ThemenCheck Medizin

Extract of HTA report

Burnout[1]

Can yoga help you cope?

Health technology assessment commissioned by IQWiG

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Patient and family involvement

One patient or family member was consulted in the preparation of the report.

IQWiG coordinated the project, conducted the literature search for the domains “Benefit assessment“ and “Health economic evaluation”, and prepared the easy-to-understand summary (“HTA kompakt”).

Keywords: Yoga, Burnout – Psychological, Benefit Assessment, Systematic Review, Technology Assessment – Biomedical

According to §139b (3) No. 2 of Social Code Book (SGB) V, Statutory Health Insurance, external experts who are involved in the Institute's research commissions must disclose "all connections to interest groups and contract organizations, particularly in the pharmaceutical and medical devices industries, including details on the type and amount of any remuneration received". The Institute received the completed *Form for disclosure of potential conflicts of interest* from each external expert. The information provided was reviewed by a Committee of the Institute specifically established to assess conflicts of interests. The information on conflicts of interest provided by the external experts and external reviewers is presented in Chapter A11 of the full report. No conflicts of interest were detected that could endanger professional independence with regard to the work on the present commission.

Publisher's comment

What is the background of the HTA report?

Insured persons and other interested individuals are invited to propose topics for the assessment of medical procedures and technologies through "ThemenCheck Medizin" (Topic Check Medicine) to the Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen (IQWiG). The assessment is done in the form of a Health Technology Assessment (HTA) report. HTA reports include an assessment of medical benefit and health economics as well as an investigation of ethical, social, legal, and organizational aspects of a technology.

In a 2-step selection procedure, which also involves the public, up to 5 new topics are selected each year from among all submitted proposals. According to the legal mandate, these topics are supposed to be of particular relevance to patients [1]. IQWiG then commissions external teams of scientists to investigate the topics in accordance with IQWiG methods, and it publishes the HTA reports.

In July 2021, IQWiG commissioned a team of scientists led by the hospital Evangelische Kliniken Essen-Mitte to work on the selected topic "HT21-02: Burnout: Can yoga help people cope?". The team consisted of methodologists experienced in generating HTA reports, experts with knowledge and experience in health economic, ethical, social, legal, and organizational topics as well as a physician specializing in psychiatry and psychotherapy and a psychological psychotherapist.

Why is the HTA report important?

Burnout syndrome, or burnout for short, is the result of a highly stressful life situation. Possible causes primarily include stress-inducing workplace factors, e.g. long-term overload or underchallenge, constant time pressure, or conflicts with colleagues. A role can also be played by stressors unrelated to work, e.g. caring for relatives, or psychological factors, e.g. being excessively self-demanding.

No generally recognized definition of burnout has been established yet. However, burnout is most frequently defined by the following 3 areas of complaints: (1) exhaustion, (2) alienation from (occupational) activity, and (3) reduced capacity to perform. It is difficult to establish the symptoms of burnout syndrome because (a) some of these complaints are very similar to the symptoms of depression and (b) depression can also result from burnout. According to the International Classification of Diseases (10th revision, ICD-10), rather than being an independent disease, burnout is found under "Factors influencing health status or contact with health services" and further code Z73 "Problems related to life-management difficulty"

[2]. It is therefore impossible to say exactly how many people in Germany have ever been or are currently affected by burnout syndrome. According to projections in the Absenteeism Report 2022 issued by the Scientific Institute of the German health insurance (SHI) fund AOK, 194,000 of the more than 36 million SHI-insured employees in Germany were on sick leave due to ICD code Z73 in 2021, totalling 4.8 million days of absence. Occupational groups which engage in educator roles, nursing care, or customer-oriented work are particularly affected [3].

Concerns of those proposing the topic

The above-mentioned professional groups were also the focus of the topic proposal submitted to ThemenCheck Medizin. In this proposal, one member of the public explained that many employees – especially those in precarious employment – are exposed to high levels of stress at work, which can lead to a decline in performance and emotional exhaustion, among other things. He asked whether yoga is an effective way of reducing stress and treating burnout.

Objective of the HTA report

To answer the suggesting party's question, the commissioned team of experts took the different perspectives of an HTA report to investigate whether people with burnout can benefit from yoga. This would be the case if it were proven that yoga can reduce subjective stress or the occurrence of depressive symptoms. A benefit would also exist if the health-related quality of life is favourably influenced to an extent which can be perceived by affected people.

Which questions are answered – and which are not?

The team of scientists led by the Evangelische Kliniken Essen-Mitte hospital was able to identify 5 randomized controlled trials (RCTs) in which different forms of yoga were examined in adults with burnout. Three studies compared yoga versus no treatment or yoga as an add-on to usual care versus usual care alone. In 2 further studies, the results were compared to other treatment approaches (mindfulness-based cognitive therapy, cognitive behavioural therapy, or group fitness classes).

It was shown that yoga can reduce subjective stress – when compared to no treatment or usual care alone. For other aspects such as the severity of burnout, depressive symptoms, and health-related quality of life, no results were available or there were no benefits of yoga, depending on the comparison. The adverse events data reported in the studies were not usable for drawing conclusions on potential harm.

Overall, the team of scientists came to the conclusion that, based on the available studies, it is not possible to draw any conclusions about the effectiveness of yoga as a therapy for burnout. One of the reasons for this was that the studies suffered from methodological

limitations, e.g. imprecise definition of the study population with regard to the presence of burnout and the impossibility of blinding study participants and treatment providers.

No comparative health economic studies were identified, so that it was only possible to present the costs of yoga as an illustrative example. Accordingly, a 12-week yoga course with 60-minute or 90-minute sessions costs an average of around €148 or €226 per person. Provided that the courses are preventive and certified, the costs are partially covered by SHI funds in Germany. Yoga for burnout therapy is not part of the SHI catalogue of benefits. Yoga is often offered as part of a hospital or rehabilitation stay, in which case no costs arise to patients.

The analysis of contextual circumstances suggested that – depending on their own (religious) world view – many of those affected are fundamentally open to the practice of yoga. They see yoga – unlike pharmacotherapy and/or psychotherapy – as a way for them to influence their own health. The team of experts assessed this as positive from an ethical point of view, as it might strengthen autonomy and self-efficacy.

However, the fact that the market is nearly unregulated presents a challenge. Numerous programmes are available, offering a variety of forms of yoga, and the term "yoga teacher" is not a protected professional title. For those affected, it is difficult to determine whether a course is of high quality and whether it is suitable for their symptoms. Additionally, various regulations apply regarding cost coverage; in conjunction with socioeconomic status, they also impact both access to and acceptance of the treatment approach. Further, the availability of yoga classes is greater in large German cities than in rural areas.

What's the next step?

The HTA report reveals a fundamental need for research. Studies investigating yoga with a therapeutic approach over a sufficiently long period of time are needed. Also to be investigated is the question of whether yoga constitutes an independent therapy option for burnout or whether, due to the complexity of symptoms, it should rather be viewed as part of a multimodal therapy. However, further research first requires a uniform definition as well as standards for identifying burnout. In addition, clear criteria must be established as to which elements and practices a course must include and which competences teachers must possess in order to ensure a certain level of quality and for yoga to qualify as a treatment approach for burnout.

References

1. Sozialgesetzbuch (SGB) Fünftes Buch (V) - Gesetzliche

Krankenversicherung - (Artikel 1 des Gesetzes v. 20. Dezember 1988, BGBl. I S. 2477) [online]. 2022 [Accessed: 08.05.2023]. URL: https://www.gesetze-im-internet.de/sgb_5/SGB_5.pdf.

