Yoga Nidra in Mental Health: A Systematic Review of Current Evidence

Abstract

The provision of mental health care is currently inadequate worldwide. A need for innovative, accessible, and evidence-based mental health interventions has been identified. This study explored the potential use of yoga nidra practice as mental health intervention through reviewing current relevant evidence. Sixteen studies were examined, revealing the effectiveness of yoga nidra in stress, depression, and anxiety. Though evidence was limited, yoga nidra also seemed to be effective in posttraumatic stress disorder and psychological well-being. In view of the findings, yoga nidra may warrant consideration as a preventive and therapeutic mental health strategy. Implications for clinical practice and recommendations for future research are discussed.

Keywords: Yoga Nidra, Mental Health, Yoga, Alternative Therapies, Spiritual Practice

Introduction

In 2019, about 970 million people in the world were living with a mental disorder (World Health Organisation (WHO), 2022). The number of people living with mental disorders increased by 25% between 2000 and 2019 (WHO, 2022). Despite the increased mental health needs worldwide, the current provision of mental health support is inadequate (WHO, 2022). Many mental health conditions may be preventable, and treatable with mental health support (WHO, 2022), however, the accessibility to mental health care is extremely low (WHO, 2022).

As such, a need for innovative and evidence-based mental health interventions is recognised (World Mental Health Report, 2022), that are also cost-effective and easily accessible to everyone (World Mental Health Report, 2022).

In recent times, spiritual practices such as yoga, breathwork, and chanting have increasingly been used for mental health (Abbott & Lavretsky, 2013; Bayley-Veloso & Salmon, 2016; Malviya et al., 2022a; Malviya et al., 2022b), with some of these practices such as yoga has substantial empirical evidence of mental health benefits (Bhargav et al., 2020; Bayley-Veloso & Salmon, 2016; Cramer et al., 2017; Udupa et al., 2022). In addition to the evidence of mental health benefits, yoga and yoga-related practices have also been identified as accessible, cost-effective mental health interventions (Arias et al., 2014; Burnett-Zeigler et al., 2016; Varambally & Gangadhar, 2016). In a survey with mental health professionals, yoga was identified as a viable mental health intervention to be used in clinical settings (Malviya et al., 2022c). In view of increasing popularity, and evidence of mental health benefits, yoga and yoga-related practices warrant investigation as potential mental health interventions to address growing mental health needs.

Though yoga is generally understood as physical postures and stretching exercises (Penman et al., 2012), these practices only constitute a small portion of yoga (Cramer et al., 2016; Zhang et al., 2021). Yoga is described as a complete lifestyle science of self-development and spiritual advancement (Cramer et al., 2016; Zhang et al., 2021). The traditional scriptures outline eight characteristics of yoga: absorption state, focus, sense withdrawal, physical postures, breathing exercises, constraints, observances, and meditation (Vivekananda, 2010). Among these, while body postures and breathing exercises are widely known and practised, there are lesser-known and used practices that focus on mental and physical relaxation such as yoga nidra (Anderson et al., 2017).

Originally developed by Swami Satyananda Saraswati in 1976 (Saraswati, 2009), yoga nidra is gradually gaining acceptance as a relaxation practice to support mental health (Bhushan & Sinha, 2001; Moszeik et al., 2022). Although the term yoga nidra literally translates to *yogic sleep* (Ferreira-Vorkapic et al., 2018), it is a state of meditation, that induces a deep sense of relaxation while maintaining awareness during the practice (Ferreira-Vorkapic et al., 2018; Saraswati, 2012). The practice comprises of eight stages (refer to Table 1), which gradually quite the mind, and withdraw the senses to achieve deeper state of relaxation (Pandi-Perumal et al., 2022; Saraswati, 2012).

Over the last few decades, a slightly modified version of yoga nidra, called iRest (Ferreira-Vorkapic et al., 2018; Miller, 2005), has also been used as a mental health intervention (Wheeler et al., 2012). Primarily based on the original practice of yoga nidra, iRest may also include some elements of contemporary psychological interventions (Wheeler et al., 2012). In our study, we refer to both, the original practice of yoga nidra and iRest as 'yoga nidra'.

Due to growing empirical evidence of its effectiveness, some authors (Eastman-Mueller et al., 2013; Hull et al., 2015; Moszeik et al., 2022; Pritchard et al., 2010; Rani et al., 2016; Singh et al., 2022; Vaishnav et al., 2018) suggested yoga nidra as a potential mental health intervention. While most yoga nidra research used in-person interventions, Singh et al. (2022) found that yoga nidra reduced participants' levels of stress, anxiety, and depression when used as an online intervention. As such, the practice may potentially be used as an online intervention where accessibility to mental health care is an issue. Given the lack of accessibility is reported to be one of the barriers to the provision of mental health care (World Mental Health Report, 2022), yoga nidra may be explored to address the WHO's call for innovative and evidence-based mental health interventions (WHO, 2022). As such, this study aims to critically review the current evidence of yoga nidra in

mental health outcomes. The findings of the study may develop insight into the potential consideration of yoga nidra as a mental health intervention.

Table 1.

Eight Stages of Yoga Nidra (Saraswati, 2012)

Serial number	Stage	Process
1	Preparation for the practice	Adopting shavasana (corpse pose), minimal body parts touching each other, and eyes closed, the mind is allowed to focus on external sounds and relax with every instruction.
2	Resolve (Sankalpa)	A short, positive, clear statement that connects to the present situation with minimal words of 5-9 is repeated mentally.
3	Rotation of consciousness	The shift of mental visualisations among different body parts in an organised and progressive manner.
4	Breath awareness	No modification of breath is to be done. Just observe the tip of the nostrils, then the throat, larynx, trachea, and lungs and observe a deeper sense of chest and abdominal movements with synchronisation of the breath. Later on, direct the energies to every part of the body.
5	Feelings and sensations	Opposite sensations of feelings are visualised from experience. Example: heat and cold, extremes of it is felt and visualised.
6	Visualization	Images are visualised in the background of blank space. Example: oceans, mountains, flowers etc.
7	Resolve (Sankalpa)	Repeat the same resolve that is taken at the start three times mentally.
8	Ending the session	Being aware of body parts on floor, slow movements of parts and gradually moving to comfortable position.

Methodology

The protocol of the review was registered with Open Science Network (Malviya et al., 2023). The review was conducted according to PRISMA guidelines (Page et al., 2021)

Information Sources and Search Strategy

Two major databases were searched: CINAHL and PsycINFO. Hand searches of reference tables, and other sources, such as Google Scholar, were also carried out. A systematic and comprehensive search strategy was developed, including pertinent key terms and MESH terms. The search method was modified as per the guidelines of individual databases (see search strategies of CINAHL and PsychINFO in Table 2). The searches were restricted to experimental studies, published in peer-reviewed journals, and reported in the English language.

Table 2.

Search Strategy of CINAHL

DATABASE STRATEGY	**CINAHL #1 AND #2**
1	(MH "Mental Disorders+") OR (MH "Anxiety+") OR (MH "Depression+") OR (MH "Stress+") OR (MM "Psychological Well-Being") OR (MM "Quality of Life")
2	"Yoga nidra" OR iRest OR "yogic sleep" OR "yogic relaxation"
Limiters Applied	English language, published, peer-reviewed
Search Results on 16/03/2023	23
DATABASE STRATEGY	**PsychINFO #1 AND #2**
1	exp Trauma/ or exp Stress/ or exp Major Depression/ or exp Mental Disorders/ or Mental health outcome.mp. or exp Anxiety/ or exp Mental Health Services/ or exp Mental Health/ or exp Posttraumatic Stress Disorder/
2	"Yoga nidra" OR iRest OR "yogic sleep" OR "yogic relaxation"
Limiters Applied	English language, published, peer-reviewed
Search Results on 16/03/2023	26

Study Selection and Eligibility Criteria

The review excluded unpublished research, case reports, and grey literature. Retrieved studies were screened against pre-set eligibility criteria. A full description of eligibility criteria is given in Table 3. Screening of studies was done in two phases by two authors (SM and AAS). In phase one, titles and abstracts were screened against eligibility criteria. In phase two, full-text articles were screened. In this review, the authors only included experimental studies that investigated the effects of the yoga nidra on mental health outcomes and psychological well-being. Studies with both clinical and non-clinical participants of any age or sex were considered in the review. Studies that used yoga nidra along with other practices as experimental interventions were excluded. Data were then extracted and tabulated for data analysis.

