression of hippocampal plasticity-related proteins in C57BL/6N mice. *Neural plasticity*. 2015;2015.

393. Ladd CO, Thiruvikraman K, Huot RL, Plotsky PM. Differential neuroendocrine responses to chronic variable stress in adult Long Evans rats exposed to handling-maternal separation as neonates. *Psychoneuroendocrinology*. 2005;30(6):520-33.

394. Sanchez MM, Ladd CO, Plotsky PM. Early adverse experience as a developmental risk factor for later psychopathology: evidence from rodent and primate models. *Development and psychopathology*. 2001;13(3):419-49.

395. Daniels W, Pietersen C, Carstens M, Stein D. Maternal separation in rats leads to anxiety-like behavior and a blunted ACTH response and altered neurotransmitter levels in response to a subsequent stressor. *Metabolic brain disease*. 2004;19(1):3-14.

396. Donoso F, Egerton S, Bastiaanssen TF, Fitzgerald P, Gite S, Fouhy F, et al. Polyphenols selectively reverse early-life stress-induced behavioural, neurochemical and microbiota changes in the rat. *Psychoneuroendocrinology*. 2020;116:104673.

397. Pariante CM, Lightman SL. The HPA axis in major depression: classical theories and new developments. *Trends in neurosciences*. 2008;31(9):464-8.

398. Bhattacharjee A, Prajapati SK, Krishnamurthy S. Supplementation of taurine improves ionic homeostasis and mitochondrial function in the rats exhibiting post-traumatic stress disorder-like symptoms. *European Journal of Pharmacology*. 2021;908:174361.

399. Gilles EE, Schultz L, Baram TZ. Abnormal corticosterone regulation in an immature rat model of continuous chronic stress. *Pediatric neurology*. 1996;15(2):114-9.

400. Marais L, Van Rensburg SJ, Van Zyl JM, Stein DJ, Daniels WM. Maternal separation of rat pups increases the risk of developing depressive-like behavior after subsequent chronic stress by altering corticosterone and neurotrophin levels in the hippocampus. *Neuroscience research*. 2008;61(1):106-12.

401. Nitta A, Ohmiya M, Sometani A, Itoh M, Nomoto H, Furukawa Y, et al. Brain-derived neurotrophic factor prevents neuronal cell death induced by corticosterone. *Journal of neuroscience research*. 1999;57(2):227-35.
402. Bugajski J, Turon M, Gadek-Michalska A, Borycz J. Catecholaminergic regulation of the hypothalamic-pituitary-adrenocortical activity. *Journal of Physiology and Pharmacology*. 1991;42(1).
403. Fargali S, Sadahiro M, Jiang C, Frick AL, Indall T, Cogliani V, et al. Role of neurotrophins in the development and function of neural circuits that regulate energy homeostasis. *Journal of Molecular Neuroscience*. 2012;48(3):654-9.
404. Harris A, Lennen RJ, Brydges N, Jansen M, Pernet C, Whalley H, et al. The role of brain-derived neurotrophic factor in learned fear processing: an awake rat fMRI study. *Genes, Brain and Behavior*. 2016;15(2):221-30.
405. Karege F, Schwald M, Cisse M. Postnatal developmental profile of brain-derived neurotrophic factor in rat brain and platelets. *Neuroscience letters*. 2002;328(3):261-4.
406. Okada S, Yokoyama M, Toko H, Tateno K, Moriya J, Shimizu I, et al. Brain-derived neurotrophic factor protects against cardiac dysfunction after myocardial infarction via a central nervous system-mediated pathway. *Arteriosclerosis, thrombosis, and vascular biology*. 2012;32(8):1902-9.
407. Roceri M, Cirulli F, Pessina C, Peretto P, Racagni G, Riva MA. Postnatal repeated maternal deprivation produces age-dependent changes of brain-derived neurotrophic factor expression in selected rat brain regions. *Biological psychiatry*. 2004;55(7):708-14.
408. Réus GZ, Dos Santos MAB, Abelaira HM, Ribeiro KF, Petronilho F, Vuolo F, et al. Imipramine reverses alterations in cytokines and BDNF levels induced by maternal deprivation in adult rats. *Behavioural brain research*. 2013;242:40-6.
409. Felder RB, Francis J, Zhang Z-H, Wei S-G, Weiss RM, Johnson AK. Heart failure and the brain: new perspectives. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*. 2003;284(2):R259-R76.
410. Leenen FH. Brain mechanisms contributing to sympathetic hyperactivity and heart failure. *Am Heart Assoc*; 2007. p. 221-3.
411. Ito N, Yabe T, Gamo Y, Nagai T, Oikawa T, Yamada H, et al. Rosmarinic acid from *Perillae Herba* produces an antidepressant-like effect in mice through cell proliferation in the hippocampus. *Biological and Pharmaceutical Bulletin*. 2008;31(7):1376-80.
412. Jin X, Liu P, Yang F, Zhang Y-h, Miao D. Rosmarinic acid ameliorates depressive-like behaviors in a rat model of CUS and Up-regulates BDNF levels in the hippocampus and hippocampal-derived astrocytes. *Neurochemical research*. 2013;38(9):1828-37.
413. Siuciak JA, Boylan C, Fritsche M, Altar CA, Lindsay RM. BDNF increases monoaminergic activity in rat brain following intracerebroventricular or intraparenchymal administration. *Brain research*. 1996;710(1-2):11-20.
414. Celada P, Siuciak JA, Tran TM, Altar CA, Tepper JM. Local infusion of brain-derived neurotrophic factor modifies the firing pattern of dorsal raphe serotonergic neurons. *Brain research*. 1996;712(2):293-8.
415. Cao K, Shen C, Yuan Y, Bai S, Yang L, Guo L, et al. SiNiSan ameliorates the depression-like behavior of rats that experienced maternal separation through 5-HT1A receptor/CREB/BDNF pathway. *Frontiers in psychiatry*. 2019;10:160.
416. Ye Y, Yao S, Wang R, Fang Z, Zhong K, Nie L, et al. PI3K/Akt/NF- κ B signaling pathway regulates behaviors in adolescent female rats following with neonatal