2. Bundesinstitut für Arzneimittel und Medizinprodukte. ICD-10-GM Version 2023; Internationale statistische Klassifikation der Krankheiten und verwandter Gesundheitsprobleme; 10. Revision; German Modification; Version 2023 [online]. 2022 [Accessed: 08.05.2023]. URL: https://www.dimdi.de/static/de/klassifikationen/icd/icd-10-gm/kode-suche/htmlgm2023/index.htm.

3. Meyer M, Wing L, Schenkel A. Krankheitsbedingte Fehlzeiten in der deutschen Wirtschaft im Jahr 2021. In: Badura B, Ducki A, Meyer M, Schröder H (Ed). Fehlzeiten-Report 2022: Verantwortung und Gesundheit. Berlin: Springer; 2022. p. 287-368.

HTA key statements

Research question of the HTA report

The aims of this investigation are to

- assess the benefit of treatment with yoga compared with (1) no treatment, (2) usual care, or (3) an active-control intervention in adult patients with diagnosed burnout or adults with elevated scores on validated burnout scales,

- determine costs (intervention costs),

- assess cost effectiveness as well as

- review ethical, social, legal, and organizational aspects associated with the intervention of yoga.

Conclusion of the HTA report

Benefit assessment

Five randomized controlled trials (RCTs) were included on the efficacy and safety of yoga as a therapy for burnout. Yoga as a form of therapy was compared in terms of its effectiveness to passive-control groups (standard therapy, waiting list, or no intervention) and active-comparator interventions (mindfulness-based cognitive therapy, cognitive behavioural therapy, or group fitness). The forms of yoga used included traditional yoga, trauma-informed hatha yoga, medical yoga as a supplement to standard therapy, yoga and mindfulness as well as a structured yoga programme. The duration of the yoga interventions used in the studies varied between 3 and 20 weeks.

The comparison of yoga versus active-control group showed favourable effects of yoga on the "depersonalization" subscale of the Maslach Burnout Inventory. Overall, however, there is no hint of yoga having a favourable effect on the severity of burnout. This comparison likewise shows no hint of an improvement in health-related quality of life. For this comparison, no data are available regarding the outcomes of depression and subjective stress.

For the comparison of yoga versus passive-control group, there is a hint of yoga reducing subjective stress. No hint was found for a reduction in the severity of burnout or depressive symptoms. For this comparison, no data are available regarding the outcome of health-related quality of life.

No data were found for the outcomes of all-cause mortality / overall survival, remission, or health-related self-efficacy expectation. Isolated data were reported on the outcomes of adverse events (AEs) and discontinuation due to AEs, but the reporting was too heterogeneous to allow an analysis of these outcomes.

Health economic evaluation

The average cost per treatment case of a 12-week yoga course is €148 or €226 for 60-minute or 90-minute sessions, respectively. No relevant publications on cost-effectiveness were found, so that no evaluation was possible.

Ethical, legal, social, and organizational aspects

In Germany, yoga as a hobby is experiencing increasing interest and demand; its availability is growing accordingly, especially in urban regions, and yoga is being practised by more and more people in Germany. From the patient perspective, yoga is seen as a way of positively influencing their own health. This ultimately strengthens the autonomy and self-efficacy of those affected. However, the approach of treating burnout with yoga should not exempt politicians or employers from taking workplace-related measures to prevent burnout. As a preventive measure, yoga courses to help people cope with health issues are only partially subsidised by health insurance companies; as burnout therapy, the costs of yoga are not covered at all by health insurance companies. From a legal perspective, it is problematic that yoga courses are practically unregulated. Many different types of yoga exist, and the term "yoga teacher" is not a protected professional title.

Overall conclusion

The available evidence does not allow answering the research question of the benefit assessment. The comparison of yoga versus the active-control group showed favourable effects of yoga on the burnout subscale "depersonalisation" of the Maslach Burnout Inventory. Overall, however, there is no hint of yoga having a favourable effect on the severity of burnout. For the comparison of yoga versus a passive-control group, there is a hint of yoga reducing subjective stress. For all other outcomes, there is no hint of yoga being associated with (greater) benefit or (greater) harm. The available studies also did not allow an evaluation of cost-effectiveness; only a determination of the intervention costs was possible. Establishing the diagnosis of burnout represents a social, ethical, and organizational challenge due to the unspecific variety of symptoms, an unclear definition, and a lack of standardized measuring instruments. This dilemma of unclear definitions also presents an issue with regard to yoga interventions: the wide range of yoga programmes is virtually unregulated, and the term "yoga teacher" is not a protected professional title. In future, the quality of yoga programmes will need to be identified in a transparent manner. Quality assurance is urgently needed, particularly in light of the fact that yoga has, for years, been enjoying increasing interest and

demand in Germany and surveys reflect the population's positive expectations regarding the effects of yoga on their health and well-being.

In addition, a uniform definition, classification, and standardized diagnosis of burnout are necessary to allow identifying and evaluating suitable forms of therapy. Further high-quality research into this form of treatment for burnout is needed.

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Abbreviation	Meaning
DGPPN	Deutsche Gesellschaft für Psychiatrie und Psychotherapie, Psychosomatik und Nervenheilkunde (German Society for Psychiatry, Psychotherapy and Neurology)
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5th edition
EUnetHTA	European Network for Health Technology Assessment
HTA	Health Technology Assessment
ICD	International Classification of Diseases
IQWiG	Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen (Institute for Quality and Efficiency in Health Care)
MBI	Maslach Burnout Inventory
MBSR	Mindfulness-Based Stress Reduction
RCT	randomized controlled trial
SGB	Sozialgesetzbuch (Social Code Book)
UVS	Uniform Value Scale

HTA overview

1 Background

1.1 Health policy background and commission

According to §139b (5) of Social Code Book V, Statutory Health Insurance (SGB V), SHI members and other interested people may suggest topics for the scientific assessment of medical interventions and technologies to the Institute for Quality and Efficiency in Health Care (IQWiG). The topics for these health technology assessment (HTA) reports can be submitted on the ThemenCheck Medizin ("topic check medicine") website.

ThemenCheck Medizin aims to promote the involvement of the public in evidence-based medicine and answer questions which are particularly relevant in patient care.

Once yearly, IQWiG, in collaboration with patient representatives and members of the public, selects up to 5 topics on which HTA reports are to be prepared. IQWiG then commissions external experts to investigate the research question. The results prepared by the external experts and a publisher's comment by IQWiG are then published in the form of an HTA report.

IQWiG forwards the HTA reports to institutions in Germany which decide, e.g., on the services and structure of the healthcare system. The HTA report will be made available to the professional community through the ThemenCheck Medizin website (www.iqwig.de). In addition, a lay summary of the results of the HTA report will be published under the title "HTA compact: The most important points clearly explained". This is done to ensure that the results of HTA reports will impact patient care.

1.2 Medical background

Definition of burnout

No generally recognized burnout diagnosis exists at this time. Due to the large number of publications on this topic, it has become difficult to maintain an overview of research in this area. A position paper by the German Society for Psychiatry, Psychotherapy and Neurology (DGPPN) addresses the topic of burnout [4]. According to the DGPPN, the definition most frequently used in research and practice is based on the symptom triad (1) emotional exhaustion, (2) depersonalization, and (3) reduced work performance. The position paper is now almost 10 years old, but no update is available. More recent is a systematic review from 2021 with Delphi consensus of experts from 29 countries [5]. It summarizes the existing definitions of *occupational* burnout. A total of 88 different definitions were compiled, and a consensus process led to an agreement on the following definition: "In a worker, occupational burnout or occupational physical AND emotional exhaustion state is an exhaustion due to

prolonged exposure to work-related problems" (p. 103 [5]). However, it should be emphasized in this regard that this review addresses only work-related burnout. According to current knowledge, however, burnout may also develop due to nonoccupational activities; therefore, this definition is of limited value as an attempt to arrive at a generally valid definition.

