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Incorporating Yoga into Nursing Education: An Integrative

Literature Review

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Abstract

Background: Nursing students today are experiencing elevated levels of stress and anxiety. Without any intervention, this could result in student experiences being impacted by stress and anxiety and could influence health outcomes for future clients. This integrative review describes the current literature on yoga as an intervention in nursing education. **Method:** A literature review matrix with Melnyk's level of evidence guided this review and databases searched included EBSCO, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline, Sage, and PubMed. **Results:** 16 articles were included in this review including one systematic review and 15 studies that were a mix of randomized control studies, quantitative, qualitative, experimental, and explorative design. **Conclusion:** Yoga as an intervention in nursing education decreases perceived stress and improves wellness which increases learning. Nurse educators can incorporate yoga into the nursing curriculum to promote wellness and increase students' learning.

Keywords: nursing, student, yoga, stress, wellness

Introduction

Wellness is comprised of physical, spiritual, social, emotional, and intellectual health (Ozturk & Tezel, 2021). Being active is one way to contribute to one's wellness. Clark (2018), Nightingale first spoke of a nurse who takes care of their healing process and can blend their inner life with their outer professional life. This statement still rings true today as the American Nurses Association states, in Provision 5, that nurses are responsible for taking care of their whole self and promoting health (2015). Yoga is a form of self-care that decreases stress (Kinchen et al., 2020). Clark (2018) defines yoga as a method or philosophy where one joins the individual self with the consciousness and is aware of their breath. Yoga is done through physical poses, focusing on the mind and awareness of one's breath. The incorporation of yoga in nursing education has the potential to support student wellness and decrease stress. The question for this review is, "Does a yoga intervention improve wellness and decrease perceived stress in nursing students?"

College students today are reported to have a high prevalence of mental health challenges (Tong et al., 2021). The environment of college takes time to get used to as it is a change from home. Studies have shown that college students are more stressed than the general population (Stallman 2010; Yazdani et al., 2014; Ozturk & Tezel, 2021). Health professionals and health professional students, including nursing students, are some of the highest-risk professionals for compromised physical and mental health (Ciezar-Anderson & King-Shier, 2021). Nurse educators facilitate learner development and socialization by giving students the tools to decrease stress (National League of Nursing [NLN], 2023, Competency 2). It is more effective for students to actively participate in yoga than to simply learn about it. (Yazdani et al., 2014; Ozturk & Tezel, 2021).

Methods

Using terms such as nursing, student, yoga, stress, and wellness, databases were searched to retrieve peer-reviewed publications. The databases used were EBSCO, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline, Sage, and PubMed. 21 articles were retrieved and 5 were excluded. The levels of evidence (LOE) of the remaining 16 were examined using Melnyk's level of evidence (LOE) (See Appendix A); One article was level one, 10 were level two, three were level six, one was level four, and one was level five. A literature matrix with the articles reviewed is given in Appendix B.

Findings

Of the 16 articles included in this review, one was a systematic review, five were randomized control trials, four were quantitative longitudinal designs, three were qualitative research designs, two were quasi-experimental, and one was an explorative pilot study. The themes identified in the systematic review included yoga, for health professionals and students, decreased anxiety, stress, depression, and musculoskeletal pain (Stillwell et al., 2010). This review also discussed that yoga intervention increases the students' ability to cope in stressful situations and experience less burnout. Improvements in self-care and self-compassion practices were both documented because of the yoga intervention.

Stress and Anxiety

In a randomized controlled trial of 75 healthy university students, Ozturk and Tezel (2021) found that implementing eight sessions of laughter yoga, two times a week with first-year nursing students, resulted in decreased cortisol levels and decreased mental symptoms of anxiety.

A study that focuses on stress, anxiety, and yoga concluded that facilitator support was essential to achieving wellness (Amattayakong et al., 2020; NLN,2023, Competency 8). Stress is an obstacle that can decrease critical thinking skills, according to the nursing students in the focus groups. Perceived stress is stress. LeMay et al. (2019) captured results with the Beck Anxiety Inventory (BHI) and Perceived Stress Scale (PSS). Six weeks of sixty-minute vinyasa yoga sessions for 17 college students showed with pre- and post-questionnaires that there was a decrease in stress and anxiety.