maternal deprivation and chronic mild stress. *Behavioural brain research*. 2019;362:199-207.

417. Ryu V, Yoo SB, Kang D-W, Lee J-H, Jahng JW. Post-weaning isolation promotes food intake and body weight gain in rats that experienced neonatal maternal separation. *Brain research*. 2009;1295:127-34.

418. Szucs-Farkas Z, Strautz T, Patak MA, Kurmann L, Vock P, Schindera ST. Is body weight the most appropriate criterion to select patients eligible for low-dose pulmonary CT angiography? Analysis of objective and subjective image quality at 80 kVp in 100 patients. *European radiology*. 2009;19(8):1914-22.

419. Huet O, Laemmel E, Fu Y, Dupic L, Aprico A, Andrews KL, et al. Interleukin 10 antioxidant effect decreases leukocytes/endothelial interaction induced by tumor necrosis factor α . *Shock*. 2013;39(1):83-8.

420. Varela LM, Ortega-Gomez A, Lopez S, Abia R, Muriana FJ, Bermudez B. The effects of dietary fatty acids on the postprandial triglyceride-rich lipoprotein/apoB48 receptor axis in human monocyte/macrophage cells. *The Journal of nutritional biochemistry*. 2013;24(12):2031-9.

421. Koldzic-Zivanovic N, Tu H, Juelich TL, Rady PL, Tying SK, Hudnall SD, et al. Regulation of adrenal glucocorticoid synthesis by interleukin-10: a preponderance of IL-10 receptor in the adrenal zona fasciculata. *Brain, Behavior, and Immunity*. 2006;20(5):460-8.

422. Abelaira HM, Rosa T, de Moura AB, Andrade NM, Martinello NS, Maciel LR, et al. Combination of electroconvulsive stimulation with ketamine or escitalopram protects the brain against inflammation and oxidative stress induced by maternal deprivation and is critical for associated behaviors in male and female rats. *Molecular Neurobiology*. 2022:1-24.

423. Sun S-J, Wu X-P, Song H-L, Li G-Q. Baicalin ameliorates isoproterenol-induced acute myocardial infarction through iNOS, inflammation, oxidative stress and P38MAPK pathway in rat. *International journal of clinical and experimental medicine*. 2015;8(12):22063.

424. Stumpf C, Petzi S, Seybold K, Wasmeier G, Arnold M, Raaz D, et al. Atorvastatin enhances interleukin-10 levels and improves cardiac function in rats after acute myocardial infarction. *Clinical Science*. 2009;116(1):45-52.

425. Worthen RJ, Garzon Zighelboim SS, Torres Jaramillo CS, Beurel E. Anti-inflammatory IL-10 administration rescues depression-associated learning and memory deficits in mice. *Journal of neuroinflammation*. 2020;17(1):1-16.

426. Dunn AJ. Cytokine activation of the HPA axis. *Annals of the New York Academy of Sciences*. 2000;917(1):608-17.

427. Moore KW, de Waal Malefyt R, Coffman RL, O'Garra A. Interleukin-10 and the interleukin-10 receptor. *Annual review of immunology*. 2001;19(1):683-765.