The ICD-10-F or Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) do not offer a specific diagnosis for burnout. In most cases, it is coded under the Z diagnosis Z73 ("Problems related to life management difficulty"), which includes "burnout". Other Z diagnoses, e.g. accentuation of personality traits (Z73.1), lack of relaxation and leisure (Z73.2), change of job (Z56.1), threat of job loss (Z56.2), stressful work schedule (Z56.3), or discord with boss and workmates (Z56.4), are rarely coded in practice. In clinical practice, F43.2 ("adjustment disorders"), F32 ("depressive episode"), or F33 ("major depressive disorder, recurrent") are often coded instead of Z73. Even at the symptom level, it is sometimes difficult to differentiate between Z73 and F43.2, F32, or F33 [6].

Prevalence of burnout

In the absence of a uniform definition and an F diagnosis in ICD-10, drawing precise conclusions on prevalence is virtually impossible. Doing so would require exact epidemiological research. In addition, the COVID-19 pandemic appears to have had an effect on burnout, so more current data are needed and must be awaited [7].

According to the DAK Psychreport 2021, days absent due to mental illness are at an all-time high [8]. From 2010 to 2020, an increase by 56% was recorded. The diagnosis Z73 ("Problems related to life management difficulty", including burnout) accounted for relatively few days of incapacity for work in 2019 (5.5 days), a lower number than in 2010. By comparison, the diagnoses F32 and F33 (depression) accounted for 105.4 days in 2019. Additionally, prevalences differ in the various occupational sectors.

Causes of burnout

Stress-inducing workplace factors (e.g. excessive demands and insufficient room for manoeuvre) have proven to be some of the main causes of burnout [9]. They are exacerbated by extra-occupational stresses (e.g. family conflicts), psychological factors (e.g. excessive self-demand), and possibly biological risk constellations. However, the available data are still sparse overall, especially regarding biological risk constellations [4].

Diagnosis of burnout

The ICD-10 does not contain a diagnosis code for burnout in the F chapter intended for mental illnesses. In most cases, the Z diagnosis Z73 ("Problems related to life management difficulty"), which includes "burnout", is coded. The diagnosis is also not included in the DSM-5. Due to the vagueness of the term, burnout is seen by the DGPPN as an overload reaction which is

associated with an increased risk of mental illness. The symptom lists for burnout include all relevant symptoms of both depression and adjustment disorder, which makes it difficult to differentiate it from these 2 disorders. Phenomenologically, burnout syndrome is similar to the concept of neurasthenia.

The Maslach Burnout Inventory (MBI) is widely used to diagnose burnout syndrome. It measures 3 different scales: (1) emotional exhaustion, (2) depersonalization, and (3) subjective performance. In summary, burnout is thus understood as "a syndrome of emotional exhaustion, depersonalization, and reduced personal performance" [10].

Questionnaires other than the MBI exist, but they typically survey a single factor, as is the case for the Tedium Measure [11], which measures exhaustion using 21 items. The Copenhagen Burnout Inventory likewise records the experience of exhaustion.

Yoga as an intervention

Yoga is a philosophical doctrine which originated in India around 3000 years ago. The traditional goal of yoga is to calm the mind and brain waves and to unite body, mind, and soul [12]. To this end, the Indian scholar Patanjali defined the “8 limbs of yoga” in his over 2000-year-old Yoga Sutra, which represents a sort of guideline and philosophical cornerstone of yoga [12]. It describes various aspects of spiritual discipline, including ethics, morals, and lifestyle. Even today, many yoga schools still refer to this original text, although the forms of yoga in the Western world today are predominantly limited to yoga poses (asanas), breathing techniques (pranayama), and meditation (dharana) as integral components of yoga practice.

Nowadays, yoga is increasingly being used as a health-promoting and therapeutic practice. A distinction can be drawn between *preventive services*, which aim to prevent illness and health damage, and *therapeutic services*, which are designed to treat an illness. The subject of this report is the investigation of yoga as a form of burnout therapy. Yoga therapy, as defined by Gary Kraftsow, founder of the American Viniyoga Institute and pioneer of yoga therapy, is "the adaptation and application of yoga techniques and practices to help individuals facing health challenges at any level manage their condition, reduce symptoms, restore balance, increase vitality, and improve attitude" [13].

The growing body of applied yoga research in recent decades suggests that yoga as therapy may favourably affect a range of mental and physical symptoms, including stress, anxiety, depression, sleep disorders, quality of life, and pain [14-17]. The effect of yoga on anxiety and depression has been investigated in metaanalyses. The latter identified favourable effects not so much regarding manifest clinical affective disorders, but primarily regarding subsyndromal depressive and anxiety symptoms [14,18]. Yoga may additionally influence physiological stress parameters [19,20]. In depressive disorders, yoga may be superior to pure relaxation exercises and sport [14].

Alongside the antidepressant and health-promoting effects of physical activity in general, which is one of the elements of yoga, the neurophysiological mechanisms of action of the breathing-based and meditation-based elements of yoga might play an important role in alleviating stress-associated illnesses [20].

In the context of work-related stress and burnout, several different approaches to the use of yoga already exist, including individual-based and group-based interventions as well as those integrated in the work context or used in combination with other approaches such as art or music or approaches integrating mindfulness and self-compassion elements [21].

However, the effect of yoga on burnout symptoms has not yet been comprehensively and systematically scientifically analysed.

Burnout therapy

Over the past few decades, a number of studies have been carried out on various burnout interventions. The HTA report "Therapy of the burnout syndrome" published in 2012 already mentioned the very broad spectrum of therapeutic treatment measures used, and it systematically analysed and presented their effectiveness [22].

Intervention types can generally be divided into three categories: individual-centred, workplace-based, and combined approaches [23]. Individual-centred approaches generally aim to reduce the burnout symptoms of those affected by strengthening individual coping mechanisms, teaching relaxation techniques, and providing opportunities for social support. Workplace-based interventions focus on structurally altering aspects of the work environment which contribute to burnout, e.g. low employee cohesion, poor communication, work overload, and insufficient work resources [23]. Combined interventions target both the individual and the organization and integrate aspects of both approaches.

Due to the unclear diagnosis, diverse and unspecific symptoms, and divergent explanations of the causes of burnout syndrome found in the literature, the treatment options within these categories also exhibit great variability and vagueness.

Treatment recommendations, such as those given by the Swiss Medical Forum, are primarily based on experience from clinical practice and literature on comorbid, burnout-like clinical pictures [24]. Due to the extensive overlap between burnout and existing ICD-10 disorders such as depression, anxiety, dependency, sleep, and other psychiatric disorders, it is possible to draw in part on disorder-specific therapy methods as described in the relevant literature and guidelines [24].

Due to the complexity of the clinical picture, a single intervention strategy does not appear to be sufficient to treat all dimensions of burnout [24]. Like any psychiatric-psychotherapeutic

treatment, therapy requires a multimodal approach, and the appropriate treatment components must be decided on an individual basis in each case [25,26]. The "burnout" treatment programmes currently available in some clinics often combine general strengthening, relaxing, stress-reducing, and work-related preventive components [27]. These holistic approaches are also often based on subjective clinical experiences and available options at the respective locations rather than on evidence. Psychoeducation, which provides targeted information about the symptoms of the disease, has become established in recent years alongside psychotherapy and pharmacotherapy. In addition, a variety of complementary therapy methods exist, ranging from healthy eating, naturopathic methods, relaxation and mindfulness therapies, sports, creative activities, and massage, to the study of Far Eastern philosophy and animal-assisted therapy [27].

The most common therapeutic approaches are briefly presented below.