Kinchen et al. (2020) ran a two-group quasi-experimental study with one hour of yoga a week for 12 weeks (about three months). Assessments were administered at three different points during the 12 weeks, resulting in the students' continued perceiving stress regardless of the yoga intervention. At first, this conflicted with the other studies; however, it pointed out that yoga was more of a beginner level with deep breathing and meditation, not as physical. The study also stated that participants who typically practiced yoga did perceive stress less than those who did not. Nemeroff et al. (2022) suggested the yoga intervention could help reduce the need for counseling sessions among college students. Yoga intervention is a cost-effective tool to help mitigate stress and anxiety.

Caring Intervention

Watson's Caring theory was used in incorporating yoga into the curriculum, based on the deep caring of nurses, and socializing nursing students into nursing (Clark, 2018; NLN,2023, Competency 2). The discussion of using Watson's caring theory included educators supporting the growth of compassionate, caring, and intelligent nurses. Watson's caring theory included educators supporting the growth of compassionate, caring, and intelligent nurses. Tong et al. (2021) measured emotions in their study based on Watson and Tellegen's Circumplex model. It was concluded that perceived stress was mediated by self-compassion and positive emotion. The researchers suggested this finding could benefit college fitness instructors.

At the University of Maine, a Bachelor of Science in Nursing (BSN) program integrated yoga and had 82 students who participated over seven weeks give their final reflections (Clark, 2018). The student reflections showed they applied a three-part breathing technique to nursing education of congestive heart failure patients. Students also reported sleeping better and feeling more relaxed. The study discussed the importance of self-care being taught to nursing students for the students to be equipped to teach the caring-healing process to their clients. Teaching self-

care enhanced the educator-student relationship within the caring environment. According to Amattayakong et al. (2020), it was determined that educators should create a caring environment and promote wellness in nursing students to allow for critical thinking and reasoning by the students.

Achieving Wellness

In a randomized control study of practicing nurses, the researchers concluded that the group with a yoga intervention improved overall wellness compared to a group without the yoga intervention (Patil et al., 2018). Jeitler (2020) pointed out that adding yoga brings awareness to healthy behaviors. Yoga as an intervention improves self-regulation and mindfulness as well as self-compassion (Frank et al., 2020; Erkin & Senuzun Aykar, 2021). The data showed the higher the mindfulness, the higher the self-compassion. Tong et al. (2021) and Xu et al. (2022) also discussed the findings of increased mindfulness specifically and decreased stress. These findings were significant. All studies described an increase in wellness as lower stress and anxiety levels, increased perception of health, and increased self-compassion (Tong et al., 2021; Nemeroff et al., 2022). Nugent et al., (2021) discussed the benefits of yoga to include an increase in social functioning, an increase in perception of health, and immune benefits. Donmez et al. (2023) concluded that laughter yoga increased self-confidence, enhanced vital signs, and decreased stress and anxiety related to simulation-based learning. It was also pointed out that adding yoga brings awareness to healthy behaviors. Yoga was added to regular sports in school and found it positively impacted the quality of life of students (Jeitler et al., 2020).

Evaluation of Findings

There were many similarities between the studies, such as the intent of the yoga intervention, which was delivered to see if the intervention increased wellness and decreased perceived stress. Most of the studies focused on yoga interventions decreasing perceived stress levels in the short term; however, there is a lack of information about the long-term implications of a yoga intervention with decreased stress levels (Erdogan et al., 2020). In 15 of the 16 studies reviewed, the participants were nursing students.

The differences in the studies included the frequency of yoga classes and the length that the classes were run. Another difference is the classification of yoga such as Hatha or Vinyasa used in each study. Some studies had certified yoga instructors and their training varied (Oztuck & Tezel, 2021; Tong et al., 2021).

Limitations

This review has many limitations. As many nursing students are interested in improving wellness, they might have been predisposed to respond favorably to the yoga intervention (Ciezar-Andersen & King-Shier, 2021). Another limitation of some of the studies was a lack of diversity, as the participants were mostly female Caucasians. Multiple studies did not provide sufficient details on the type of yoga intervention. There are multiple styles of yoga, and only vinyasa and hatha yoga were mentioned along with the deep breathing technique; however, the details of this stress reduction tool are not thoroughly discussed in many studies. Personal stress and circadian rhythms of individuals are unique to that individual and so cannot be controlled (Ozturk & Tezel, 2021). Group dynamics was considered with one group of nursing students that participated in a study. The designs of the studies varied with the utilization of focus groups, and quantitative, and qualitative data, all of which can show different findings, and therefore comparing may be difficult. One study had level one evidence and ten had level 2 which demonstrated the strength of the findings. The limitations of different yoga styles and levels of instructor training did not change the results of the studies which showed a decrease in perceived stress and improved wellness. Additionally, this review was conducted by only one reviewer.