428. Voorhees JL, Tarr AJ, Wohleb ES, Godbout JP, Mo X, Sheridan JF, et al. Prolonged restraint stress increases IL-6, reduces IL-10, and causes persistent depressive-like behavior that is reversed by recombinant IL-10. *PloS one*. 2013;8(3):e58488.

429. Yu Y, Zhang Z-H, Wei S-G, Chu Y, Weiss RM, Heistad DD, et al. Central gene transfer of interleukin-10 reduces hypothalamic inflammation and evidence of heart failure in rats after myocardial infarction. *Circulation research*. 2007;101(3):304-12.

430. Kiecolt-Glaser JK, Glaser R. Depression and immune function: central pathways to morbidity and mortality. *Journal of psychosomatic research*. 2002;53(4):873-6.

431. Krishnamurthy P, Rajasingh J, Lambers E, Qin G, Losordo DW, Kishore R. IL-10 inhibits inflammation and attenuates left ventricular remodeling after myocardial infarction via activation of STAT3 and suppression of HuR. *Circulation research*. 2009;104(2):e9-e18.
432. Lehnen AM, Rodrigues B, Irigoyen MC, De Angelis K, Schaan BDA. Cardiovascular changes in animal models of metabolic syndrome. *Journal of diabetes research*. 2013;2013.
433. Wan C, Chen Y, Yin P, Han D, Xu X, He S, et al. Transport stress induces apoptosis in rat myocardial tissue via activation of the mitogen-activated protein kinase signaling pathways. *Heart and vessels*. 2016;31(2):212-21.
434. Pashkow FJ, Watumull DG, Campbell CL. Astaxanthin: a novel potential treatment for oxidative stress and inflammation in cardiovascular disease. *The American journal of cardiology*. 2008;101(10):S58-S68.
435. Yao BJ, He XQ, Lin YH, Dai WJ. Cardioprotective effects of anisodamine against myocardial ischemia/reperfusion injury through the inhibition of oxidative stress, inflammation and apoptosis. *Molecular medicine reports*. 2018;17(1):1253-60.
436. Arakawa H, Kodama H, Matsuoka N, Yamaguchi I. Stress increases plasma enzyme activity in rats: differential effects of adrenergic and cholinergic blockades. *Journal of Pharmacology and Experimental Therapeutics*. 1997;280(3):1296-303.
437. Meltzer HY. Plasma creatine phosphokinase activity, hypothermia, and stress. *American Journal of Physiology-Legacy Content*. 1971;221(3):896-901.
438. Ghormade PS, Kumar NB, Tingne CV, Keoliya AN. Distribution & diagnostic efficacy of cardiac markers CK-MB & LDH in pericardial fluid for postmortem diagnosis of ischemic heart disease. *Journal of forensic and legal medicine*. 2014;28:42-6.
439. Raish M, Ahmad A, Ansari MA, Alkharfy KM, Ahad A, Khan A, et al. Beetroot juice alleviates isoproterenol-induced myocardial damage by reducing oxidative stress, inflammation, and apoptosis in rats. *3 Biotech*. 2019;9(4):1-11.
440. Alnahdi HS. Effect of *Rosmarinus officinalis* extract on some cardiac enzymes of streptozotocin-induced diabetic rats. *Journal of Health Sciences*. 2012;2(4):33-7.
441. Nouri A, Hashemzadeh F, Soltani A, Saghaei E, Amini-Khoei H. Progesterone exerts antidepressant-like effect in a mouse model of maternal separation stress through mitigation of neuroinflammatory response and oxidative stress. *Pharmaceutical biology*. 2020;58(1):64-71.
442. Dieterich S, Bielick U, Beulich K, Hasenfuss G, Prestle J. Gene expression of antioxidative enzymes in the human heart: increased expression of catalase in the end-stage failing heart. *Circulation*. 2000;101(1):33-9.
443. Chen O, Ye Z, Cao Z, Manaenko A, Ning K, Zhai X, et al. Methane attenuates myocardial ischemia injury in rats through anti-oxidative, anti-apoptotic and anti-inflammatory actions. *Free Radical Biology and Medicine*. 2016;90:1-11.
444. Behl T, Rana T, Alotaibi GH, Shamsuzzaman M, Naqvi M, Sehgal A, et al. Polyphenols inhibiting MAPK signalling pathway mediated oxidative stress and inflammation in depression. *Biomedicine & Pharmacotherapy*. 2022;146:112545.
445. Su L-J, Zhang J-H, Gomez H, Murugan R, Hong X, Xu D, et al. Reactive oxygen species-induced lipid peroxidation in apoptosis, autophagy, and ferroptosis. *Oxidative medicine and cellular longevity*. 2019;2019.
446. Kwiecien S, Jasnos K, Magierowski M, Sliwowski Z, Pajdo R, Brzozowski B, et al. Lipid peroxidation, reactive oxygen species and antioxidative factors in the pathogenesis of gastric mucosal lesions and mechanism of protection against oxidative stress-induced gastric injury. *J Physiol Pharmacol*. 2014;65(5):613-22.