Pharmacotherapy

Drug treatment options depend largely on the diagnosis and on any comorbidities. If the patient exhibits a manifest mental disorder, typically a depressive or anxiety disorder, this disorder should be treated in accordance with the guidelines. Due to the neurobiological mechanisms which can lead to burnout and depression in the event of stress, guideline-based treatment with antidepressants is indicated in the presence of a depressive disorder [24]. Sedative antidepressants or small doses of atypical neuroleptics can be used in the treatment of sleep disorders associated with burnout [24]. In cases of mild to moderate depression, phytotherapeutic treatment with St John's wort preparations may also be an option [24,26].

Psychotherapy

Psychotherapy primarily aims to create a match individual capabilities and expectations to the external framework conditions, to correct dysfunctional attitudes and behaviours, and to enable people to live a meaningful life in accordance with their own values and goals [25]. Various methods such as cognitive restructuring, social skills training, improvement of emotion regulation strategies, or stress management can be employed. Central themes are often overcommitment and perfectionism, focus on performance, lack of self-confidence, lack of self-efficacy as well as lack of conflict resolution strategies and self-care [25].

In addition, supplementary resource-orientated and resilience-promoting measures are becoming increasingly important [25]. The aim is to increase mental resilience to help cope with stressful life situations more calmly. The focus is on (re-)activating personal resources, pursuing a lifestyle that is in line with one's own values and goals, (re-)taking up enjoyable activities, and self-care.

Supplementary measures

Sport

The beneficial effect of regular physical activity in general and especially for people with mental illnesses such as depression has already been adequately demonstrated in studies [28] and represents an important component of burnout treatment.

Relaxation and bodywork

Regular relaxation exercises and bodywork can have a supportive psychotherapeutic effect [25,26]. They contribute to the regulation of the autonomic nervous system, promote deep relaxation, and improve body awareness, which is often limited under stress [25]. Various methods can be used, e.g. progressive muscle relaxation, autogenic training, or Qigong.

Mindfulness exercises

Regular mindfulness practice supports relaxation and stress reduction as well as the development of greater serenity and enhances self-awareness and self-acceptance [26,29]. It can therefore support psychotherapeutic processes. The 8-week "Mindfulness-Based Stress Reduction" (MBSR) programme in particular has established itself as an easy-to-teach and standardized method [30].

Art therapy

In addition to cognitive coping methods, creative therapy approaches aim at (en)active design, interoception (body experience), and expression in order to gain access to emotions and change behaviour [31].

1.3 Health services situation

The use of yoga among the population has increased significantly in recent decades. While in 2014, 3.3% of respondents to a nationally representative survey in Germany reported currently practising yoga, this figure had risen to 5.6% by 2018 [32,33]. Among yoga practitioners, women, people with a higher level of education, and working persons were most frequently represented. As the most important reasons for practising yoga, respondents cited improvements in physical (62.8%) and mental well-being (56.9%) as well as physical (54.4%) and mental performance (50.0%) [32].

The SHI funds cover part of the costs of certified yoga courses in the context of preventive yoga programmes in the field of activity of stress management under the prevention principle "Promotion of relaxation (palliative regenerative stress management)" (guideline of the health insurance funds in accordance with Section 20 (1) and (2) SGB V) [34]. Yoga therapy, on the other hand, is neither widespread in Germany at this time, nor a recognized form of treatment in the German healthcare system, nor covered by the SHI. No figures are available on the frequency with which yoga is used as a form of therapy for burnout.

1.4 Concerns of those proposing the topic

A member of the public asked whether yoga was an effective way of reducing stress and treating burnout. He argued that many working persons – especially those in precarious employment – are exposed to high levels of stress at work, which can lead to a decline in performance and emotional exhaustion, among other things.

The *ThemenCheck Medizin* staff at IQWiG developed an HTA research question on the basis of this suggestion.

2 Research questions

The aims of this investigation are to

- assess the benefit of treatment with yoga compared with (1) no treatment, (2) usual care, or (3) an active-control intervention in adult patients with diagnosed burnout or adults with elevated scores on validated burnout scales,
- determine costs (intervention costs),
- assess cost effectiveness as well as
- review ethical, social, legal, and organizational aspects associated with the intervention of yoga.

3 Methods

This HTA report is prepared on the basis of General Methods 6.1 [35].

3.1 Methods – benefit assessment

The target population of the benefit assessment consisted of (1) adults (≥ 18 years) with diagnosed burnout (including diagnosis code Z73.0 ICD-10 "burnout") or (2) adults with an elevated score on validated burnout scales (e.g. Maslach Burnout Inventory) at the start of the studies or (3) a study population with an elevated average score on validated burnout scales (e.g. Maslach Burnout Inventory) at the start of the studies or (4) studies which included employees unable to work due to burnout.

The intervention to be tested was treatment with yoga. Interventions were included only if they were explicitly labelled as "yoga" or "yogic". No restrictions were placed on the yoga tradition or on programme length, frequency, or duration. Studies investigating yoga as an add-on were also included. The comparator intervention was (1) no treatment, (2) usual treatment, or (3) an active-control intervention. Usual treatment included standard therapy, which was not defined in more detail and could vary depending on the treating physician and the patient receiving treatment, for instance. Active-control interventions were based on a specific, predefined control group to which patients were assigned (e.g. all patients in the active-control intervention received pharmacotherapy).

The following patient-relevant outcomes were taken into account in the assessment:

- Morbidity
  - severity of burnout
  - remission, measured by the number of patients who have achieved remission
  - depressive symptoms
  - health-related self-efficacy expectation
  - subjective stress
- Mortality
- Health-related quality of life
- Adverse events

Only randomized controlled trials (RCTs) were included in the benefit assessment. There were no restrictions regarding the study duration.

In parallel to the preparation of the HTA report protocol, a search for systematic reviews was conducted in the MEDLINE database (which includes the Cochrane Database of Systematic Reviews) and the HTA database as well as on the websites of the National Institute for Health and Care Excellence (NICE) and the Agency for Healthcare Research and Quality (AHRQ).

It was ascertained whether at least 1 high-quality, current systematic review existed whose information retrieval was a suitable basis for the assessment.

A systematic literature search for studies was conducted in the following databases: MEDLINE, Embase, and the Cochrane Central Register of Controlled Trials, PsycINFO.

In addition, the following information sources and search techniques were taken into account: trial registries, hearing on the preliminary HTA report, and author queries.

Relevant studies were selected by 2 persons independently from one another. Any discrepancies were resolved by discussion between them. Data were extracted into standardized tables. To assess the qualitative certainty of results, outcome-specific and study-level criteria for the risk of bias were assessed, and the risk of bias was rated as high or low in each case. The results of the individual studies were described, organized by outcomes.

Alongside the comparisons of the results of the individual studies, metaanalyses were carried out.

For each outcome, a conclusion was drawn regarding the evidence for (greater) benefit and (greater) harm, with 4 levels of certainty of conclusions: there was either proof (highest certainty of conclusions), indication (moderate certainty of conclusions), hint (lowest certainty of conclusions), or neither of the above 3. The latter was the case if either no data were available or the available data did not allow any of the other 3 conclusions to be drawn. In this case, the conclusion “There is no hint of (greater) benefit or (greater) harm” was drawn.

Subsequently, an assessment of benefit and harm was carried out across outcomes.

3.2 Methods – health economic evaluation

The health economic evaluation took into account intervention costs and cost effectiveness.