Table 3.

Eligibility Criteria

Criterion	Inclusion	Exclusion
Population/Type of Participants	Human participants of all ages/sexual orientations. Clinical/non-clinical population.	Studies with animals.
Context	Studies that used yoga nidra as an exclusive experimental intervention for mental health.	Studies that used interventions other than yoga nidra, studies that used yoga nidra along with other interventions as an experimental intervention.
Outcome	Mental health outcomes, mental health disorders, psychological wellbeing. Studies considered mental health concerns related to the physical condition.	Physical conditions, any other condition not related to mental health. Studies considered sleep concerns.
Study design	Observational and all types of experimental studies- quantitative and qualitative Peer-reviewed, in English	Opinion pieces, discussion papers, reviews, unpublished literature, textbook chapters Not peer-reviewed, a language other than English
Quality assessment	Studies that scored three or more points on the MMAT quality assessment	Studies that scored less than three on the MMAT quality assessment

Quality Appraisal

The Mixed Method Appraisal Tool (MMAT) (Hong et al., 2018) was used to appraise the methodological quality of empirical studies. The latest version includes two screening questions and five criteria for each of the following five study designs included in the MMAT (Hong et al., 2018). Only those studies that met three or more criteria in the MMAT were included in the review.

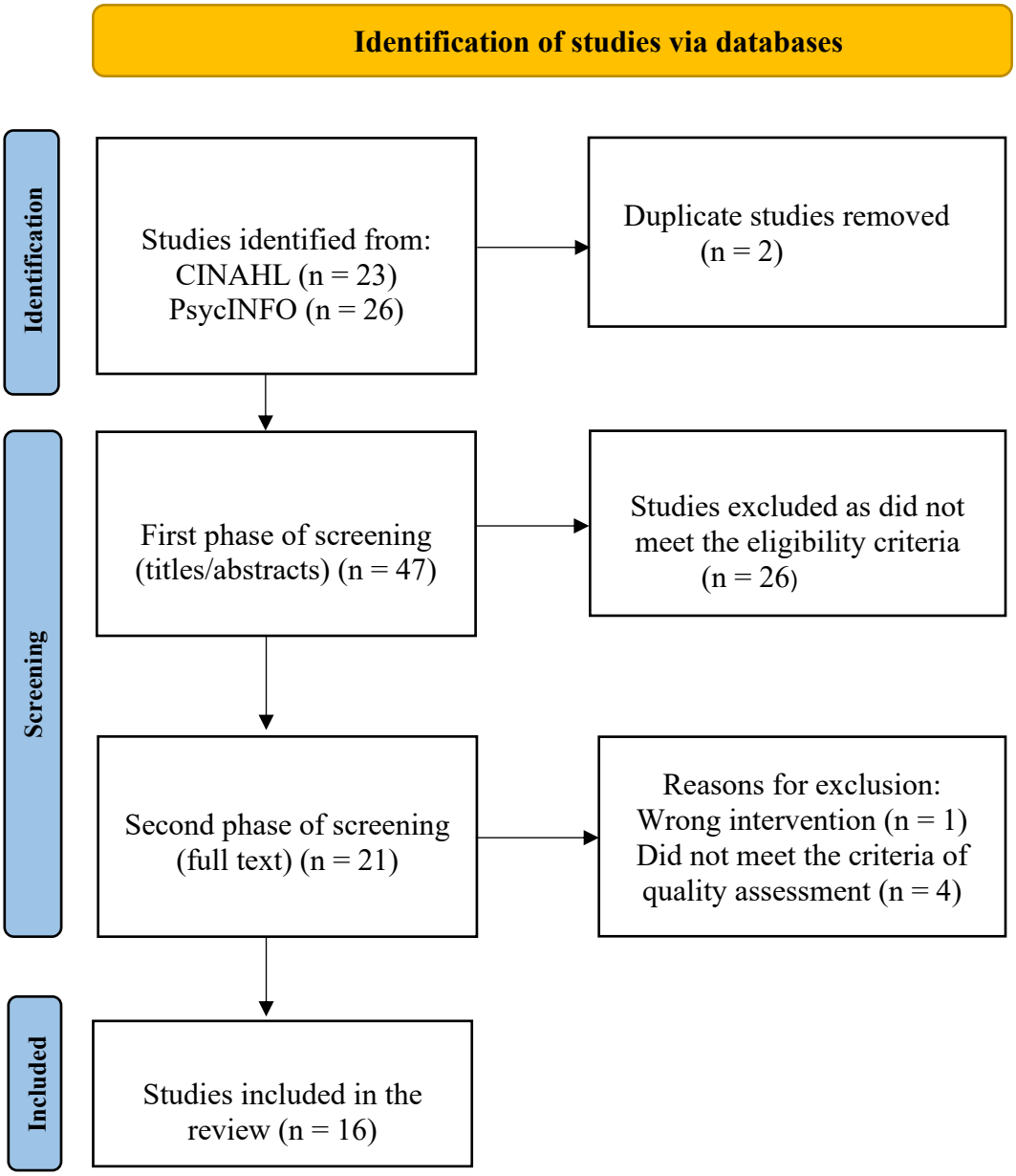
Results

Search Results

The results of the searches and screening process are outlined in Figure 1. Database searches retrieved a total of 49 studies, 23 from CINAHL, and 26 from PsycINFO. After removing duplicates, 47 titles and abstracts were screened in phase one. In phase two, 21 full-text articles were screened. A total of 16 articles met the inclusion criteria for this review and were included in the final analysis: One was qualitative, one mixed methodology, and the rest 14 studies were of quantitative design.

Figure. 1

PRISMA Flow Diagram of Screening (Page et al., 2021)



Result of Quality Appraisal

Of 16 included studies, six met all the criteria of the quality assessment scale (D'cunha et al., 2021; Dol, 2019; D'souza et al., 2021; Moszeik et al., 2022; Stankovic, 2011; Vaishnav et al., 2018). The detailed scores of the quality assessment of studies are presented in the supplementary material.

Characteristics of Included Studies

In the final review, 16 studies over the last 13 years were included. Out of 16 identified studies, six (35.5%) were conducted in South Asia - India (D'cunha et al., 2021; D'souza et al., 2021; Rani et al., 2016; Rani et al., 2011; Singh et al., 2022; Vaishnav et al., 2018), six (35.5%) in the United States of America (USA) (Birdsall et al., 2011; Eastman-Mueller et al., 2013; Pence et al., 2014; Pritchard et al., 2010; Stankovic, 2011; Temme et al., 2012), one (6.25%) in East Asia (Korea) (Dol, 2019), one (6.25%) in Central Europe (Germany) (Moszeik et al., 2022), one (6.25%) in South America (Sergipe, Brazil) (Ferreira-Vorkapic et al., 2018), and one (6.25%) in Southeast Asia (Indonesia) (Novelia et al., 2019).

Most of the studies included were quantitative (87.5%), only one study was qualitative (Stankovic, 2011), and one was of mixed design (Vaishnav et al., 2018). All included studies were experimental, of which, seven studies (43.75%) were one-group pretest-posttest design (Birdsall et al., 2011; Eastman-Mueller et al., 2013; Pence et al., 2014; Pritchard et al., 2010; Singh et al., 2022; Stankovic, 2011; Vaishnav et al., 2018), eight (50%) were of two-arm study design (D'cunha et al., 2021; D'souza et al., 2021; Dol, 2019; Moszeik et al., 2022; Novelia et al., 2019; Rani et al., 2016; Rani et al., 2011; Temme et al., 2012), and one (6.25%) study (Ferreira-Vorkapic et al., 2018) was of three-group pretest-posttest design. Nine experimental studies used control/comparison arm (56.25%), of which two (22.22%) were quasi-experimental (Dol, 2019;

Novelia et al., 2019), and seven (77.77%) were randomised control trials (RCT) (D'cunha et al., 2021; D'souza et al., 2021; Ferreira-Vorkapic et al., 2018; Moszeik et al., 2022; Rani et al., 2016; Rani et al., 2011; Temme et al., 2012). Of the RCT trials, one (14.28%) was a cross-over study design (Temme et al., 2012). Only one study compared yoga nidra intervention with seated meditation and no treatment control (Ferreira-Vorkapic et al., 2018), rest eight studies were two-arm, of which one study used routine physical education for control group (D'souza et al., 2021), one used wait-list control (Moszeik et al., 2022), one study control group followed their *daily routine* (Dol, 2019), three studies control used treatment as usual (TAU) in their clinical setting (D'cunha et al., 2021; Novelia et al., 2019; Temme et al., 2012), and two studies used prescribed medications for control groups (Rani et al., 2016; Rani et al., 2011). Refer to Table 4 for detailed characteristic information of the included studies.