447. Ozougwu JC. The role of reactive oxygen species and antioxidants in oxidative stress. *International Journal of Research*. 2016;1.
448. Ighodaro O, Akinloye O. First line defence antioxidants-superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPX): Their fundamental role in the entire antioxidant defence grid. *Alexandria journal of medicine*. 2018;54(4):287-93.
449. Ozgová Š, Heřmánek J, Gut I. Different antioxidant effects of polyphenols on lipid peroxidation and hydroxyl radicals in the NADPH-, Fe-ascorbate- and Fe-microsomal systems. *Biochemical pharmacology*. 2003;66(7):1127-37.
450. Gil MI, Tomás-Barberán FA, Hess-Pierce B, Holcroft DM, Kader AA. Antioxidant activity of pomegranate juice and its relationship with phenolic composition and processing. *Journal of Agricultural and Food chemistry*. 2000;48(10):4581-9.
451. Moris D, Spartalis M, Spartalis E, Karachaliou G-S, Karaolani GI, Tsourouflis G, et al. The role of reactive oxygen species in the pathophysiology of cardiovascular diseases and the clinical significance of myocardial redox. *Annals of translational medicine*. 2017;5(16).
452. Reus GZ, Dos Santos MAB, Abelaira HM, Titus SE, Carlessi AS, Matias BI, et al. Antioxidant treatment ameliorates experimental diabetes-induced depressive-like behaviour and reduces oxidative stress in brain and pancreas. *Diabetes/metabolism research and reviews*. 2016;32(3):278-88.
453. Arabameri A, Sameni H, Bandegi A. The effects of propolis extract on ovarian tissue and oxidative stress in rats with maternal separation stress. *International Journal of Reproductive BioMedicine*. 2017;15(8):509.
454. Khodamoradi K, Amini-Khoei H, Khosravizadeh Z, Hosseini SR, Dehpour AR, Hassanzadeh G. Oxidative stress, inflammatory reactions and apoptosis mediated the negative effect of chronic stress induced by maternal separation on the reproductive system in male mice. *Reproductive biology*. 2019;19(4):340-8.
455. Pattananandecha T, Apichai S, Julsrigival J, Ungsurungsie M, Samuhasaneetoo S, Chulasiri P, et al. Antioxidant activity and anti-photoaging effects on UVA-irradiated human fibroblasts of rosmarinic acid enriched extract prepared from *Thunbergia laurifolia* leaves. *Plants*. 2021;10(8):1648.
456. Chidambara Murthy KN, Singh RP, Jayaprakasha GK. Antioxidant activities of grape (*Vitis vinifera*) pomace extracts. *Journal of agricultural and food chemistry*. 2002;50(21):5909-14.
457. Lindqvist D, Dhabhar FS, James SJ, Hough CM, Jain FA, Bersani FS, et al. Oxidative stress, inflammation and treatment response in major depression. *Psychoneuroendocrinology*. 2017;76:197-205.
458. Shen F, Song Z, Xie P, Li L, Wang B, Peng D, et al. Polygonatum sibiricum polysaccharide prevents depression-like behaviors by reducing oxidative stress, inflammation, and cellular and synaptic damage. *Journal of Ethnopharmacology*. 2021;275:114164.
459. Adomako-Bonsu AG, Chan SL, Pratten M, Fry JR. Antioxidant activity of rosmarinic acid and its principal metabolites in chemical and cellular systems: Importance of physico-chemical characteristics. *Toxicology in vitro*. 2017;40:248-55.
460. Caruso G, Grasso M, Fidilio A, Torrisi SA, Musso N, Geraci F, et al. Antioxidant Activity of Fluoxetine and Vortioxetine in a Non-Transgenic Animal Model of Alzheimer's Disease. *Frontiers in pharmacology*. 2021;12.
461. Lamblin M, Murawski C, Whittle S, Fornito A. Social connectedness, mental health and the adolescent brain. *Neuroscience & Biobehavioral Reviews*. 2017;80:57-68.