Intervention costs

In Germany, yoga is not currently a reimbursable intervention for burnout. MBSR courses (which are likewise not a reimbursable standard benefit in Germany), pharmacotherapy, and cognitive behavioural therapy are used as comparator interventions. The costs are based on the German healthcare context and include 3 months for the experimental intervention (yoga) and 3 or 6 months for the comparator interventions (cognitive behavioural therapy and pharmacotherapy). The comparator intervention via an MBSR course is based on a period of

2 months since this is the duration of a standardized MBSR course in Germany [36-38]. The durations selected for the various interventions reflect the reality of care provision in Germany. In the therapeutic indication of burnout, a yoga or MBSR course or cognitive behavioural or pharmacotherapy presumably last between 3 and 6 months. For this reason, the costs are not totalled for 1 year.

Wherever possible, the regulated or negotiated prices of these services were used, e.g. from the Uniform Value Scale (UVS) and the Lauer Taxe. Where this was not possible, unregulated prices were taken from the catalogues of the health insurance funds and a structured internet search. The prices are based on the year 2022. Reimbursable and nonreimbursable costs are listed separately.

Systematic review of health economic studies

To determine cost effectiveness, a systematic search was conducted in the form of a focused information retrieval for comparative health economic studies on an international level in MEDLINE, Embase, and the HTA database. The publications were selected by 1 person, with a 2nd person doing quality assurance. The review of the full texts revealed no relevant publications, so that no evaluation of cost effectiveness was possible.

3.3 Methods – ethical aspects

Consideration of arguments and aspects in the analysis of ethical implications

Ethical arguments and aspects are found in publications, monographs, project reports as well as laws and regulations or on stakeholder websites. The publication type, publication status, and study type in which they are found are irrelevant.

The HTA report takes into account conclusions on ethical aspects and arguments related to the technology under investigation.

The theoretical framework for the ethical discussions is the concept of public health ethics [39]. Methodologically, ethical aspects were discussed using Hofmann's catalogue of questions [40].

In order to analyse the ethically relevant questions for this report, (a) the relevant studies of the benefit assessment were referred to and (b) a scoping search was carried out using the relevant databases (ETHMED, MEDLINE). Finally, (c) information from laws, regulations, or directives as well as interest-dependent sources of information, e.g. websites of interest groups, were examined. This information was discussed in a theory-based reflection using Hofmann's catalogue of questions. The ethical aspects were classified as

1) "ethical risk" (risk of insufficiently taking into account principles or values),

2) "ethical opportunity" (particular fulfilment of one or more medical ethical principles or values), or
3) "ethical challenge" (situation in which different principles and values are in conflict with each other and must be weighed)

Information retrieval

Scoping search

A scoping search was conducted for the information retrieval. One reviewer screened the information from all information sources found in the scoping searches for conclusions on ethical arguments and aspects of the technology to be investigated. A second person assured the quality of the result.

Further sources of information

The following documents were checked for possible ethical arguments:

- studies included in the benefit assessment
- the protocol for documenting the discussion with the surveyed affected people

The check of the documents for conclusions on ethical arguments and aspects of the technology to be investigated was conducted by one person. A second person assured the quality of the result.

As an additional source of information, the reflective thoughts method, i.e. reflection informed by the authors' knowledge regarding potential ethical arguments and aspects, was applied [41].

Information processing

All arguments and aspects necessary for information processing were extracted into tables.

During the preparation of information on ethical aspects, social and moral norms and values related to the technology of the HTA report were analysed. The results were presented in tabular form.

3.4 Methods – social, legal, and organizational aspects

Consideration of arguments and aspects in the processing of social, legal, and organizational implications

Social, legal, and organizational arguments and aspects are found in publications, monographs, project reports as well as laws and regulations or on stakeholder websites. The publication type, publication status, and study type in which they are found are irrelevant.

In the HTA report, arguments and aspects were taken into account if they included conclusions on social, legal, and/or organizational aspects of the technology to be investigated.

Information retrieval

Scoping search

For the analysis of social, legal, and organizational aspects, scoping searches were conducted in the following information sources:

- MEDLINE
- national and regional registries
- information from laws, regulations, or directives
- interest-based sources of information, e.g. websites of interest groups
- Juris legal portal

One reviewer screened the information from all information sources found in the scoping searches for statements on social, legal, and/or organizational arguments and aspects of the technology to be investigated. A second person assured the quality of the result.

Further sources of information

The following documents were checked for potential social, legal, and/or organizational arguments and aspects:

- studies included in the benefit assessment
- the protocol for documenting the discussion with the surveyed affected people

The check of the documents for conclusions on social, legal, and/or organizational arguments and aspects of the technology to be investigated was conducted by 1 person. A 2nd person assured the quality of the result.

As an additional source of information, the reflective thoughts method, i.e. reflection informed by the authors' knowledge regarding potential social, legal, or organizational arguments and aspects, was applied [41].

Information processing

Data extraction

All arguments and aspects necessary for information processing were extracted into tables.

Social aspects

Social and sociocultural aspects in the HTA address the reciprocal interactions between the examination or treatment method and the social environment (e.g. distribution of resources in a society, access to technologies, patient preferences, social norms, and values).

The information processing on social aspects was based on the comprehensive conceptional framework proposed by Mozygemba 2016 [42].

Legal aspects

Legal aspects discussed in the HTA relate, firstly, to the legal framework in which the examination or treatment method and its assessment are embedded (e.g. marketing authorization, reimbursement status), and, secondly, to legal aspects associated with the implementation and use of the healthcare technology (e.g. patient autonomy). Technology-related legal aspects are distinguished from patient-related ones.

The information processing on legal aspects is based on the guideline for the identification of legal aspects developed by Brönneke 2016 [43].

Organizational aspects

Organizational aspects comprise the interactions resulting from an examination or treatment method on the organization of care.

The information processing of organizational aspects followed the grid template proposed by Perleth 2014 [44] for the assessment of the organizational consequences of examination and treatment methods.

3.5 Interviews with affected people

During the generation of the preliminary HTA report, patient-relevant aspects, relevant subgroups as well as relevant ethical, social, legal, and organizational aspects were discussed in patient interviews. The interview was conducted as a one-on-one interview using interview guidelines. The interviewee was a 60-year-old man who had been diagnosed with burnout by a psychotherapist and had been experiencing symptoms for 6 months.

4 Results: Benefit assessment

4.1 Results of the comprehensive information retrieval

No systematic reviews were rated as being current and of high quality, and none were included for the identification of primary studies.

The information retrieval resulted in 776 RCTs relevant for the research question. A total of 334 ongoing studies were found.

The search strategies for bibliographic databases and trial registries are found in the appendix. The last search was conducted on 29 November 2021. Five randomized controlled trials were included in the benefit assessment [45-49].

Table 1: Study pool of the benefit assessment

Study	Available documents			
	Full publication (in scientific journals)	**Registry entry / result report from trial registries**	**Clinical study report from manufacturer documents (not publicly available)**	**Other Documents**
Active-control group				
Grensman et al. (2018)	Yes [46]	No	No	No
Taylor et al. (2020)	Yes [49]	No	No	No
Passive-control group				
Köhn et al. (2013)	Yes [47]	No	No	No
Ancona & Mendelson (2014)	Yes [45]	No	No	No
Mandal et al. (2021)	Yes [48]	No	No	No

4.2 Characteristics of the studies included in the assessment

Of the 5 included studies, 2 compared yoga versus active-control groups (mindfulness-based cognitive therapy, cognitive behavioural therapy, and group fitness classes), while 3 compared yoga versus passive-control groups (standard therapy, no intervention, waiting list). The employed yoga interventions differed (traditional yoga, trauma-informed hatha yoga, medical yoga + standard therapy, yoga + mindfulness, and a structured yoga programme), as did the study durations (3 to 20 weeks). The studies took place in Sweden, Australia, Germany, the United States, and India. All studies included participants with, on average, elevated baseline burnout values or an underlying sick leave due to burnout. The outcomes were recorded differently in the studies. A tabular overview of the studies can be found in Table 1.