Conclusion

Existing literature supports the incorporation of yoga into the curriculum and is a proven intervention to promote wellness and reduce perceived stress and anxiety among nursing students (Ozturk & Tezel, 2019; Erdogan et al., 2020; Donmez et al., 2023). Nursing educators can work to integrate yoga into their wellness courses. In this review, two studies discussed yoga theories and three studies discussed nursing theories. The two nursing theories used were Jean Watson's Caring theory and Watson and Tellegen's 1985 Circumplex model. The caring model was the basis for Clark's (2018) study and influences the findings in that all are based on caring for nursing students and client care. Watson's and Tellegen's model is a tool that could be considered in future studies to obtain data on emotions.

Future studies should include further exploration of wellness, more details on the intervention, requirements for instructor training, and how long the effects of the intervention last. Further studies on the effects of yoga on immune function and to mitigate counseling sessions were also suggested. Nursing school is a time to learn the art and science of nursing with only a productive amount of stress and anxiety. Wellness is an important topic where

nursing students learn about themselves and educate patients on achieving optimal health. Experiencing wellness while learning about it can better connect students with wellness.

The Bible states in Matthew 6:22, "The eye is the lamp of the body. If your eyes are healthy, your whole body will be full of light" (*New International Version Bible*, 769/2023). Self-care is a high priority in nursing school. Nurse educators can lead the way by creating a caring environment for learning and incorporating a yoga intervention into the curriculum. The researcher recommends more studies of the effect of yoga on nursing students in simulation, clinical areas, and classroom time. A yoga intervention does improve wellness and decrease perceived stress in today's nursing students.

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Appendix A

Melnik Levels of Evidence

Level 1 - Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses

Level 2 - One or more randomized controlled trials

Level 3 - Controlled trial (no randomization)

Level 4 - Case-control or cohort study

Level 5 - Systematic review of descriptive & qualitative studies

Level 6 - Single descriptive or qualitative study

Level 7 - Expert opinion

Modified from:

Melnik, B.M. & Fineout-Overholt, E. (2015). "Box 1.3: Rating system for the hierarchy of evidence for intervention/treatment questions" in *Evidence-based practice in nursing & healthcare: A guide to best practice (3rd ed.)* (pp. 11). Philadelphia, PA: Wolters Kluwer Health.