462. Durkheim E, Sutcliffe H, Simons J. Suicide and fertility: a study of moral statistics. *European Journal of Population/Revue européenne de Démographie*. 1992;8(3):175-97.
463. Heinrichs M, Baumgartner T, Kirschbaum C, Ehlert U. Social support and oxytocin interact to suppress cortisol and subjective responses to psychosocial stress. *Biological psychiatry*. 2003;54(12):1389-98.
464. Lockhart S, Sawa A, Niwa M. Developmental trajectories of brain maturation and behavior: Relevance to major mental illnesses. *Journal of pharmacological sciences*. 2018;137(1):1-4.
465. Matuszewich L, Karney JJ, Carter SR, Janasik SP, O'Brien JL, Friedman RD. The delayed effects of chronic unpredictable stress on anxiety measures. *Physiology & behavior*. 2007;90(4):674-81.
466. Jiang W-G, Li S-X, Zhou S-J, Sun Y, Shi J, Lu L. Chronic unpredictable stress induces a reversible change of PER2 rhythm in the suprachiasmatic nucleus. *Brain research*. 2011;1399:25-32.
467. Verma H, Shivavedi N, Tej GN, Kumar M, Nayak PK. Prophylactic administration of rosmarinic acid ameliorates depression-associated cardiac abnormalities in Wistar rats: Evidence of serotonergic, oxidative, and inflammatory pathways. *Journal of Biochemical and Molecular Toxicology*. 2022:e23160.
468. Chou S, Davis C, Li M. Maternal immune activation and repeated maternal separation alter offspring conditioned avoidance response learning and antipsychotic response in male rats. *Behavioural Brain Research*. 2021;403:113145.
469. Bölükbas I, Mundorf A, Freund N. Maternal separation in rats induces neurobiological and behavioral changes on the maternal side. *Scientific Reports*. 2020;10(1):1-9.
470. Bian Y, Ma Y, Ma Q, Yang L, Zhu Q, Li W, et al. Prolonged Maternal Separation Induces the Depression-Like Behavior Susceptibility to Chronic Unpredictable Mild Stress Exposure in Mice. *BioMed Research International*. 2021;2021.
471. Huang J, Shen C, Ye R, Shi Y, Li W. The Effect of Early Maternal Separation Combined With Adolescent Chronic Unpredictable Mild Stress on Behavior and Synaptic Plasticity in Adult Female Rats. *Frontiers in Psychiatry*. 2021;12:208.
472. Glassman AH. Depression and cardiovascular comorbidity. *Dialogues in clinical neuroscience*. 2022.
473. Batten SV, Aslan M, Maciejewski PK, Mazure CM. Childhood maltreatment as a risk factor for adult cardiovascular disease and depression. *Journal of Clinical Psychiatry*. 2004;65(2):249-54.
474. Liu Z, Liu H, Zeng ZH. Chronic unpredictable mild stress causing cardiac and thoracic spinal cord electrophysiological abnormalities may be associated with increased cardiac expression of serotonin and growth-associated protein-43 in rats. *BioMed research international*. 2018;2018.
475. Tobaldini E, Carandina A, Toschi-Dias E, Erba L, Furlan L, Sgoifo A, et al. Depression and cardiovascular autonomic control: a matter of vagus and sex paradox. *Neuroscience & Biobehavioral Reviews*. 2020;116:154-61.
476. Carney RM, Freedland KE, Veith RC. Depression, the autonomic nervous system, and coronary heart disease. *Psychosomatic medicine*. 2005;67:S29-S33.
477. Penninx BW. Depression and cardiovascular disease: epidemiological evidence on their linking mechanisms. *Neuroscience & Biobehavioral Reviews*. 2017;74:277-86.