Participant Characteristics

Table 4 details the participant's characteristics in the 16 included studies. Overall, 1,701 participants were included across 16 studies (including 284 drop-outs), of which, 1,024 participants were females. The age of participants ranged from 13-71 years. Three (Birdsall et al., 2011; Ferreira-Vorkapic et al., 2018; Pritchard et al., 2010) of the 16 studies did not report participants' gender and one study (Birdsall et al., 2011) did not report participants' age. Seven of 16 included studies (43.75%) were conducted with clinical population (D'cunha et al., 2021; Novelia et al., 2019; Pence et al., 2014; Pritchard et al., 2010; Rani et al., 2016; Rani et al., 2011; Temme et al., 2012), though nine studies (56.25%) (Birdsall et al., 2011; D'souza et al., 2021; Dol, 2019; Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Moszeik et al., 2022; Singh et al., 2022; Stankovic, 2011; Vaishnav et al., 2018) included non-clinical population. Refer to Table 4 for detailed information about participants' diagnosis.

Context/settings of included studies

Eleven (68.75%) of the 16 studies were conducted in university/community-based settings (Birdsall et al., 2011; D'souza et al., 2021; Dol, 2019; Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Pence et al., 2014; Pritchard et al., 2010; Rani et al., 2016; Rani et al., 2011; Stankovic, 2011; Vaishnav et al., 2018). Two studies were in clinical settings (D'cunha et al., 2021; Novelia et al., 2019), and one study was conducted in a residential treatment setting (Temme et al., 2012). Two studies were conducted online (Moszeik et al., 2022; Singh et al., 2022).

Table 4.

Characteristics of Included Studies

Study/Year/ Place of study/Study design/Study setting	Experimental/Control or Comparison (Age range or Mean age/sex/ number of participants(N)/ study population)/drop-outs	Mental health outcomes measurements used	Experiment group intervention /Control or comparison group intervention	Relevant Findings on mental health
(Vaishnav et al., 2018)/India/Mixed/ University setting	Exp- 13-15 yrs/M=20, F=16/N=36/Non-clinical participants/ DO=0 Con-NR Comp-NR	Perceived stress - Visual Analogue Scale (VAS), Psychological General Well-Being-Index-Short (PGWBI-short), Qualitative observations through daily diary record, reflections, and semi-structured interviews	Exp-Yoga nidra - 30 mins, 3days/week for 1 month Con-NR Comp-NR	**VAS:** Stress- Pre/post- (M(SD),t) 3.57(1.64)/1.98(1.45),4.88, p<0.01 **PGWBI:** Anxiety- Pre/post-(M(SD),t) 3.86(0.68)/4.47(0.5),-5.33,p<0.001 Depressed mood-Pre/post-(M(SD),t) 3.69(0.82)/4.39(0.54),-5.87,p<0.001 Self-control-Pre/post-(M(SD),t) 3.27(1.25)/3.91(1.15),-3.13,p<0.0035 Positive well-being-Pre/post-(M(SD),t) 3.41(1.02)/4.05(0.71),-4.42,p<0.001 General health-Pre/post-(M(SD),t) 3.44(0.77)/4.08(0.77),-4.8,p<0.001 Total- Psychological wellbeing- Pre/post-(M(SD),t) 21.88(3.63)/24.92(2.78),-6.48,p<0.001 **Experiential effects (Attributes):** Pre/Post (M(SD),t) Enthusiasm: 1.89(0.71)/4.28(0.62),-3.04,p<0.004 Quietude: 2.95(0.75)/3.69(0.79),-4.96,p<0.001 Inspired: 3.38(0.93)/3.83(0.91),-2.94,p=0.005 Alertness:3.547(1.09)/3.91(1.01),-2.13,p=0.04 Self Confidence: 3.93(1.04)/4.5(0.7),-3.67,p=0.002 Clarity of thoughts:3.58(1.02)/4.03(0.74),-2.52,p=0.016

Study/Year/ Place of study/Study design/Study setting	Experimental/Control or Comparison (Age range or Mean age/sex/ number of participants(N)/ study population)/drop-outs	Mental health outcomes measurements used	Experiment group intervention /Control or comparison group intervention	Relevant Findings on mental health
				Control over anger: 3.14(1.13)/3.58(0.91),-2.26,p=0.03 **Qualitative observations:** Participants reported experience of state of happiness, peace, ability to control anger which continued through the day.
(Birdsall et al., 2011)/Boise,US/Quant / University setting	Exp- NR/NR/N=22/Non-clinical participants /DO=4 Con-NR Comp-NR	Perceived Stress Scale (PSS), Profile of Mood States (POMS)	Exp-Yoga nidra or (iRest) Integrative Restoration – NR Con-NR Comp-NR	**PSS**:Stress- Pre/post-(M(SD)) 1.95(0.56)/1.42(0.59), p=0.01 **POMS**:Fatigue- Pre/post-(M(SD)) 15.33(4.81)/11.78(5.05),p<0.05
(D'cunha et al., 2021)/India/ Quant, RCT/Hospital wards	Exp- 35-54, 55-74yrs/F=24/N=24/Clinical participants/DO=0 Con-35-54, 55-74yrs/F=24/N=24/Clinical participants/DO=0 Comp-NR	Modified Stress scale	Exp-Yoga nidra – 45 min/day for 4 consecutive weeks along with routine conventional therapy Con-No relaxation procedures, only regular routine of conventional therapy Comp-NR	**Modified Stress Scale Domains** Pre/post-(M(SD)) **Exp**: Total stress- 76.5(3.87)/64.42(3.28) Psychological Stress- 40.67(2.24)/35.04(2.12) Physical stress- 17.54(1.84)/11.17(1.17) **Con:** Total stress-.67(3.47)/79.46(5.63) Psychological Stress- 41.54(3.05)/41.96(1.6) Physical stress- 17.58(1.1)/17.83(1.46) *Between group* – p<0.0001
(D'souza et al., 2021)/India/ Quant, RCT/ University setting	Exp- 14, 15, 16yrs/M=6, F=20/N=26/Non-clinical participants /DO=9 Con-14, 15, 16yrs/M=13, F=18/N=31/Non-clinical participants /DO=4 Comp-NR	Modified Stress scale – Indian-specific Adolescent Stress Questionnaire (ASQ-I)	Exp-Yoga nidra – 30 min/day, 6 times/week for 21 consecutive days along with their routine activities Con-Routine physical education activity Comp-NR	**ASQ-I** Total stress score- Pre/post-(M(SD)) Exp: 81.53(12.6)/63.8(9.4) Con: 75.64(10.7)/71.74(11.5) *Between group* - p<0.001
(Dol, 2019)/Korea/ Quant, quasi	Exp- 22(0.1)/M=1, F=19/N=20/Non-clinical participants /DO=0	Life stress intensity level – Visual Analogue Scale (VAS)	Exp-Yoga nidra – 1 hr, 2 sessions/week for 8 weeks	**VAS:** Life stress – Pre/post-(M(SD)) Exp: 7.2(1.2)/4.1(2.5) Con: 6.7(2.5)/7(1.6)