Appendix B

TABLE 1
Hierarchy of Evidence for Intervention Studies

Yoga as an Intervention in College Nursing Education										
APA Reference for Article	Research Methods	Study design	Population & Sample Size	Study Process/ Interventions	Theoretical Framework	Summary of Findings	Detail of Potential Bias	Level of Evidence	Included or Excluded	Rationale
Patil, N., Nagarajna, R., Teskar, P., Manotar, P., Bhargav, H., & Patil, D. (2018). A randomized trial comparing effect of yoga and exercises on quality of life in among nursing population with chronic low back pain. <i>International Journal of Yoga, 11</i> (3), 208-214. https://doi.org/10.4103/ijoy.IJOY.2.18	Quantitative World Health Organization Quality of Life Questionnaire	Randomized control study; single blind design	88 professional nurses similar in age and education, diagnosed with chronic low back pain and working in South India hospital	One hour a day, five days a week of yoga in one group and physical exercise performed in the other group. Each group had 44 males in it.	Integrated yoga therapy model used for intervention	There were higher improvements in the physical, psychological and social domains with the yoga intervention group.	No biases noted	Level 2a	Included	We'll run study that could be repeated as there is a model for the interventions and detailed data analysis process with a questionnaire created by the World Health Organization on quality of life.
Clark, C. (2018). A radical RN-BS nursing class: Outcomes from an integrative yoga elective. <i>International Journal of Nursing Education, 15</i> (1). https://doi.org/10.1515/ijnes-2017-0072	Rogerian Unitarian Appreciation Narrative Inquiry Analysis Technique	Qualitative Research design	82 RN-BSN students at University of Maine, post traditional students, most female and work full time	Seven week course created after 200 hours of training.	Jean Watson's Human Caring theory was the basis for nursing educators to incorporate self care yoga course into the curriculum.	Self care modalities must be taught to nursing students to teach the caring-healing process through self-care and this also benefitted the educator-student relationship in the caring environment that was created.	Mostly female students and part of the curriculum so the students may have felt they needed to answer in a positive manner.	Level 6	Included	This study is what is being studied put into action so worth looking at for my purposes.
Leary, V., Hoolahan, J., & Buchanan, A. (2019). Impact of a yoga and meditation intervention on students' stress and anxiety levels. <i>American Journal of Pharmaceutical Education, 53</i> (5), 747-752. https://go.openathens.net/redirector/liberty.edu?url=https://www.proquest.com/scholarly-journals/impact-yoga-meditation-intervention-on-students/docview/2260394284/se-2	Beck Anxiety Index, Perceived Stress Scale, and Five facet mindfulness questionnaire, four point Likert scales, self-reporting.	Single Quantitative Experimental study	17 college students at University of Rhode Island	90 minute class once a week consisting of one hour of yoga, 30 min of guided meditation over six week period.	N/A	Yoga Meditation intervention decreased stress of college students and increased mindfulness with a 95% confidence interval.	Class was led by faculty and participants were first come, first served so there could be favoritism or group dynamics of swaying opinions.	Level 2b	Excluded	Potential bias as this was taught by faculty and the participants were first come first served with only 17 participating in the study.
Kinchen, E., Loerzel, V., & Portoghesa, T. (2020). Yoga and perceived stress, self-compassion, and quality of life in undergraduate nursing students. <i>Journal of Education and Health Promotion, 9</i> (1), 292-292. https://doi.org/10.4103/jehp.jehp.463.20	Perceived Stress scale, World Health Organization Quality of life-BREF, and Self-Compassion scale used with Likert scales and descriptive statistics, mixed model analyses.	Quantitative Longitudinal Design Study	73 nursing students, 2nd semester and divided into two groups, then broken down into two more in the no intervention group to doing yoga on their own or not at all.	Intervention group participated in one hour yoga class each week x 12 weeks and held at the end of the day-3pm.	N/A	No significant difference over time between groups in the perceived stress or quality of life. There was a difference in the self kindness but overall disappointing findings and request further studies as the students continued to be stressed and it is a consideration that the timing of the intervention was stressful as they were too busy and ready to get home by that time.	Self selection, convenience sample however good point that randomization could lead to attrition.	Level 2b	Included	IRB approval and could be important data that the perceived stress was still high when the intervention complete at the end of the school day.
Amattayakong, C., Klurkdiin, A., Kunawitkikul, W., Kuntaruksa, K., & Tursila, S. (2020). Wellness among nursing students: A qualitative study. <i>Nurse Education in Practice, 48</i> , 102867-102867. https://doi.org/10.1016/j.nepr.2020.102867	Focus group discussions with a trained principle investigator to gather information and code the data. Results were shown to participants once calculated to make sure there were no mis-interpretations.	Qualitative Descriptive Design	80 participants of nursing students selected with like experiences, views, and characteristics from two Northern Thailand colleges, 40 students from each school.	60-90 min discussion sessions with set questions on thoughts of wellness, maximum of 10 people per session.	N/A	There were stressors identified that caused obstacles to the nursing students wellness. It was determined that the school environment should promote wellness to allow for critical thinking and reasoning that results in better care for patients if nursing students have an environment of caring and self-care promotion.	Data collected only from public institutions so views and opinions would likely be similar.	Level 6	Included	The principle investigator was trained and compiled a large number, 80, of student's perspectives on wellness. The data was read back to verify accurately interpreted much like repeating what someone says to make sure it was heard correctly.