Yoga versus active-control group

Two studies investigated yoga versus active-control groups [46,49]. Grensman et al (2018) investigated traditional yoga versus mindfulness-based cognitive therapy and cognitive behavioural therapy in 94 participants. The study lasted 20 weeks, and health-related quality of life and adverse events were recorded. Taylor et al (2020) investigated trauma-informed hatha yoga versus group fitness classes (interval and/or boxing fitness training) in 21 participants. The duration of the study was 8 weeks; the relevant outcomes assessed in this HTA were compassion fatigue, burnout, secondary traumatic stress, and adverse events.

Yoga versus passive-control group

Three studies investigated yoga versus passive-control groups [45,47,48]. Köhn et al. (2013) investigated medical yoga + standard therapy versus standard therapy in 39 participants. The study duration was 12 weeks; the relevant outcomes assessed in this HTA were subjective stress, severity of burnout, depressive symptoms, and adverse events. Ancona & Mendelson (2014) investigated yoga + mindfulness versus no intervention in 52 participants. The duration of the study was 3 weeks; the relevant outcomes assessed in this HTA were stress and burnout. Mandal et al. (2021) investigated a structured yoga programme versus waiting list in 113 participants. The study duration was 12 weeks; the outcomes surveyed in this HTA were subjective stress, professional quality of life (compassion fatigue, burnout, secondary traumatic stress), and discontinuation due to adverse events.

Table 2: Characteristics of the studies included

Study	Study design	No. of patients N	Intervention	Comparison	Place and period of implementation	Study duration	Relevant outcomes[a]	Info on underlying burnout diagnosis
Active-control group								
Grensman et al. (2018)	RCT	94	Traditional yoga	(1) Mindfulness-based cognitive therapy (2) Cognitive behavioural therapy	Karolinska Institute, Stockholm, Sweden 09/2007 through 11/2009	20 weeks	**Primary:** Health-related quality of life **Secondary:** Adverse events Discontinuation due to AEs	Sick leave due to burnout
Taylor et al. (2020)	RCT Pilot	21	Trauma-informed hatha yoga	Group fitness classes (interval and/or boxing fitness training)	Royal Prince Alfred Hospital, Camperdown, Australia 11/2018 through 7/2019	8 weeks	**Primary:** Compassion exhaustion Burnout Secondary traumatic stress **Secondary:** Adverse events	Baseline values on average ≥10 on the 22-item Maslach Burnout Inventory, depersonalization subscale

Passive-control group								
Köhn et al. (2013)	RCT	39	Medical yoga + standard therapy	Standard therapy	Primary healthcare centre 03/2011 through 06/2011, Germany	12 weeks	**Primary:** Subjective stress **Secondary:** Severity of burnout, depressive symptoms Adverse events	Baseline values on average > 3.75 on the Shirom-Melamed Burnout Question-naire
Ancona & Mendel-son (2014)	Cluster RCT	52 (only 43 rep-orted)	Yoga + mindful-ness	No intervention	Public schools in Baltimore City, USA Study period not specified	3 weeks	Stress Burnout	Baseline values on average ≥ 27 on the 22-item Maslach Burnout Inventory, emotional exhaustion subscale
Mandal et al. (2021)	RCT	113	Structur-ed yoga pro-gramme	Waiting list	Centre for Community Medicine, AIIMS, Ansarinagar, Delhi, India 05/05/2018-25/06/2018	12 weeks	**Primary:** Subjective stress **Secondary:** professional quality of life (compassion exhaustion, burnout, secondary traumatic stress[b]), adverse events Discontinuation due to AEs	Baseline values on average > 41 on the Professional Quality of Life-Burnout

a: Primary outcomes include all available information without consideration of the relevance for this benefit assessment. Secondary outcomes include only information on relevant available outcomes for this benefit assessment.
b: Only the Burnout subscale was relevant and was used for the benefit assessment.
AEs: adverse events; N: number of randomized or included patients; RCT: randomized controlled trial

4.3 Overview of patient-relevant outcomes

It was possible to extract data on patient-relevant outcomes from 5 studies. Table 3 presents an overview of the data available on patient-relevant outcomes from the included studies. No data on the outcome of all-cause mortality / overall survival, remission, or health-related self-efficacy expectation were reported in any study. Four studies reported data on adverse events, and 2 studies, data on discontinuation due to adverse events; none of the studies provided data suitable for use in the benefit assessment.

Table 3: Matrix of patient-relevant outcomes

Study	Outcomes								
	Mortality	Morbidity							QoL
	All-cause mortality / overall survival	Severity of the burnout	Remission	Depressive symptoms	Health-related self-efficacy expectation	Subjective stress	AEs	Discontinuation due to AEs	Health-related quality of life
Active-control group									
Grensman et al. (2018)	-	-	-	-	-	-	○	○	●
Taylor et al. (2020)	-	●	-	-	-	-	○	-	-
Passive-control group									
Köhn et al. (2013)	-	●	-	●	-	●	○	-	-
Ancona & Mendelson (2014)	-	●	-	-	-	●	-	-	-
Mandal et al. (2021)	-	●	-	-	-	●	○	○	-

● Data were reported and usable.
○ Data were reported but unusable for the benefit assessment.
- No data were reported (no further information). / The outcome was not surveyed.
AE: adverse event; QoL: quality of life

4.4 Assessment of the risk of bias of the results

The risk of bias across outcomes was rated as high for all included studies. This was mainly due to the fact that it was not possible to blind patients and treatment providers.

4.5 Results on patient-relevant outcomes

Details on the specific scales used in the respective studies can be found in Table 15 of the full report.

Table 4: Overview of effects with regard to patient-relevant outcomes at the individual study level

	Mortality	Morbidity										Health-related quality of life and psychosocial aspects
	All-cause mortality / overall survival	Severity of burnout – total	Severity of burnout – emotional exhaustion	Severity of burnout – depersonalization	Severity of burnout - personal performance	Remission	Depressive symptoms	Health-related self-efficacy expectation	Subjective stress	AEs	Discontinuation due to AE	Health-related quality of life
Active-control group												
Grensman et al. (2018)	-	-	-	-	-	-	-	-	-	o	o	↔ [a]
Taylor et al. (2020)	-	↔ (PROQOL)	↔ (MBI)	↑ (MBI)	↔ (MBI)	-	-	-	-	o	-	-
Passive-control group												
Köhn et al. (2013)	-	↔ (SMBQ)	-	-	-	-	↔	-	↑	o	-	-
Ancona & Mendelson (2014)	-	-	↔ (MBI)	-	-	-	-	-	↔	-	-	-
Mandal et al. (2021)	-	↔ (PROQOL)	-	-	-	-	-	-	↑	o	o	-

↑: Statistically significant effect in favour of the intervention

↔: No statistically significant difference

-: No data reported

o Data were reported but unusable for the benefit assessment.

MBI: Maslach Burnout Inventory – Human Services Survey for Medical Personnel; PROQOL: Professional Quality of Life Scale – Burnout; SMBQ: Shirom-Melamed Burnout Questionnaire

[a] Refers to the comparison of yoga versus cognitive behavioural therapy and to the comparison of yoga versus mindfulness-based cognitive therapy

4.5.1 Results for all-cause mortality / overall survival

None of the included studies reported on all-cause mortality / overall survival.

4.5.2 Results on the severity of burnout

Active-control group

Taylor et al. (2020) reported on the outcome of severity of burnout, comparing yoga versus an active-control group (group fitness). No significant differences were found in emotional exhaustion measured using the MBI-EE, personal accomplishment measured using the MBI-PA, or burnout measured using the PROQOL. There were significant between-group differences with regard to depersonalization as measured by the MBI-DP. For the outcome of severity of burnout, this results in no hint of benefit of yoga in comparison with active control.