Study/Year/ Place of study/Study design/Study setting	Experimental/Control or Comparison (Age range or Mean age/sex/ number of participants(N)/ study population)/drop-outs	Mental health outcomes measurements used	Experiment group intervention /Control or comparison group intervention	Relevant Findings on mental health
experimental design/ University setting	Con-21.6(0.2)/ M=3, F=17/N=20/Non-clinical participants /DO=0 Comp-NR	Self esteem – Rosenberg's Self-Esteem Scale (RSE)	Con-No intervention, no restrictions on daily activities or exercises Comp-NR	**RSE:**Self esteem – Pre/post-(M(SD)) Exp: 16.7(1.8)/40.5(7.1) Con: 15.8(2.1)/26.3(7.5) *Between group* - p<0.001
(Eastman-Mueller et al., 2013)/ Missouri,US/ Quant / University or community setting	Exp- 18-56 yrs/M=16, F=50/N=66/Non-clinical participants/ DO=108 Con-NR Comp-NR	Perceived Stress Scale (PSS), Beck Depression Inventory (BDI), Penn State Worry Questionnaire (PSWQ), Five Facet Mindfulness Questionnaire (FFMQ)	Exp-iRest Yoga nidra - 45 min, 2 hrs/week for 8 weeks Con-NR Comp-NR	**PSS:**Stress-(M(SD)) Pre/post- 21.9(4.68)/16.7(6.12), p<0.001 **BDI:**Depression-(M(SD)) Pre/post-13.85(7.93)/4.62(5.37),p<0.001 **PSWQ:**Worry-(M(SD)) Pre/post- 49.7(9.44)/42.05(6.19), p<0.001 **FFMQ:**Level of Mindfulness-p<0.001
(Moszeik et al., 2022)/Germany/ Quant, RCT/ virtual setting	Exp- 19-35, 36-50, 51-71yrs/M=64, F=262/N=326/Non-clinical participants/ DO=15 Con- 19-35, 36-50, 51-71yrs/M=81, F=313/N=394/Non-clinical participants/ DO=36 Comp-NR	Screening Scale for Chronic Stress (SSCS), Positive and Negative Affect Schedule (PANAS), Mindful Attention and Awareness Scale (MAAS)	Exp-Yoga nidra- 11 min, 30 days and follow-up 6 weeks Con-Wait-listed Comp-NR	Exp: Pre/post/follow-up- (M(SD)) **SSCS:** Stress- 2.70(0.72)/2.49(0.76)/2.46(0.73) **PANAS**:Positive_Affect-3.32(0.63)/3.34(0.65)/3.30(0.68) **PANAS**:Negative_Affect-2.16(0.62)/1.99(0.61)/2.02(0.64) **MAAS:**Level_of_Mindfulness-3.97(0.86)/4.23(0.83)/4.25(0.86) Con: Pre/post/follow-up- **SSCS:** Stress- 2.73(0.7)/2.72(0.74)/2.66(0.74) **PANAS**:Positive_Affect-3.20(0.68)/3.11(0.76)/3.06(0.7) **PANAS**:Negative_Affect-2.18(0.61)/2.21(0.64)/2.15(0.67) **MAAS**:Level_of_Mindfulness-3.91(0.84)/3.91(0.83)/3.94(0.94) *Between group* – p=0.05
(Ferreira-Vorkapic et al., 2018)/Sergipe,Brazil/	Exp-49.9(9.2)/ NR/N=20/Non-clinical participants/DO=0	Psychological evaluation: Anxiety, Depression, Stress	Exp-Yoga nidra(YN),45-50 min,	Anxiety- **(BAI)**Pre-post-(M) Exp: 20.3/5, p<0.05

Study/Year/ Place of study/Study design/Study setting	Experimental/Control or Comparison (Age range or Mean age/sex/ number of participants(N)/ study population)/drop-outs	Mental health outcomes measurements used	Experiment group intervention /Control or comparison group intervention	Relevant Findings on mental health
Quant, RCT/University setting	Con-46.7(8.1)/NR/N=20/ Non-clinical participants/DO=0 Comp- 47.3(7.5)/ NR/N=20/Non-clinical participants/DO=0	Beck Anxiety Inventory (BAI), Hamilton Anxiety Rating Scale (HAM-A), Beck Depression Inventory (BDI), Lipps's Stress Symptoms Inventory for Adults (LSSI)	2 times/week for 3 months Con-Wait-listed Comp-Seated Meditation sessions (SM),45-50 min, 2 times/week for 3 months	Con: 19.6/21.9 Comp: 19.9/7 **(HAM-A)**Pre-post-(M) Exp: 32.4/20.4, p<0.0001 Con: 38/38.7 Comp: 32.2/22.6 **(BDI)** Depression- Pre/post- (M) Exp: 11.4/7.3, p<0.05 Con: 11.5/11.2 Comp: 13.2/9.8 **(LSSI)** Stress- Pre/post-(M) Exp: 17.7/1.2, p=0.0001 Con: 18.1/24.1 Comp: 15.8/1.1 **Total score**- Pre/post-(M) Exp: 101.3/43.1, p<0.0001 Con: 100.2/115.7 Comp: 104.2/50.4
(Novelia et al., 2019)/Indonesia/ Quant, quasi experimental design/ clinical setting	29.13(5.58)/N=30 Exp- NR/F=15/N=15/Clinical participants/DO=0 Con-NR/F=15/N=15/Clinical participants/DO=0 Comp-NR	Anxiety- Hamilton Anxiety Rating Scale (HARS)	Exp-Yoga relaxation- 90 min for 2 weeks Con-Routine antenatal care and health education without yogic relaxation Comp-NR	**HARS:** Anxiety- *Within Exp group* (M(SD),t): 9.87(5.05),-7.56,p=0.005 *Between group* (t): -9.289,p=0.005
(Pence et al., 2014)/USA/ Quant / community setting	Exp- NR/F=10/N=10/Clinical participants/DO=5 Con-NR Comp-NR	Anxiety, Depression- Brief Symptom Inventory-18 (BSI), PTSD- Posttraumatic Cognitions Inventory (PTCI), Posttraumatic Stress Disorder Check List (PCL)	Exp-iRest Yoga nidra- 90 min, 19 times, twice/week for 10 weeks Con-NR Comp-NR	**PCL**: Pre/post (M(SD),t) PTSD-(total)-56.5(14.7)/47.2(13.4), 3.17,p<0.01 **BSI**: Pre/post (M(SD),t) Depression-17.4(6.7)/13.1(6.7),2.33,p<0.05 **PTCI**: Pre/post (M(SD),t) Self-blame- 24.6(8.1)/20.5(7.8),2.96,p<0.05

Study/Year/ Place of study/Study design/Study setting	Experimental/Control or Comparison (Age range or Mean age/sex/ number of participants(N)/ study population)/drop-outs	Mental health outcomes measurements used	Experiment group intervention /Control or comparison group intervention	Relevant Findings on mental health
(Pritchard et al., 2010)/Boise/ Quant / community setting	Exp- NR/NR/N=16/Clinical participants/DO=6 Con-NR Comp-NR	Stress- Perceived Stress Scale (PSS)	Exp-Yoga nidra- 90 min, once/week for 6 weeks Con-NR Comp-NR	**PSS**: Pre/post (M(SD)) Cancer-Stress-17(6.22)/12.28(5.85) MS-Stress-21.22(6.04)/13.56(7.38) *Within group*-p<0.001
(Rani et al., 2011)/India/ Quant, RCT/ University setting	Exp-28.53(7.07)/F=65/N=65/ Clinical participants/DO=10 Con-27.62(7.78)/F=61/N=61/ Clinical participants/DO=14 Comp-NR	Psychological General Wellbeing Index (PGWBI)- anxiety, depression, mood, positive well-being	Exp-Yoga nidra- 35 min/day, 5 days/week for 6 months along with medication Con-Only medication (Medroxy progesterone, Norethistrone, Ethinyl estrodiol, Levonorgestrol, tranexemic acid, and Ethamsylate), without yoga nidra Comp-NR	**PGWBI:** Anxiety-Pre/post-(M(SD), t) Exp: 13.92(3.83)/1.38(0.84), 3,p=0.003 Con: 14.17(4.3)/0.96(0.7) Depression- Pre/post- Exp: 9.46(2.59)/1.49(0.86),2.57,p=0.01 Con: 9.54(2.7)/1.08(0.91) Positive_wellbeing- Exp: 10.49(2.6)/1.33(0.92),2.26,p=0.02 Con: 11.06(3.82)/0.98(0.82) General_health- Exp: 9.06(2.67)/1.15(0.77),2.24,p=0.02 Con: 9.66(2.85)/0.85(0.72) Vitality- Exp: 11.14(3.7)/1.24(1.28),2.45,p=0.01 Con: 11.86(3.49)/0.77(0.82)
(Rani et al., 2016)/India/ Quant, RCT/ University setting	Exp-26.57(7.45)/F=45/N=45/ Clinical participants/DO=5 Con-25.52(6.27)/F=42/N=42/ Clinical participants/DO=8 Comp-NR	Psycho-biological General Well-Being Index (PGWBI)	Exp-Yoga nidra- NR, 6 months along with regular medications Con-Only medications Comp-NR	**PGWBI:** *Within-group-paired t-test* Pre/post (M(SD), t) Anxiety- Exp: 14.1(3.35)/16.2(3.3),3.24,p=0.02 Con: 14.3(4.15)/9.85(2.53),1.74,p=0.5 Depression- Exp: 9.25(2.11)/10.7(1.3),2.56,p=0.02 Con: 9.35(2.91)/9.85(2.53),1.61,p=0.1 Positive_wellbeing- Exp: 11.3(2.43)/12.8(1.63),2.65,p=0.01 Con: 11.2(1.93)/11.37(3.48),1.21,p=0.3 General_health-