APA Reference for Article	Research Methods	Study design	Population & Sample Size	Study Process/ Interventions	Theoretical Framework	Summary of Findings	Details of Potential Bias	Level of Evidence	Included or Excluded	Rationale
Erdogan Yüce, G., & Muz, G. (2020). Effect of yoga-based physical activity on perceived stress, anxiety, and quality of life in young adults. <i>Perspectives in Psychiatric Care, 36</i> (3), 527-704. https://doi.org/10.1111/ppc.12484	Perceived Stress scale, World Health Organization Quality of life-BREF, and State Trait anxiety scale used with Likert scales were used at baseline and completion.	Semi-experimental non-randomized quantitative study with a control group.	44 Nursing students in the yoga intervention group and 45 in the control group from a public university in Turkey.	60 min yoga intervention with description of each component once a week for four weeks total.	N/A	Yoga intervention with nursing students decreases perceived stress and state anxiety levels but does not effect trait anxiety or quality of life in the short term of four weeks. Recommended to intervene with yoga for young adults to decrease stress and anxiety.	Participants were volunteers from one university only.	Level 6	Included	Most yoga intervention studies are volunteer participants and from one-two universities so this did not include the results in my opinion.
Barlowitz, J., Hall, D. L., Joyce, C., Fredman, L., Sherman, K. J., Saper, R. B., & Rosen, E. J. (2020). Changes in perceived stress after yoga, physical therapy, and education interventions for chronic low back pain: A secondary analysis of a randomized controlled trial. <i>Pain Medicine (Malden, Mass.)</i> , 21(10), 2529-2537. https://doi.org/10.1093/pm/pnaa120	Perceived stress scale and sensitivity analyses using various imputation methods for any missing data were used along with the fear avoidance beliefs questionnaire. The back book and back pain help book were distributed to participants.	Assessor-blinded parallel group randomized controlled trial.	Low income, radically diverse adults with chronic low back pain and with a mean age of 46.4 from a large academic safety net hospital or federal community health center.	Hatha yoga or high-dose physical therapy for 15 hour sessions x 12 weeks one on one were completed along with the back pain book education.	N/A	There was noted group improvement that the interventions decreased perceived stress. 95% confidence interval noted.	No biases noted.	Level 2a	Excluded	The mean age being 46.4 was higher than the average college age students that were included to investigate for my purposes.
Jeitler, M., Högl, M., Peters, A., Schmann, D., Murrby, V., Bringmann, H., Seifert, G., Michalsen, A., Stöckig, B., & Kessler, C. (2020). Qualitative study of yoga for young adults in school sports. <i>Complementary Therapies in Medicine, 55</i> , 102534-102594. https://doi.org/10.1016/j.ctm.2020.102594	Focus group discussions, three in total with 6 participants in each, with free text short answer questionnaires were conducted. Discussions were audio recorded and transcribed verbatim. The results were analyzed using qualitative content analysis. Descriptive free text summary also used.	Qualitative Descriptive Design/Quantitative results published in a different paper). Non-randomized continuous pragmatic pilot study with active control group.	92 participants with a mean age of 19.6 from two schools in Berlin with a active control group of students participating in school sports. All participants were screened to have no health issues.	90 minute yoga sessions with basic moves on a written plan for 10 weeks taught once a week by certified instructors.	N/A	Yoga is a valuable addition to regular sports in schools to result in a positive impact on quality of life and increase healthy behaviors while also creating awareness of unhealthy behaviors in school as students.	Potential for group decision as focus group is used.	Level 5	Included	The average age of 19.6 is target population of a We'll run study.