Passive-control group

Three studies were included in the metaanalysis (see Section A3.3.1 of the full report) for the outcome of severity of burnout, comparing yoga versus a passive-control group (standard therapy, no intervention, or waiting list) [45,47,48]. Since the heterogeneity of the observed effects was not substantial (Q = 2.50; p = .29), the evidence was quantitatively synthesized. The metaanalysis of the studies showed no significant difference between yoga and passive control for severity of burnout. This results in no hint of a benefit of yoga compared to passive control with regard to severity of burnout.

4.5.3 Results on remission

None of the included studies reported on remission.

4.5.4 Results on depressive symptoms

Active-control group

None of the included studies reported on yoga compared to active control with regard to depression.

Passive-control group

Köhn et al (2013) reported on yoga compared to passive control (standard therapy) with regard to the outcome of depression. The result was not statistically significant; therefore, there is no hint of a benefit of yoga compared to passive control with regard to the outcome of depression.

4.5.5 Results on health-related self-efficacy expectation

None of the included studies reported on the health-related self-efficacy expectation.

4.5.6 Results on subjective stress

Active-control group

None of the included studies reported on yoga compared to active control with regard to subjective stress.

Passive-control group

The metaanalysis (see Section A3.3.1 of the full report) included 3 studies on the subjective stress outcome, comparing yoga versus passive-control group (standard therapy, no intervention, or waiting list). Since the heterogeneity of the observed effects was substantial (Q = 10; p = .01), the evidence was qualitatively synthesized. For the outcome of subjective stress, the qualitative evidence synthesis of the studies showed a difference between yoga versus passive control, with moderate conclusive effects. The effects of the 2 decisive studies were interpreted as being relevant (see also Section A3.3.1 of the full report). This results in a hint of benefit of yoga compared to passive control with regard to subjective stress.

4.5.7 Results on AEs

The AEs reported in the study were unusable for the benefit assessment.

4.5.8 Results on discontinuation due to AEs

The AEs reported in the study were unusable for the benefit assessment.

4.5.9 Results on health-related quality of life

Active-control group

Grensman et al. (2018) reported on yoga compared to active control (cognitive behavioural therapy and mindfulness-based cognitive behavioural therapy) with regard to the outcome of health-related quality of life. The result was not statistically significant; therefore, there is no hint of a benefit of yoga compared to active control with regard to the outcome of health-related quality of life.

Passive-control group

None of the included studies reports on yoga compared to passive control with regard to health-related quality of life.

4.6 Overall evaluation of results

Evidence map

The following Table 5 shows the evidence map regarding patient-relevant outcomes.

Table 5: Evidence map regarding patient-relevant outcomes

	Mortality	Morbidity							Health-related quality of life and psycho-social aspects
	All-cause mortality / overall survival	**Severity of burnout – total**	**Remission**	**Depressive symptoms**	**Health-related self-efficacy expectation**	**Subjective stress**	**AEs**	**Discontinuation due to AEs**	**Health-related quality of life**
Yoga vs. active-control group	-	⇔ Taylor et al. (2020)	-	-	-	-	○	○	⇔ Grensman et al. (2018)
Yoga vs. passive control group	-	⇔ Ancona & Mendelson (2014), Köhn et al. (2013), Mandal et al. (2021)	-	⇔ Köhn et al. (2013)	-	⇗ Ancona & Mendelson (2014), Köhn et al. (2013), Mandal et al. (2021)	○	○	-

⇗: hint of (greater) benefit or hint of lesser harm
⇔: no hint, indication, or proof; homogeneous result
-: no data reported
○: data reported but unusable for the benefit assessment

Assessment of the volume of unpublished data

As part of the focussed information retrieval, 334 ongoing studies were identified. Of these 334 studies, 36 were potentially suitable in terms of content – however, a more precise assessment of the reasons for inclusion and exclusion would require further study information. Among these 36 studies, 35 were still being conducted at the time of the search. One study already had results available and deposited in the trial register. However, it became clear that the inclusion criteria for this HTA were ultimately not met. Hence, the conclusion is not limited by the scope of unpublished data.

Weighing of benefits versus harms

The available study data are insufficient for drawing conclusions on benefits and harms. A statistically significant difference in favour of yoga was found only for the comparison of yoga versus active-control group regarding the outcome of severity of burnout – "depersonalization" subscale. On the overall scale of burnout, however, there is no hint of

benefit of yoga in comparison with active control. For subjective stress, this results in a hint of benefit of yoga compared to passive control. Adverse events were reported in 4 studies but were not usable for the benefit assessment [46-49]. High-quality RCTs are needed to determine the weight of benefits and harms.

5 Results: Health economic evaluation

The health economic evaluation took into account intervention costs and cost effectiveness.

MBSR courses (which are likewise not a reimbursable standard benefit in Germany but can be subsidized as health-related courses by the SHI), pharmacotherapy, and cognitive behavioural therapy are analysed as comparator interventions. The costs are based on the German healthcare context and include 3 months of the experimental intervention (yoga) and 3 or 6 months of the comparator interventions (cognitive behavioural therapy and pharmacotherapy). The comparator intervention using an MBSR course is based on a period of 2 months since this is the duration of a standardized MBSR course in Germany [36-38]. The time periods selected for the various interventions reflect the reality of care provision in Germany. In the therapeutic indication of burnout, a yoga or MBSR course, cognitive behavioural therapy, or pharmacotherapy presumably last between 3 and 6 months. For this reason, the costs are not totalled for 1 year.

Wherever possible, the regulated or negotiated prices of these services were used, e.g. from the UVS and Lauer Taxe. Where this was not possible, unregulated prices were taken from the catalogues of the health insurance funds and a structured internet search. The prices are based on the year 2022. Reimbursable and nonreimbursable costs are listed separately.

To determine cost effectiveness, a systematic search was conducted in the form of a focused information retrieval from comparatory health economic studies on an international level. The publications were selected by 1 person, with a 2nd person doing quality assurance. The review of the full texts revealed no relevant publications, so that no evaluation of cost effectiveness was possible.

5.1 Intervention costs

The average cost per treatment case of a yoga course (experimental intervention) is €148 or €226 for a 12-week course with 60-minute or 90-minute sessions. In contrast, the average total cost per treatment case of an 8-week MBSR course with 135-minute sessions (comparator intervention) is higher at €360.

Costs for 3 or 6 months of pharmacotherapy (comparator intervention) with Z-substances for insomnia (e.g. zopiclone 7.5mg) add up to an average of €68 and €136, respectively. The costs of SSRI (selective serotonin reuptake inhibitor) therapy (e.g. citalopram 20 mg or sertraline 100 mg) for the same periods amounts to €24 and €48, respectively.

In patients 21 years and older, the costs per treatment case for cognitive behavioural therapy (comparator intervention), involving a psychotherapeutic consultation and subsequent acute treatment, amount to €1883. Treatment with psychotherapeutic consultations, trial sessions,

short-term therapy 1 and a report to the assessor costs up to €2132. For patients up to age 21, the costs per treatment case for psychotherapeutic consultation and subsequent acute treatment amount to €2510, and for psychotherapeutic consultation, a trial session, short-term therapy 1, and a report to the assessor, to €2543.

5.2 Systematic review of health economic evaluations

In the information retrieval, no studies were found to be relevant as per inclusion criteria and included in the assessment. The last search was conducted on 29 November 2021.