Study/Year/ Place of study/Study design/Study setting	Experimental/Control or Comparison (Age range or Mean age/sex/ number of participants(N)/ study population)/drop-outs	Mental health outcomes measurements used	Experiment group intervention /Control or comparison group intervention	Relevant Findings on mental health
				Exp: 9.08(2.87)/10.1(2.81),2.61,p=0.04 Con: 9.37(3.02)/9.98(2.71),1.11,p=0.2 Vitality- Exp: 11.2(2.81)/12.3(2.54),2.11,p=0.03 Con: 10.9(2.53)/10.88(3.21),1.52,p=0.2 *Between-group-* Exp/Con (M(SD), t) Anxiety- 0.75(0.42)/0.57(0.22),2.3,p=0.01 Depression- 0.78(0.45)/0.43(0.22),2.12,p=0.02 Positive_wellbeing- 0.85(0.33)/0.62(0.4),2.16,p=0.01 General_health- 0.9(0.33)/0.67(0.22),1.68,p=0.04 Vitality- 0.52(0.11)/0.31(0.18),1.18,p=0.02
(Singh et al., 2022)/India/ Quant / Virtual setting	Exp- 26-45 yrs/F=14/N=14/ Non-clinical participants/DO=0 Con-NR Comp-NR	Depression, Anxiety, Stress Scale (DASS)	Exp-Virtual iRest Yoga nidra (ViRYN)- 15 min for 6 weeks Con-NR Comp-NR	**DASS**: Descriptive statistics: Pre/post (M(SD)) Depression-16(2.8)/9.35(1.44),p<0.05 Anxiety-17.14(3.48)/7.71(1.43), p<0.05 Stress-26.5(3.95)/13.64(3.15), p<0.05 Paired t-Test: (M(SD), SE, t) Depression-6.64(2.40), 0.642, 10.33 Anxiety-9.42(2.84), 0.761, 12.38 Stress-12.85(3.59), 0.959, 10.783
(Stankovic, 2011)/San Francisco/Qual/ Community setting	Exp- 41-66 yrs/M=16/N=16/ Non-clinical participants/DO=5 Con-NR Comp-NR	PTSD-Qualitative data	Exp-iRest Yoga nidra- 30-40 min for 8 weeks and 1 year follow-up Con-NR Comp-NR	**Qualitative Data:** Reduction in rage, anxiety, emotional reactivity, Increased feelings of relaxation, peace, self-awareness, intrusive memories
(Temme et al., 2012)/North Carolina/ Quant, RCT – Cross over design/ Residential treatment facility (on-site)	39(NR)/M=75, F=18 Exp- /N=43/Clinical participants/DO=29 Con- /N=50/Clinical participants/DO=26 Comp-NR	Mindfulness- Five-Facet M Questionnaire Mood-Profile of Mood States (POMS) Warning Signs of Relapse Scale	Exp-iRest yoga nidra- 1 hour, 3 times/week for 10 sessions Con-TAU (Treatment As Usual) – substance abuse education	**Five-Facet M Questionnaire**: Increase mindfulness which highly correlates with awareness and acceptance (p<0.05) **POMS**: Decreased negative mood (p<0.05) **Warning Signs of Relapse Scale:** Reduced warning signs of relapse (p<0.05).

Study/Year/ Place of study/Study design/Study setting	Experimental/Control or Comparison (Age range or Mean age/sex/ number of participants(N)/ study population)/drop-outs	Mental health outcomes measurements used	Experiment group intervention /Control or comparison group intervention	Relevant Findings on mental health
			groups, peer support groups, cognitive behavioural relapse prevention groups, individual sessions, and special seminar topic for 1 hours, 3 times/week Comp-NR	

Note: NR=not reported, N=number of participants, F=female, M=male, DO=drop outs, Exp=experimental, Con=control, Comp=Comparison, Qual=qualitative, Quant=quantitative, PTSD=Post traumatic stress disorder, M=Mean, SD=Standard Deviation, SE=Standard Error, t=t-est statistical value

Focus of outcomes

Outcome measures

Of 16 included studies, 14 studies used self-reported measures (87.5%) (Birdsall et al., 2011; D'cunha et al., 2021; D'souza et al., 2021; Dol, 2019; Eastman-Mueller et al., 2013; Moszeik et al., 2022; Pence et al., 2014; Pritchard et al., 2010; Rani et al., 2016; Singh et al., 2022; Rani et al., 2011; Stankovic, 2011; Temme et al., 2012; Vaishnav et al., 2018), one study used clinician-rated measures (6.25%) (Novelia et al., 2019), and one study used both types of outcome measures (Ferreira-Vorkapic et al., 2018). Qualitative observations were used in two qualitative studies (Stankovic, 2011; Vaishnav et al., 2018).

Duration/length of intervention

Duration and length of yoga nidra intervention differed across all studies. Intervention duration in the 16 studies varied and ranged from 30 minutes (D'souza et al., 2021; Rani et al., 2016; Rani et al., 2011; Stankovic, 2011; Vaishnav et al., 2018) to 90 minutes (Novelia et al., 2019; Pence et al., 2014; Pritchard et al., 2010). The length of the intervention ranged from two weeks (Novelia et al., 2019) to 24 weeks (Rani et al., 2016; Rani et al., 2011). One study (Birdsall et al., 2011) did not specify the duration and length of the yoga nidra intervention.

Key Findings Related to mental health outcomes

Studies included in this review considered various mental health outcomes to investigate the impact of yoga nidra on mental health. The findings of the studies are presented under five categories. Effects of yoga nidra on stress, anxiety and depression, post-traumatic stress disorder (PTSD), psychological well-being and others. Stress was the most investigated mental health outcome. Ten studies investigated the effects of yoga nidra on stress (Birdsall et al., 2011; D'cunha

et al., 2021; D'souza et al., 2021; Dol, 2019; Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Moszeik et al., 2022; Pritchard et al., 2010; Singh et al., 2022; Vaishnav et al., 2018), seven studies investigated anxiety (Ferreira-Vorkapic et al., 2018; Novelia et al., 2019; Pence et al., 2014; Rani et al., 2016; Singh et al., 2022; Rani et al., 2011; Vaishnav et al., 2018), seven examined depression (Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Pence et al., 2014; Rani et al., 2016; Singh et al., 2022; Rani et al., 2011; Vaishnav et al., 2018), two investigated PTSD symptoms (Pence et al., 2014; Stankovic, 2011), and three studies considered psychological well-being (Rani et al., 2011; Rani et al., 2016; Vaishnav et al., 2018). Six studies investigated the effects of yoga nidra on mental health outcomes such as state of happiness (Vaishnav et al., 2018), peace and anger control (Stankovic, 2011; Vaishnav et al., 2018), feelings of relaxation, self-awareness, and intrusive memories (Stankovic, 2011), level of mindfulness (Eastman-Mueller et al., 2013; Moszeik et al., 2022; Temme et al., 2012), worry (Eastman-Mueller et al., 2013), positive and negative affect (Moszeik et al., 2022), and mood (Birdsall et al., 2011; Temme et al., 2012), which are reported under 'others' category. The key findings regarding the effectiveness of yoga nidra in mental health are summarised below:

Yoga nidra and stress

Of 16 studies; ten investigated stress (Birdsall et al., 2011; D'cunha et al., 2021; D'souza et al., 2021; Dol, 2019; Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Moszeik et al., 2022; Pritchard et al., 2010; Singh et al., 2022; Vaishnav et al., 2018); of which four (40%) used outcome measures exclusively for stress (D'cunha et al., 2021; D'souza et al., 2021; Dol, 2019; Pritchard et al., 2010), while in six studies (Birdsall et al., 2011; Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Moszeik et al., 2022; Singh et al., 2022; Vaishnav et al., 2018) stress was measured as a component of a broader scale.