Frank, J., Seifert, G., Schroeder, R., Grün, B., Stritter, W., Jeitler, M., Steckman, N., Kessler, C., Michalsen, A., & Voss, A. (2020). Yoga in school sports improves functioning of autonomic nervous system in young adults: A non-randomized controlled pilot study. <i>PLoS One, 15</i> (4), e0231299-40231299. https://doi.org/10.1371/journal.pone.0231299	Heart rate variability using baseline ECG and at the end of the 10 week session was conducted on 34 students that agreed. Analyses of variance (ANOVA) followed by t-tests and post-hoc tests estimating both statistical significance was used.	Non-randomized explorative, two arm, controlled pilot study with active control group.	92 total students in population with a mean age of 19.9 participated and 54 total agreed to the ECG objective, non-invasive tool. The students were healthy secondary students in Berlin, Germany.	90 minute yoga sessions, taught by external instructor, once a week X 10 weeks total with a control group of school sports without yoga sessions.	N/A	Improved self regulation of the autonomic nervous system, was found in the yoga intervention group compared to school sports alone.	No biases noted.	Level 2b	Included	We'll run study that has a different data element which is useful to consider.
Ozturk, F., & Tezel, A. (2021). Effect of laughter yoga on mental symptoms and salivary cortisol levels in first-year nursing students: A randomized controlled trial. <i>International Journal of Nursing Practice, 27</i> (2), e12924-24. https://doi.org/10.1111/inj.12924	Brief symptom inventory applied prior to sessions one and eight, descriptive questionnaire, and saliva tests pre and post intervention were conducted in both groups.	Randomized control study and pre-post test design.	Population of 202 state university nursing students in their first year with 38 students fully participating in intervention group and 37 in the control group, randomly selected and all healthy.	Eight session total of laughter yoga with a certified instructor who is also the researcher. Sessions were 40-45 min each and two times a week for four weeks.	N/A	Laughter yoga decreases cortisol levels significantly with 92 % confidence interval in first year nursing students and also decreases mental symptoms such as anxiety and depression. Recommended to incorporate laughter yoga into nursing curriculum and further studies to be done.	Potential bias with the yoga instructor also being the researcher.	Level 2a	Included	Accurate data even with potential bias.
Erkin, Ö., & Şenmuş Aykar, F. (2021). The effect of the yoga course on mindfulness and self-compassion among nursing students. <i>Perspectives in Psychiatric Care, 37</i> (2), 875-882. https://doi.org/10.1111/ppc.12630	Personal data form, mindfulness awareness scale, and self-compassion scale were administered pre yoga intervention and post 14 weeks of intervention in single group population.	Quasi-experimental single group pre and post test design study.	47 Nursing students in their first year at Ege University in Turkey who selected the elective of 'Yoga for healthy life' course.	Fourteen week course and yoga sessions were 90 min each x 14 weeks. The course was taught by the first author of the study.	N/A	Post yoga intervention the increase of mindfulness and also increase of self-compassion was statistically evidenced. The higher the mindfulness, the higher the self-compassion was shown in the data.	Potential bias of the yoga instructor being the first author could have influenced the students' perception. All female student were non randomized, self selected.	Level 4	Included	Data obtained from target population.
Pharajuli, N., Pradhan, B., & Jat, M. (2021). Effect of four weeks of integrative yoga intervention on perceived stress and sleep quality among female nursing professionals working at a tertiary care hospital: A pilot study. <i>Industrial Psychiatric Journal, 30</i> (1), 136-140. https://doi.org/10.4103/ijpi.11121	The perceived stress scale and Pittsburgh sleep quality index were administered pre and post intervention.	Non-randomized quantitative experimental pilot study.	33 female nursing professionals with a mean age of 40.6 in a tertiary hospital located in Delhi, India. The professionals were recruited, healthy individuals.	The intervention was a 45 min yoga class daily for five days a week and lasted four weeks.	N/A	Yoga class as an intervention for nursing professionals was shown to decrease perceived stress by 27% and increase sleep quality by 38.68 %. The yoga intervention was concluded to be a cost effective tool for nursing professionals to decrease stress and improve sleep. More robust and larger sample studies recommended.	There was not enough information given in the article to determine bias other than all female population.	Level 4	Excluded	The mean age being 40.6 was higher than the college age students that were intended to investigate for my purposes.