478. Allabadi H, Alkaiyat A, Alkhayyat A, Hammoudi A, Odeh H, Shtayeh J, et al. Depression and anxiety symptoms in cardiac patients: a cross-sectional hospital-based study in a Palestinian population. *BMC Public Health*. 2019;19(1):1-14.
479. Pearson TA, Mensah GA, Alexander RW, Anderson JL, Cannon III RO, Criqui M, et al. Markers of inflammation and cardiovascular disease: application to clinical and public health practice: a statement for healthcare professionals from the Centers for Disease Control and Prevention and the American Heart Association. *circulation*. 2003;107(3):499-511.
480. Guan M, Guo L, Ma H, Wu H, Fan X. Network pharmacology and molecular docking suggest the mechanism for biological activity of rosmarinic acid. *Evidence-Based Complementary and Alternative Medicine*. 2021;2021.
481. Shreya S, Kumar DN, Mohapatra D, Jaiswal S, Naik GG, Guru SK, et al. Tracing the Anti-cancer Mechanism of *Pleurotus osteratus* by the Integrative Approach of Network Pharmacology and Experimental Studies. *Applied Biochemistry and Biotechnology*. 2022:1-20.
482. Noor F, Tahir ul Qamar M, Ashfaq UA, Albutti A, Alwashmi AS, Aljasir MA. Network Pharmacology Approach for Medicinal Plants: Review and Assessment. *Pharmaceuticals*. 2022;15(5):572.
483. Brown GR, Hem V, Katz KS, Ovetsky M, Wallin C, Ermolaeva O, et al. Gene: a gene-centered information resource at NCBI. *Nucleic acids research*. 2015;43(D1):D36-D42.
484. Bhattacharjee A, Purohit P, Roy PK. Neuroprotective Drug Discovery From Phytochemicals and Metabolites for CNS Viral Infection: A Systems Biology Approach With Clinical and Imaging Validation. *Frontiers in neuroscience*. 2022;16.
485. Ramakrishna K, Singh N, Krishnamurthy S. Diindolylmethane ameliorates platelet aggregation and thrombosis: In silico, in vitro, and in vivo studies. *European Journal of Pharmacology*. 2022;919:174812.
486. Huynh TN, Krigbaum AM, Hanna JJ, Conrad CD. Sex differences and phase of light cycle modify chronic stress effects on anxiety and depressive-like behavior. *Behavioural brain research*. 2011;222(1):212-22.
487. Mnafgui K, Khelif I, Hajji R, Derbali F, Kraiem F, Ellefi H, et al. Preventive effects of oleuropein against cardiac remodeling after myocardial infarction in Wistar rat through inhibiting angiotensin-converting enzyme activity. *Toxicology Mechanisms and Methods*. 2015;25(7):538-46.
488. Prajapati SK, Dangi DS, Krishnamurthy S. Repeated caffeine administration aggravates post-traumatic stress disorder-like symptoms in rats. *Physiology & behavior*. 2019;211:112666.
489. Garabadu D, Shah A, Ahmad A, Joshi VB, Saxena B, Palit G, et al. Eugenol as an anti-stress agent: modulation of hypothalamic–pituitary–adrenal axis and brain monoaminergic systems in a rat model of stress. *Stress*. 2011;14(2):145-55.
490. Woodward CJ, Emery PW. Determination of plasma corticosterone using high-performance liquid chromatography. *Journal of Chromatography B: Biomedical Sciences and Applications*. 1987;419:280-4.
491. Abdin AA, Hasby EA. Modulatory effect of celastrol on Th1/Th2 cytokines profile, TLR2 and CD3+ T-lymphocyte expression in a relapsing–remitting model of multiple sclerosis in rats. *European journal of pharmacology*. 2014;742:102-12.
492. Wu Q-L, Dong J, Zeng H-W, Lv C, Liu A-J, Zhang W-D. Monitoring antiplatelet aggregation in vivo and in vitro by microtiter plate method. *Journal of Cardiovascular Pharmacology*. 2020;75(4):314-20.