In all ten studies, that investigated the effects of yoga nidra on stress, a statistically significant reduction was noted in the stress levels in nine studies (Birdsall et al., 2011; D'cunha et al., 2021; D'souza et al., 2021; Dol, 2019; Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Pritchard et al., 2010; Singh et al., 2022; Vaishnav et al., 2018). Two studies reported a significant reduction in perceived stress in patients with a diagnosis of cancer (D'cunha et al., 2021; Pritchard et al., 2010), and one with patients with multiple sclerosis (Pritchard et al., 2010). Seven studies reported significant reduction in stress levels in non-clinical population: professional school counsellors (Birdsall et al., 2011), college professors (Ferreira-Vorkapic et al., 2018), university students and graduates (Dol, 2019; Eastman-Mueller et al., 2013), adolescent students (D'souza et al., 2021; Vaishnav et al., 2018), and in housewives during COVID 19 outbreak (Singh et al., 2022).

Yoga nidra and anxiety and depression

Seven studies investigated the effect of yoga nidra on anxiety (Ferreira-Vorkapic et al., 2018; Novelia et al., 2019; Pence et al., 2014; Rani et al., 2016; Singh et al., 2022; Rani et al., 2011; Vaishnav et al., 2018), and reported significant reduction in anxiety levels. Also, in a qualitative study, participants reported a reduction in anxiety with an increased sense of relaxation after yoga nidra intervention (Stankovic, 2011).

Seven studies investigated yoga nidra and depression (Eastman-Mueller et al., 2013; Ferreira-Vorkapic et al., 2018; Pence et al., 2014; Rani et al., 2016; Singh et al., 2022; Rani et al., 2011; Vaishnav et al., 2018), and reported significant reduction in depression levels.

Yoga nidra and PTSD

Yoga Nidra's effectiveness on participants with posttraumatic stress disorder (PTSD) symptoms was investigated in two studies (Pence et al., 2014; Stankovic, 2011). One study with

women with PTSD symptoms noted a significant reduction in trauma symptoms – post-traumatic checklist (PCL), depression and self-blame (Pence et al., 2014). In another qualitative study with combat veterans, participants reported beneficial effects of yoga nidra in the symptomatic reduction of rage, emotional reactivity, increased feelings of relaxation, peace, self-awareness, and intrusive memories (Stankovic, 2011).

Yoga nidra and psychological well-being

Three of the 16 included studies investigated the effectiveness of yoga nidra on the psychological well-being of individuals (Rani et al., 2016; Rani et al., 2011; Vaishnav et al., 2018) under the domains of anxiety, depressed mood, positive well-being, self-control, general health and vitality. All three studies reported statistically significant changes in anxiety, depressed mood, positive well-being, and general health (Rani et al., 2016; Rani et al., 2011; Vaishnav et al., 2018).

Yoga nidra for other mental health outcomes

This section summarises the findings related to mental health outcomes that do not fit into the above categories. Two of 16 included studies that used qualitative methodology (Stankovic, 2011; Vaishnav et al., 2018) reported that the participants experienced a state of happiness, peace, ability to control anger, reduction of emotional reactivity, increased feelings of relaxation, self-awareness, and decrease of intrusive memories after the practice of yoga nidra. Additionally, yoga nidra was reported to be effective in increasing the level of mindfulness in two studies (Eastman-Mueller et al., 2013; Temme et al., 2012).

One study reported a significant reduction in *worry* post-intervention of iRest-yoga nidra (Eastman-Mueller et al., 2013). One study reported an improvement in positive affect and a reduction in negative affect (Moszeik et al., 2022).

Discussion

This review aimed to investigate the current evidence of yoga nidra in mental health. Findings suggested fairly strong evidence of the effectiveness of yoga nidra in stress, depression and anxiety. Some evidence also indicated the effectiveness of yoga nidra in PTSD, psychological well-being and several other mental health outcomes.

Stress if prolonged and severe, can be debilitating for mental health (Yaribeygi et al., 2017). Psycho-neuro-endocrinal mechanisms involve complex interactions between the brain, and multiple systems that help the body to cope with stress (González-díaz et al., 2017). While these mechanisms help the body to cope with immediate threat (González-díaz et al., 2017), chronic exposure to stress may lead to dysregulation of multiple systems resulting in poor sleep (Alotaibi et al., 2020), somatic symptoms (Glise et al., 2014) and depression and anxiety (Davis et al., 2017). Several studies suggested the benefits of yoga nidra in stress-related implications through neurophysiological changes such as: an increase in heart rate variability (Markil et al., 2012); decrease in respiratory rate (Sharpe et al., 2023), decrease in blood pressure (Devraj et al., 2021; Manik & Gartia, 2016), which can be indicative of autonomic balance and parasympathetic response following yoga nidra relaxation. While almost all included studies in this review used behaviour outcomes, overall collective available evidence suggests the positive role of yoga nidra in addressing the psychological and physiological implications of stress. Though not the focus of this review, several studies supported the physical benefits of yoga nidra (Datta et al., 2017; Li et al., 2019; Rani et al., 2011; Kumar & Pandya, 2012), including improved sleep quality (Datta et al., 2017), which may contribute to better mental health. Since chronic stress may lead to mental health concerns (Goh & Agius, 2010), yoga nidra may be used as a preventive mental health strategy. As mentioned in the introduction section, WHO (2022) report stated that several mental

health conditions may be preventable with accessible evidence-based mental health interventions, use of yoga nidra as a preventive mental health strategy may contribute to better mental health care.

Besides growing empirical evidence of mental health benefits, yoga nidra has also been identified as an easily accessible intervention by several authors (Birdsall et al., 2011; D'cunha et al., 2021; Ferreira-Vorkapic et al., 2018; Moszeik et al., 2022; Singh et al., 2022). The need for evidence-based, and accessible mental health intervention have been identified (WHO, 2022). With simple instructions, yoga nidra does not require high linguistic and cognitive skills, and can easily be taught and trained (Birdsall et al., 2011) to a wide range of population, including people from culturally and linguistically diverse backgrounds who prefer religious/spiritual interventions over conventional mental health care (Malviya, 2023). Furthermore, with some evidence of the effectiveness of yoga nidra as an online intervention (Moszeik et al., 2022; Singh et al., 2022), the practice may be considered for people who are unable to use conventional mental health care due to a lack of accessibility.

Overall, the findings of this review suggest the effectiveness of yoga nidra in mental health outcomes, especially in stress, depression and anxiety. Given the empirical evidence of mental health benefits and accessibility of the practice, yoga nidra may warrant consideration as a potential mental health intervention. In a recent survey with mental health professionals, participants identified yoga and related practices as viable mental health interventions in clinical settings, though they recognised the need for a guideline and training (Malviya et al., 2022c). While generally considered a safe and effective practice (Pence et al., 2014), some authors (e.g., Ferreira-Vorkapic et al., 2018) recommended to practice yoga nidra under the guidance of a trained

instructor. As such, a careful understanding of training needs for mental health professionals is needed before they consider using yoga nidra as mental health intervention for their clients.

Limitations and future recommendations

This review included studies of range of experimental designs, investigating the effectiveness of yoga nidra in mental health, however, there were several limitations. The review only included peer-reviewed research studies published in English. Grey literature was not included, so it is possible that some relevant studies may have been overlooked. Due to the heterogeneity across included studies, a meta-analysis could not be conducted. Although all included quantitative studies reported the statistical significance of yoga nidra, none addressed its clinical significance. Clinical significance pertains to the practical relevance and impact of the effect size in real clinical settings (Ranganathan et al., 2015). The absence of reports on clinical significance within the included studies raises questions about the applicability of the findings in clinical settings.