Smith: Yoga Intervention

APA Reference for Article	Research Methods	Study Design	Population & Sample Size	Study Process/Interventions	Theoretical Framework	Summary of Findings	Details of Potential Bias	Level of Evidence	Included or Excluded	Rationale
Nugent, N., Brick, L., Arney, M., Tyrka, A., Kildou, K., & Liebelacker, L. (2021). Benefits of yoga on ILL. Findings from a randomized controlled trial of yoga for depression. <i>Behavioral Medicine (Washington, D.C.)</i> , 47(1), 21-30. https://doi.org/10.1080/08964289.2019.1604489	Lab draws of inflammatory markers, IL-6 and TNF- α drawn pre during and post intervention. All qualified personnel for lab draws and instructors. Consents signed and IRB approval. Quick inventory of depression. Symptomology administered. Six month follow up included.	Randomized control trial with pre, during, and post sample collection. Quantitative data collected.	122 adults with major depressive disorder that are not fully responding to pharmacotherapy were included and a computer randomizer assigned the adults to either intervention group. The adults did not have any other psychological issues and also had a mean age of 45.2. 48 participants in the yoga group, 39 in education control group.	Intervention was a detailed plan and 80 min session once a week for 10 weeks. The sessions were offered twice a week but only one attendance per week necessary. The control group was a healthy living workshop with multiple topics offered several times as well and a 60 minute session X 10 weeks, once a week.	N/A	The Haatha yoga intervention resulted in improvements in social functioning and the participants had an improved health perception of themselves versus the control group over time noted at the six month follow up. Further research needed over time to see long term effects. The data showed immune benefits after participation in the Haatha yoga trial.	The researcher's spouse was employed by the pharmaceutical company that helped fund the study however there isn't a result that would benefit a pharmaceutical company noted.	Level 2a	Included	High level of evidence and while the population age is higher than my target age, the data is important to research in future studies with college age students thus.
Tong, J., Qi, X., He, Z., Chen, S., Pedersen, S., Cooley, P., Spencer-Rodgers, J., He, S., & Zhu, X. (2021). The immediate and durable effects of yoga and physical fitness exercises on stress. <i>Journal of American College Health</i> , 69(6), 675-683. https://doi.org/10.1080/07448481.2019.1705840	The four scales used were an emotion scale, Self-Compassion Scale, Lovibond Stress Scale, and Mindfulness Attention Awareness Scale and Likert scales were analyzed with software. The kurtosis normal levels were taken pre one day around week 4 pre to intervention and post intervention.	Quasi-experimental study design. IRB approved.	Total population for study one was 191 undergraduate students randomly selected at a Chinese University with an average age of 20.9 and no other health issues. 97 enrolled in yoga class and 94 in the fitness class with study determining immediate effect of one session. Study two was of 12 sessions of once a week one hour session, intervention and 143 college students participated.	Study one was one 60 minute session between week four and five of yoga in one class and fitness in the other. Study two was a 12 week session of one hour yoga or fitness taught by certified instructors. Classes were well designed and detailed to be able to repeat.	Emotional scale based on Watson and Tellegen's 1985 Circumplex Model.	There was a significant increase in mindfulness after the yoga intervention and a decrease in stress after both the yoga and fitness interventions with more of a decrease with the yoga intervention. The immediate effects were more noticeable in the yoga intervention with increased positive emotion and decrease in negative emotion. Self-compassion is increased over after one 60-minute session. The effect of yoga can be sustained by continuous participation so is said to be a great option for college age undergraduate students in dealing with stress to reduce it.	The data collection was funded by Peking University standard research of yoga teaching project (2016).	Level 2a	Included	Target population criteria met. High level of evidence study.
Ratnick, M., Cunningham, O., Razon, S., Harris, J., & Reed, M. (2022). The Effects Of A Regular Yoga Practice On Mental Health In College Students During COVID-19. <i>Medicine & Science in Sports & Exercise</i> , 54(9), 410-411. doi: 10.1249/01.mss.000083220.5191.06.	The State of Trait Anxiety Scale, Perceived Daily Stress Scale, and physical activity (IPAQ Short form) were given pre and post intervention online.	Non-randomized quantitative experimental study	45 total college students with 24 participating with yoga intervention online via zoom and 21 continuing their normal exercise routine.	Zoom yoga of 150 minutes/week over 12 weeks during the Covid pandemic. Control group encouraged to continue normal exercise routine. Both groups were surveyed prior the study to determine physical activity level.	N/A	There was no improvement noted in the anxiety or stress levels of the students in the yoga intervention on zoom group during the Covid pandemic.	Not enough information to determine any potential bias.	Level 5	Excluded	This is target population however the intervention being on zoom and during a pandemic is not what is being studied. Conditions were too rare at that time to consider.
Nemeroff, R., Harden, A., & Kowalsky, B. (2022). Yoga classes as an early intervention for college students reporting high levels of stress and anxiety: A pilot study. <i>Journal of American College Health</i> , 70. https://doi.org/10.1080/07448481.2021.2008401	The Perceived Stress (PSS) Scale, Beck Anxiety Inventory, State Trait Anxiety Indicator (STAI), Penn State Worry Questionnaire, and the Rumination Reflection Questionnaire were all administered at the beginning, middle (1 week mark) and post intervention points. Average confidence interval of all assessments was 83%.	Non-randomized quantitative study approved by IRB	26 volunteered for the study, eleven participated and only seven completed the questionnaires. The seven were college students that had scored high on PSS and STAI also without any physical limitations.	Six weeks of Haatha yoga for one hour sessions two times a week.	Haatha Yoga Model	The remote country was a decrease in stress, anxiety, and worry with the quantitative data. It was suggested that Haatha yoga is in the curriculum for college students as a cost effective way to manage stress and anxiety. The recommendation also pointed out this could help with increased demand of counseling appointments by college students.	Potential bias is that the participants are volunteers however all participants in self care must volunteer for this.	2b	Included	This study was small but effective in the intent and delivery.