493. Chen Q-f, Li Y-Z, Wang X-H, Su Y-R, Cui S, Miao M-X, et al. Evaluating antithrombotic activity of HY023016 on rat hypercoagulable model. *European Journal of Pharmacology*. 2016;781:190-7.
494. Zou J, Chen Y, Hoi MPM, Li J, Wang T, Zhang Y, et al. Discovery of a novel ERp57 inhibitor as antiplatelet agent from Danshen (*Salvia miltiorrhiza*). *Evidence-Based Complementary and Alternative Medicine*. 2018;2018.
495. Birla H, Rai SN, Singh SS, Zahra W, Rawat A, Tiwari N, et al. *Tinospora cordifolia* suppresses neuroinflammation in parkinsonian mouse model. *Neuromolecular medicine*. 2019;21:42-53.
496. Zahra W, Rai SN, Birla H, Singh SS, Rathore AS, Dilnashin H, et al. Neuroprotection of rotenone-induced parkinsonism by ursolic acid in PD mouse model. *CNS & Neurological Disorders-Drug Targets (Formerly Current Drug Targets-CNS & Neurological Disorders)*. 2020;19(7):527-40.
497. Neogi K, Murumkar PR, Sharma P, Yadav P, Tewari M, Karunagaran D, et al. Design, synthesis and evaluation of 4, 7-disubstituted 8-methoxyquinazoline derivatives as potential cytotoxic agents targeting β -catenin/TCF4 signaling pathway. *Translational Oncology*. 2022;19:101395.
498. Fischer AH, Jacobson KA, Rose J, Zeller R. Hematoxylin and eosin staining of tissue and cell sections. *Cold spring harbor protocols*. 2008;2008(5):pdb. prot4986.
499. Kumar M, Kasala ER, Bodduluru LN, Dahiya V, Lahkar M. Baicalein protects isoproterenol induced myocardial ischemic injury in male Wistar rats by mitigating oxidative stress and inflammation. *Inflammation Research*. 2016;65:613-22.
500. Manukyan MC, Alvernaz CH, Poynter JA, Wang Y, Brewster BD, Weil BR, et al. Interleukin-10 protects the ischemic heart from reperfusion injury via the STAT3 pathway. *Surgery*. 2011;150(2):231-9.
501. Gong W, Ma Y, Li A, Shi H, Nie S. Trimetazidine suppresses oxidative stress, inhibits MMP-2 and MMP-9 expression, and prevents cardiac rupture in mice with myocardial infarction. *Cardiovascular Therapeutics*. 2018;36(5):e12460.
502. Silvestro S, Bramanti P, Mazzon E. Role of quercetin in depressive-like behaviors: Findings from animal models. *Applied Sciences*. 2021;11(15):7116.
503. Iwasaki S, Inoue K, Kiriike N, Hikiji K. Effect of maternal separation on feeding behavior of rats in later life. *Physiology & behavior*. 2000;70(5):551-6.
504. Slotten HA, Kalinichev M, Hagan JJ, Marsden CA, Fone KC. Long-lasting changes in behavioural and neuroendocrine indices in the rat following neonatal maternal separation: gender-dependent effects. *Brain research*. 2006;1097(1):123-32.
505. Lee B-H, Kim H, Park S-H, Kim Y-K. Decreased plasma BDNF level in depressive patients. *Journal of affective disorders*. 2007;101(1-3):239-44.
506. Sarubbo F, Esteban S, Miralles A, Moranta D. Effects of resveratrol and other polyphenols on Sirt1: relevance to brain function during aging. *Current Neuropharmacology*. 2018;16(2):126-36.
507. Menys V, Smith C, Lewins P, Farmer R, Noble M. Platelet 5-hydroxytryptamine is decreased in a preliminary group of depressed patients receiving the 5-hydroxytryptamine re-uptake inhibiting drug fluoxetine. *Clinical Science (London, England: 1979)*. 1996;91(1):87-92.
508. Skop BP, Brown TM. Potential vascular and bleeding complications of treatment with selective serotonin reuptake inhibitors. *Psychosomatics*. 1996;37(1):12-6.

Chapter 7: Publications

7.1 Research papers

Verma. H., Shivavedi, N., Tej, G. N., Kumar, M. & Nayak, P. K. 2022b. Prophylactic administration of rosmarinic acid ameliorates depression-associated cardiac abnormalities in Wistar rats: Evidence of serotonergic, oxidative, and inflammatory pathways. *Journal of Biochemical and Molecular Toxicology*, e23160.

Verma. H., Bhattacharjee, A., Shivavedi, N. & Nayak, P. K. 2022a. Evaluation of rosmarinic acid against myocardial infarction in maternally separated rats. *Naunyn-Schmiedeberg's Archives of Pharmacology*.

Cardioprotective Effect of Rosmarinic Acid in Combined Stress Model of Wistar Rats validated with In-Silico and Experimental studies (Under Communication)

7.2 Coauthor paper

Sharma V, Dewangan H, Maurya L, **Verma H**, Singh S “Rational design and in-vivo estimation of Ivabradine Hydrochloride loaded nanoparticles for management of stable angina”. *Journal of Drug Delivery Science and Technology*. 2019; 54:101337.

Pandey S, Pandey P, Sahu A, **Verma H**, Nandi M. “Targeting of Hyperglycemia and Oxidative Stress in Diabetes Comorbid Depressive Rats: Effectiveness of Hydroethanolic Extract of the Whole Plant of *Ludwigia octovalvis*” *Journal of Traditional Medicine Research* 2022; V. 8.

Saraf P, Tripathi P, Tripathi M, Tripathi A, **Verma H**, Waiker D, Singh R, Shrivastava S “Development of novel 5,6-diphenyl-1,2,4-triazine-3-thiol derivatives as dual COX-2/5-LOX inhibitors devoid of cardiotoxicity” *Journal of Bioorganic Chemistry* (129). 2022; 106147.

7.3 Book Chapters

Verma H. Kumar M, Shivavedi N, Nayak P.K. et al., “Phytochemicals from Indian medicinal herbs in treatment of neurodegenerative disorders” "Indopathy for Neuroprotection: Recent Advances”, Bentham Science, Singapore 2022

Verma H., Shivavedi N, Nayak P.K. “Pharmacology of Rosmarinic acid against Psychological disorders” “Traditional medicine for Neuronal Health”, Bentham Science, Singapore 2023.

Nayak P.K., **Verma H**, Bobde N “Calculations in Experimental Pharmacology” ‘Anne Book Publisher’, India, 2023.