In general, the findings of the review suggest the mental health effectiveness of yoga nidra. While the empirical evidence of the effectiveness of yoga nidra in mental health is promising, the viability of using this practice as mental health intervention in clinical settings warrants further investigations. Factors such as the acceptability of the practice among mental health consumers, training requirements of mental health professionals, and resource requirements to use yoga nidra in clinical settings need to be explored. Furthermore, robust investigations are needed to explore the possibility of using yoga nidra in conjunction with other mental health interventions.

Conclusion

The findings of this review suggest the mental health benefits of yoga nidra, especially for stress, depression and anxiety. In view of the empirical evidence of yoga nidra, the practice may be considered as a potential mental health strategy to prevent and manage mental health concerns.

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References

Abbott, R., & Lavretsky, H. (2013). Tai Chi and Qigong for the treatment and prevention of mental disorders. *The Psychiatric Clinics of North America*, *36*(1), 109–119. https://doi.org/10.1016/j.psc.2013.01.011

Alotaibi, A. D., Alosaimi, F. M., Alajlan, A. A., & Bin Abdulrahman, K. A. (2020). The relationship between sleep quality, stress, and academic performance among medical students. *Journal of family & community medicine*, *27*(1), 23–28. https://doi.org/10.4103/jfcm.JFCM_132_19

Anderson, R., Mammen, K., Paul, P., Pletch, A., & Pulia, K. (2017). Using Yoga Nidra to Improve Stress in Psychiatric Nurses in a Pilot Study. *Journal of Alternative & Complementary Medicine*, *23*(6), 494-495. https://doi.org/10.1089/acm.2017.0046

Arias, A. J., Steinberg, K., Banga, A., & Trestman, R. L. (2006). Systematic Review of the Efficacy of Meditation Techniques as Treatments for Medical Illness. *Journal of Alternative & Complementary Medicine*, *12*(8), 817-832. https://doi.org/10.1089/acm.2006.12.817

Bayley-Veloso, R., & Salmon, P. G. (2016). Yoga in Clinical Practice. *Mindfulness*, *7*(2), 308-319. https://doi.org/10.1007/s12671-015-0449-9

Bhargav, H., George, S., Varambally, S., & Gangadhar, B. N. (2020). Yoga and psychiatric disorders: a review of biomarker evidence. *International Review of Psychiatry*, 1-8. https://doi.org/10.1080/09540261.2020.1761087

Bhushan, S., & Sinha, P. (2001). Yoganidra and management of anxiety and hostility. *Journal of Indian Psychology*, *19*(1-2), 44-49.

Birdsall, B., Pritchard, M., Elison-bowers, P., & Spann, J. (2011). Does Integrative Restoration (iRest) Meditation Decrease Perceived Stress Levels and Negative Moods in School

Counselors? *VISTAS Online*, *11*(84). http://counselingoutfitters.com/vistas/vistas11/Article_84.pdf

Burnett-Zeigler, I., Schuette, S., Victorson, D., & Wisner, K. L. (2016). Mind-Body Approaches to Treating Mental Health Symptoms Among Disadvantaged Populations: A Comprehensive Review. *Journal of Alternative & Complementary Medicine*, *22*(2), 115-124. https://doi.org/10.1089/acm.2015.0038

Cramer, H., Ward, L., Steel, A., Lauche, R., Dobos, G., & Zhang, Y. (2016). Prevalence, Patterns, and Predictors of Yoga Use: Results of a U.S. Nationally Representative Survey. *American Journal of Preventive Medicine*, *50*(2), 230–235. https://doi.org/10.1016/j.amepre.2015.07.037

D'cunha, R., Pappachan, B., D'souza, O. L., Tonse, R., Saldanha, E., & Baliga, M. S. (2021). Effectiveness of yoga nidra in mitigating stress in women undergoing curative radiotherapy for cervical cancer. *Middle East Journal of Cancer*, *12*(1), 117–127. https://doi.org/10.30476/mejc.2020.82648.1093

D'souza, O. L., Jose, A. E., Suresh, S., & Baliga, M. S. (2021). Effectiveness of Yoga Nidra in reducing stress in school going adolescents: An experimental study. *Complementary Therapies in Clinical Practice*, *45*(July), 101462. https://doi.org/10.1016/j.ctcp.2021.101462

Datta, K., Tripathi, M., & Mallick, H. N. (2017). Yoga Nidra: An innovative approach for management of chronic insomnia- A case report. *Sleep Science and Practice*, *1*(1), 7. https://doi.org/10.1186/s41606-017-0009-4

Davis, M. T., Holmes, S. E., Pietrzak, R. H., & Esterlis, I. (2017). *Neurobiology of Chronic Stress-Related Psychiatric Disorders : Evidence from Molecular Imaging Studies*.

https://doi.org/10.1177/2470547017710916

Devraj, J. P., Santosh Kumar, B., Raja Sriswan, M., Jagdish, B., Priya, B. S., Neelu, S. B., Desai Rao, V., Kumar, M., Geddam, J. J. B., & Hemalatha, R. (2021). Effect of Yoganidra on Blood Pressure, Hs-CRP, and Lipid Profile of Hypertensive Subjects: A Pilot Study. *Evidence-Based Complementary and Alternative Medicine*, *2021*, 1–9. https://doi.org/10.1155/2021/2858235

Dol, K. S. (2019). Effects of a yoga nidra on the life stress and self-esteem in university students. *Complementary Therapies in Clinical Practice*, *35*(March), 232–236. https://doi.org/10.1016/j.ctcp.2019.03.004

Eastman-Mueller, H., Wilson, T., Jung, A. K., Kimura, A., & Tarrant, J. (2013). iRest yoga-nidra on the college campus: changes in stress, depression, worry, and mindfulness. *International Journal of Yoga Therapy*, *23*, 15–24. https://doi.org/10.17761/ijyt.23.2.r8735770101m8277

Ferreira-Vorkapic, C., Borba-Pinheiro, C., Marchioro, M., & Santana, D. (2018). The impact of yoga Nidra and seated meditation on the mental health of college professors. *International Journal of Yoga*, *11*(3), 215. https://doi.org/10.4103/ijoy.ijoy_57_17

Glise, K., Ahlborg, G., Jr, & Jonsdottir, I. H. (2014). Prevalence and course of somatic symptoms in patients with stress-related exhaustion: does sex or age matter. *BMC psychiatry*, *14*, 118. https://doi.org/10.1186/1471-244X-14-118

Goh, C., & Agius, M. (2010). The stress-vulnerability model how does stress impact on mental illness at the level of the brain and what are the consequences? *Psychiatria Danubina*, *22*(2), 198-202.

González-díaz, S. N., Arias-cruz, A., Elizondo-villarreal, B., & Monge-ortega, O. P. (2017). Psychoneuroimmunoendocrinology : clinical implications. *World Allergy Organization*

Journal, *10*, 19. https://doi.org/10.1186/s40413-017-0151-6

Hong, Q. N., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M.-P., Griffiths, F., Nicolau, B., O'Cathain, A., Rousseau, M.-C., Vedel, I., & Pluye, P. (2018). The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers. *Education for Information*, *34*(4), 285–291. https://doi.org/10.3233/EFI-180221

Hull, A., Holliday, S. B., Eickhoff, C., Rose-Boyce, M., Sullivan, P., & Reinhard, M. (2015). The Integrative Health and Wellness Program: Development and Use of a Complementary and Alternative Medicine Clinic for Veterans. *Alternative Therapies in Health & Medicine*, *21*(6), 12-21.

Kumar, K., & Pandya, P. (2012). A study on the impact on ESR level through yogic relaxation technique Yoga nidra. *Indian Journal of Traditional Knowledge*, *11*(2), 358–361.