Xu, D., Wu, H., Ruan, H., Yuan, C., Gao, J., & Gao, M. (2022). Effects of yoga intervention on functional movement patterns and mindfulness in collegiate athletes: A quasi-experimental study. <i>International Journal of Environmental Research and Public Health</i> , 19(12), 14510. https://doi.org/10.3390/ijerph191214510	The Functional Movement Screening tool and the Mindful Attention Awareness Scale were used with 87% Confidence interval and given pre and post intervention. Software analyzed results. Ethics approved and informed consent for participation.	Non-randomized control quantitative experimental study.	Eighty total participants that were college age and recruited from sports training classes in an Athletic school. The participants did not have prior yoga experience. 39 in the yoga group, 41 were in the control group.	12 weeks of 90 minute sessions of Astanga yoga for two times a week with the intervention along with regular classes and the control group was no intervention along with regular classes.	N/A	The study looked at functional movement and found increases in this as well as increases in mindfulness of college age students. The results of increased mindfulness far exceeded the control group.	Potential bias would be the students are already in an athletic training environment.	2b	Included	This study was on the target population age and well run.
Dommer, A., Alci, N., Kapacak, S., & Ekin, M. (2023). The effect of laughter yoga applied before simulation training on state anxiety, perceived stress levels, self-confidence and satisfaction in undergraduate nursing students: A pragmatic randomized controlled trial. <i>Nurse Education in Practice</i> , 70, 103636. https://doi.org/10.1016/j.nep.2023.103636	The descriptive factors were assessed, State Trait Anxiety Scale, Perceived Stress Scale, vital sign evaluation form, Student Satisfaction and Self-Confidence in Learning Scale were all administered prior to intervention simulation training on state anxiety, perceived stress levels, self-confidence and satisfaction in undergraduate nursing students: A pragmatic randomized controlled trial. <i>Nurse Education in Practice</i> , 70, 103636.	A pragmatic randomized control trial.	The setting was in a high-fidelity simulation center of the university in Turkey with 88 undergraduate nursing students that were randomized into the intervention or control group.	The laughing yoga intervention run by the second author who was the only of the researchers to know which group participants were in lasted 40 minutes after all assessments and prior to the simulation training session that both groups attended.	Simulation Based Learning theory discussed	Laughter yoga reduced perceived stress and anxiety related to simulation based learning. Laughter yoga also increased self confidence and satisfaction with learning. Laughter yoga was found to enhance vital signs after intervention.	The only potential bias was the second author conducting the laughter yoga.	2a	Included	Well run study with intended population for my purposes.
Luo, X., & Huang, X. (2023). The effects of a yoga intervention on balance and flexibility in female college students during COVID-19: A randomized controlled trial. <i>Phys One</i> , 18(1), e0282260. https://doi.org/10.1371/journal.pone.0282260	Single limb stance, Rombergs measurement, sit and reach test, and splits test were used to measure and obtain data. Randomization used to place participants in each group. Participants recruited with a flyer at a school in China.	Randomized control trial study.	Female only students at a school in China with 57 recruited and 40 participating fully, 20 in each group. The mean age of the participants was 20.15. The study took place during the pandemic. Students had no other physical disabilities or previous experience with yoga.	The intervention was 16 weeks of 70 min yoga sessions twice a week by experts in yoga for the experiment group and ten minute sessions twice a week of yoga videos for 16 weeks in the control group.	N/A	The yoga intervention improved balance and flexibility of the students and it was suggested that an online yoga class would improve healthy behaviors for this age group during a pandemic.	Potential bias was that only females were recruited.	2a	Excluded	The study do not include any mindfulness, stress, or anxiety scales.
Rose, S., Crutcher, B., Furness, A., & Anderson, E. (2023). Examination of faith-based yoga intervention on perceived stress and coping in college females. <i>International Journal of Health, Wellness & Society</i> , 13(1), 116. https://doi.org/10.18848/2156-8960/CGP/v13i01/1118-136	The Brief COPE assessment, Perceived Stress Scale, and demographic questionnaire were used for this study. Informed consent was given by all participants. IRB approved and SPSS version 28 statistical software analyzed responses.	Randomized control trial study.	Convenience sample of 63 healthy female college students, mean age 18.56, at a small Christian college in western region of United States with 22 participating fully in the control group and 15 in the intervention group.	45 minute yoga sessions two times a week for six weeks using Haatha and Bhakti yoga with an emphasis on biblical scripture and a detailed plan administered by a certified yoga instructor. Control group did not engage in the yoga.	N/A	The yoga intervention with scriptures was determined to improve psychological wellness in college students. The data supported decrease in stress, decrease in poor coping behaviors such as self-blame denial, and self distraction.	Potential bias is the instructor is an author of the study and was also an active peer of the group of students. The selection of students from a Religious University could have potential bias as well.	2a	Included	This study met target population of college age students and data analyzed with software for results.