7.4 Conference abstracts

Verma H, Bhattacharjee A., Sivavedi N., Nayak PK, “Evaluation of rosmarinic acid against myocardial infarction in maternally separated rats” poster presented in an international conference “26 Thai Neuroscience Society *via* International brain research organization (IBRO)”, held on June 6-12, 2023 in Naresuan University, Phitsanulok, Thailand (Oral presentation).

Verma H, Nayak PK, Oral presentation on 1st Paramedicon an International Conference In The Celebration of “World Health Day” On “Innovations In Modern / Traditional Health Sciences And Medical Technology” 7 & 8 April 2022 organized by Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University, Varanasi, (Oral Presentations: Hybrid mode).

Chapter 8: Appendix

8.1 Ethical clearance certificate 1

BANARAS HINDU UNIVERSITY
FACULTY OF MEDICINE
INSTITUTE OF MEDICAL SCIENCES
VARANASI 221 005
(542/GO/ReBi/S/02/CPCSEA dated 26.5.2017)

No. Dean/2018/CAEC/ 622

The Head
Department of Pharmaceutical Engineering & Technology
Indian Institute of Technology
Banaras Hindu University

Dear Sir

A meeting of the Central Animal Ethical Committee of the University was held on 19.05.2018 at 00AM in the Chamber of the Dean, Faculty of Medicine, IMS for animal ethical clearance of the proposal submitted by the following.

Name of the Student	Himanshu Verma
Title	To study the ECG on chronic unpredictable stress induced Myocardial infarction
Suggestion	The CPCSEA Guidelines should be followed strictly while handling the animals
Remarks	The Synopsis is approved by the Central Animal Ethical Committee of the University

This is for your information and necessary action at your end

Yours sincerely

(JAI PRAKASH)
DEAN
&
CHAIRMAN
CENTRAL ANIMAL ETHICAL COMMITTEE OF THE UNIVERSITY

8.2 Ethical clearance certificate 2



भारतीय
प्रौद्योगिकी
संस्थान
काशी हिन्दू विश्वविद्यालय

IIT INDIAN
INSTITUTE OF
TECHNOLOGY
BANARAS HINDU UNIVERSITY

Department of Pharmaceutical Engineering & Technology

Regd. No. 2123/GO/Re/S/21/CPCSEA

Date: 03 May, 2022

IAEC Approval Number: **IIT(BHU)/IAEC/2022/055**

CERTIFICATE

This is to certify that the project proposal entitled "**Myocardial infarction comorbid depression**" submitted by **Mr. Himanshu Verma** under supervision of **Dr. P.K Nayak** has been approved/recommended by the IAEC of *Indian Institute of Technology, Banaras Hindu University, Varanasi* in its meeting dated **03/05/2022** and has been sanctioned **48 Male/Female Wistar Rats (200-250 gm)** under this proposal for a duration of **Twelve (12) months.**

Prof. Sushant Kumar
Shrivastava
Name & Signature

Chairman

Dr. Vinod Tiwari
Name & Signature

Member Secretary

Dr. Shesh Narayan Mishra
Name & Signature

Main Nominee of CPCSEA

Note: The CPCSEA Guideline should be followed strictly while handling the animals

8.3 Ethical clearance certificate 3



भारतीय
प्रौद्योगिकी
संस्थान
वाराणसी विश्वविद्यालय

IIT INDIAN
INSTITUTE OF
TECHNOLOGY
BANARAS HINDU UNIVERSITY

Department of Pharmaceutical Engineering & Technology

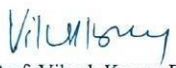
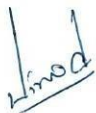

Regd. No. 2123/GO/Rc/S/21/CPCSEA

Date: 09 Feb, 2023

IAEC Approval Number: **IIT(BHU)/IAEC/2023/069**

CERTIFICATE

This is to certify that the project proposal entitled "**Myocardial infarction comorbid depressed animal models**" submitted by **Mr. Himanshu Verma** under supervision of **Dr. Prasanta Kumar Nayak** has been approved/recommended by the IAEC of Indian Institute of Technology, Banaras Hindu University, Varanasi in its meeting dated **09/02/2023** and has been sanctioned **50 Albino Wistar Rats (Either Sex)** under this proposal for a duration of **12** Months.

		
Prof. Vikash Kumar Dubey	Dr. Vinod Tiwari	Dr. Shesh Narayan Mishra
Name & Signature	Name & Signature	Name & Signature
Chairman	Member Secretary	Main Nominee of CPCSEA

Note: The CPCSEA Guideline should be followed strictly while handling the animals