Li, L., Shu, W., Li, Z., Liu, Q., Wang, H., Feng, B., & Ouyang, Y.-Q. (2019). Using Yoga Nidra Recordings for Pain Management in Patients Undergoing Colonoscopy. *Pain Management Nursing : Official Journal of the American Society of Pain Management Nurses*, *20*(1), 39–46. https://doi.org/10.1016/j.pmn.2018.04.005

Malviya, S. (2023). The Need for Integration of Religion and Spirituality into the Mental Health Care of Culturally and Linguistically Diverse Populations in Australia: A Rapid Review. *Journal of Religion and Health*, *0123456789*. https://doi.org/10.1007/s10943-023-01761-3

Malviya, S., Meredith, P., Zupan, B., & Kerley, L. (2022a). Identifying alternative mental health interventions: a systematic review of randomized controlled trials of chanting and breathwork. *Journal of Spirituality in Mental Health*, 1-43. https://doi.org/https://doi.org/10.1080/19349637.2021.2010631

Malviya, S., Zupan, B., & Meredith, P. (2022b). Evidence of religious/spiritual singing and movement in mental health: A systematic review. *Complementary Therapies in Clinical Practice*, 101567. https://doi.org/https://doi.org/10.1016/j.ctcp.2022.101567

Malviya, S., Zupan, B., & Meredith, P. (2022c). Alternative interventions in clinical mental health settings: A survey of mental health professionals' perceptions. *Complementary therapies in clinical practice*, *49*, 101668. https://doi.org/https://doi.org/10.1016/j.ctcp.2022.101668

Malviya, S., Saoji, A. A., & Pravalika, B. (2023, July 5). Yoga Nidra in mental health: A Systematic Literature Review. Retrieved from osf.io/6crws

Manik, R., & Gartia, R. (2016). A Comparative Study of Yoga Nidra and Nadisodhana Pranayam on Essential Hypertension. *Advanced Science Letters*, *22*(2), 437–441. https://doi.org/10.1166/asl.2016.6834

Markil, N., Whitehurst, M., Jacobs, P. L., & Zoeller, R. F. (2012). Yoga Nidra relaxation increases heart rate variability and is unaffected by a prior bout of Hatha yoga. *Journal of Alternative and Complementary Medicine (New York, N.Y.)*, *18*(10), 953–958. https://doi.org/10.1089/acm.2011.0331

Miller, R. (2005). *Yoga Nidra: The Meditative Heart of Yoga*. Sounds True, Incorporated. https://books.google.com.au/books?id=Ql7YngEACAAJ

Moszeik, E. N., von Oertzen, T., & Renner, K. H. (2022). Effectiveness of a short Yoga Nidra meditation on stress, sleep, and well-being in a large and diverse sample. *Current Psychology*, *41*(8), 5272–5286. https://doi.org/10.1007/s12144-020-01042-2

Novelia, S., Sitanggang, T. W., & Lutfiyanti, A. (2019). The Effect of Yoga Relaxation on Anxiety Levels among Pregnant Women. *Nurse Media Journal of Nursing*, *8*(2), 86.

https://doi.org/10.14710/nmjn.v8i2.19111

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, *372*. https://doi.org/10.1136/BMJ.N71

Pandi-Perumal, S. R., Spence, D. W., Srivastava, N., Kanchibhotla, D., Kumar, K., Sharma, G. S., Gupta, R., & Batmanabane, G. (2022). The Origin and Clinical Relevance of Yoga Nidra. *Sleep and Vigilance*, *6*(1), 61–84. https://doi.org/10.1007/s41782-022-00202-7

Pence, P. G., Katz, L. S., Huffman, C., & Cojucar, G. (2014). Delivering Integrative Restoration-Yoga Nidra Meditation (iRest®) to Women with Sexual Trauma at a Veteran's Medical Center: A Pilot Study. *International Journal of Yoga Therapy*, *24*, 53–62. http://www.ncbi.nlm.nih.gov/pubmed/25858651

Penman, S., Stevens, P., Cohen, M., & Jackson, S. (2012). Yoga in Australia: Results of a national survey. *International Journal of Yoga*, *5*(2), 92. https://doi.org/10.4103/0973-6131.98217

Pritchard, M., Elison-Bowers, P., & Birdsall, B. (2010). Impact of integrative restoration (iRest) meditation on perceived stress levels in multiple sclerosis and cancer outpatients. *Stress and Health*, *26*(3), 233–237. https://doi.org/10.1002/smi.1290

Ranganathan, P., Pramesh, C., & Buyse, M. (2015). Common pitfalls in statistical analysis: Clinical versus statistical significance. *Perspectives in Clinical Research*, *6*(3), 169.

Rani, K., Tiwari, S. C., Kumar, S., Singh, U., Prakash, J., & Srivastava, N. (2016). Psycho-Biological Changes with Add on Yoga Nidra in Patients with Menstrual Disorders: a

Randomized Clinical Trial. *Journal of Caring Sciences*, *5*(1), 1-9. https://doi.org/10.15171/jcs.2016.001

Rani, K., Tiwari, S., Singh, U., Agrawal, G., Ghildiyal, A., & Srivastava, N. (2011). Impact of Yoga Nidra on psychological general wellbeing in patients with menstrual irregularities: A randomized controlled trial. *International journal of yoga*, *4*(1), 20–25. https://doi.org/10.4103/0973-6131.78176

Satyananda Saraswati, S. (2009). Yoga Nidra (4th ed.).

Saraswati, S. S. (2012). Yoga Nidra. In *Yoga Publications Trust* (2012th ed.).

Sharpe, E., Butler, M. P., Clark-Stone, J., Soltanzadeh, R., Jindal, R., Hanes, D., & Bradley, R. (2023). A closer look at yoga nidra- early randomized sleep lab investigations. *Journal of Psychosomatic Research*, *166*, 111169. https://doi.org/10.1016/j.jpsychores.2023.111169

Singh, V., Krishna, N. R., Bhutia, T. N., & Singh, H. (2022). *View of Effects of Virtual iRest Yoga Nidra Programme on Depression, Anxiety, and Stress of Sedentary Women during the Second Outbreak of Covid-19*. *6*(3), 3716–3722. https://journalppw.com/index.php/jpsp/article/view/2161/1333

Stankovic, L. (2011). Transforming trauma: a qualitative feasibility study of integrative restoration (iRest) yoga Nidra on combat-related post-traumatic stress disorder. *International Journal of Yoga Therapy*, *1968*(21), 23–37. https://doi.org/10.17761/ijyt.21.1.v823454h5v57n160

Temme, L. J., Fenster, J., & Ream, G. L. (2012). Evaluation of Meditation in the Treatment of Chemical Dependency. *Journal of Social Work Practice in the Addictions*, *12*(3), 264–281. https://doi.org/10.1080/1533256X.2012.702632

Udupa, K., Bhavanani, A. B., & Ramanathan, M. (2022). Stress and the Autonomic Nervous

System: Implication of Yoga. In I. Basu-Ray & D. Mehta (Eds.), *The Principles and Practice of Yoga in Cardiovascular Medicine* (pp. 105-115). Springer Nature Singapore. https://doi.org/10.1007/978-981-16-6913-2_9

Vaishnav, B., Vaishnav, S., Vaishnav, V., & Varma, J. (2018). Effect of yoga-nidra on adolescents well-being: A mixed method study. *International Journal of Yoga*, *11*(3), 245. https://doi.org/10.4103/ijoy.ijoy_39_17

Varambally, S., & Gangadhar, B. N. (2016). Current status of yoga in mental health services. *International Review of Psychiatry*, *28*(3), 233-235. https://doi.org/10.3109/09540261.2016.1159950

Vivekananda, S. (2010). Pathanjali Yoga Suthras. *Hinduonline.Com*, 37–38.

World Health Organisation. (2022). *World mental health report: Transforming mental health for all*. World Health Organisation. Retrieved from https://www.who.int/publications/i/item/9789240049338

Wheeler, M. S., Glass, C. R., Arnkoff, D. B., Sullivan, P., & Hull, A. (2018). The Effect of Mindfulness and Acupuncture on Psychological Health in Veterans: An Exploratory Study. *Mindfulness*, *9*(2), 564-574. https://doi.org/10.1007/s12671-017-0798-7

Yaribeygi, H., Panahi, Y., Sahraei, H., & Johnston, T. P. (2017). *Review article: The impact of stress in body function.*1057–1072.

Zhang, Y., Lauche, R., Cramer, H., Munk, N., & Dennis, J. A. (2021). Increasing trend of yoga practice among U.S. adults from 2002 to 2017. *Journal of Alternative and Complementary Medicine (New York, N.Y.)*, *27*(9), 778–785. https://doi.org/10.1089/acm.2020.0506