6 Results: Ethical, social, legal, and organizational aspects

6.1 Results on ethical aspects

6.1.1 Ethical challenges in the target patient group

Yoga is a collective term for a variety of practices such as breathing exercises, physical exercises, spiritual meditation, concentration exercises, and ethical lifestyle practices. In the Indian tradition, yoga is not a specific teaching, but a method which was developed in conjunction with various (Hindu/Buddhist) teachings [50]. The second half of the 20th century saw an increased interest in yoga in the West, which climaxed to some degree in the 1990s [51]. The fusion of Western gymnastics exercises and yoga at the beginning of the 20th century led to unique forms of yoga. In the medical context, yoga is analysed independently of religious origin [52].

Worldview issues can therefore be an integral part of yoga practice. On the other hand, there may be reservations on the part of patients whose religious orientation plays a major role in everyday life and who believe that their own world view conflicts with the world view represented by yoga. This group may include people of different religious backgrounds (Christians, Jews, and Muslims). The Christian evangelical movement can serve as an example [53]. From an ethical point of view, it must be emphasized that there can be no neutral standpoint in matters of world view. For their part, ethical convictions are embedded in ideological perspectives and exhibit a specific and thus normative conception of the human being [54]. In practice, therefore, offering yoga programmes for burnout requires yoga teachers to be sensitive to ideological issues.

6.1.2 Ethical challenges: competences of yoga teachers

Yoga therapies address a specific perception of the patient towards themselves and their environment [55]. The term "yoga teacher" is not a protected professional title. Practising yoga teachers do not require any medical training, and certification as a yoga teacher is not standardized in Germany. Although there is a German umbrella organization for yoga (“Deutscher Yoga Dachverband”), which is a registered non-profit association, the umbrella organization apparently does not unite all German yoga associations which also certify “yoga teachers” [56]. The competences required for professionals who conduct yoga courses have been laid down by the National Association of Statutory Health Insurance Funds, at least in the area of prevention [34]. Technical expertise is ensured by courses in pedagogy, psychology, philosophy and history of yoga, scientific and medical fundamentals, and medicine. In addition to theoretical competence, at least 270 hours of practical experience is listed as a criterion. From an ethical point of view, these criteria should be specified if necessary since yoga therapy in the presence of burnout requires knowledge of the specific clinical picture. This knowledge must be ensured for the benefit of the patient and is necessary

to enable yoga teachers to point out any harms which may potentially result during yoga therapy in burnout patients ([57]; see 6.3). Finally, reference should be made to ideological competence, which can be important for religiously sensitive people (see 6.1.1).

6.1.3 Ethical challenges: yoga therapy in relation to other therapeutic measures

As already indicated (6.1.2), the competence of yoga teachers regarding therapeutic measures must be specified. In addition, the relationship between yoga therapies and other therapeutic approaches should be made transparent in order to prevent any potential competition between psychotherapy, complementary therapeutic measures, and yoga therapy. See also 6.4.

6.1.4 Ethical challenges: effects of yoga

When asking specifically about the ethical aspects of the effect of yoga on burnout, no relevant studies are available. When broadening the context and asking about the extent to which yoga works in a psychotherapeutic context, it is found that yoga promotes physical activity in patients [52]. Appropriate measures appear to alleviate anxiety and stress in the presence of depression [58]. In addition, yoga appears to support decision-making in the psychotherapeutic context and offers an ethical framework for self-reflection [55,59,60].

Irrespective of the psychotherapeutic context, it is also worth mentioning that yoga can have undesirable effects, e.g. on patients' musculoskeletal system [52].

A positive aspect from an ethical point of view is that patients are encouraged to act on their own responsibility and that symptoms such as anxiety and stress can be reduced in a targeted manner. This ultimately strengthens patient autonomy and self-efficacy [57]. Socio-ethically, this would also be relevant because offering yoga measures in the case of burnout presents patients with a choice [61]. With regard to the undesirable physical effects of yoga, it is necessary from an ethical point of view to examine more closely how these can be avoided for the benefit of the patient.

Few studies are currently available on the specific question of whether yoga also works for burnout (see 4). The ICD-11 is the first to recognize burnout as an independent syndrome (from Z73 to QD85). Burnout is described as a syndrome resulting from chronic workplace stress which cannot be managed adequately: "It is characterized by three dimensions: (1) feelings of energy depletion or exhaustion; (2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and (3) a sense of ineffectiveness and lack of accomplishment. Burn-out refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life" (ICD-11, [62]). In the medium term, it is to be expected that researchers will conduct further studies on the

effects of yoga on burnout. There are currently many unanswered questions. For example, age-specific or gender-specific effects of yoga on burnout have not been investigated.

In conclusion, it should be noted that from a socio-ethical point of view, the possibility of treating burnout with yoga does not exempt politicians or employers from organising everyday working life in such a way as to strengthen preventive measures against excessive stress, which can lead to burnout.

6.1.5 Metareflection: ethical risk of including free trials without an ethics vote in the benefit assessment

The Ancona and Mendelson study [45] included in the benefit assessment does not state whether an ethics committee vote was available in advance. However, the authors point out that they obtained informed consent from the exclusively healthy subjects in the study.

This must be viewed critically: In the case of so-called free studies, which include the study by Ancona and Mendelson, an ethical vote is not legally required because neither the authorization of a medicinal product nor a medical device is involved (Section 40 Medicinal Products Act [AMG], Art. 62 para. 3 EU 2017/745; [63,64]). However, the question of whether a vote by an ethics committee is a necessary condition for psychological research is a matter of controversy from an ethical point of view and is handled differently in practice [64,65].

The authors of this HTA report agree that an ethical vote is not a supplementary feature, but an indispensable prerequisite for studies on and with humans [66]. In the present case, several attempts were made to contact the author. As these attempts were unfortunately unsuccessful, it is ultimately unclear whether there was an ethics vote. As authors, however, we considered it justified in this case to include the study in the benefit assessment because informed consent was obtained from the exclusively healthy participants.

6.2 Results on social aspects

Yoga as a hobby has been growing in popularity for decades. Demand has increased significantly once again, particularly since 2010. This can be seen in a study on the "Yoga market in Germany 2016", which analysed the availability of yoga and the development of demand in Germany in recent years based on around 8000 yoga providers and a search volume analysis [67]. As of 2016, there were around 6000 yoga studios and schools, not including other yoga programmes offered by fitness studios or similar [67]. Germany's major cities and metropolises are known to have the greatest availability of yoga compared to small towns and rural areas as well as a relatively higher demand for yoga [67]. In relative terms, Düsseldorf is Germany's yoga capital, followed by Frankfurt am Main and Münster. According to the yoga market study, centres of yoga activity in Germany include the major cities as well

as the Ruhr area, Cologne-Bonn, Stuttgart, the Frankfurt-Mainz-Darmstadt area as well as the Nuremberg and Freiburg regions [67].

The growing interest and increased demand for yoga among the population is also reflected in representative surveys. In January 2018, Growth from Knowledge (GfK) conducted a representative study on the topic of "Yoga in Germany" on behalf of the professional association of yoga teachers in Germany (Berufsverband der Yogalehrenden in Deutschland, BDY), which surveyed 2000 men and women aged 14 and older in Germany [68]. The survey revealed a point prevalence of 5.6% for yoga practice and a lifetime prevalence of 16% [68]. Compared to the 2014 survey, the number of yoga practitioners has therefore increased (point prevalence 2014: 3.3%; lifetime prevalence 2014: 15%) [32]. The point prevalence of meditation practice in Germany, an important component of yoga, was even slightly higher at 6.6%. A comparable value was found for lifetime prevalence (15.1%) [33].

As known from previous studies, significantly more women were found to practise yoga (9%) than men (1%) [68]. Furthermore, there appears to be a connection with the individual phase of life. The proportion of yoga practitioners is highest among middle-aged singles (25-49 years), middle-aged people living together in partnerships without children, and young seniors (50-64 years). There are also more yoga practitioners among people with a higher level of education, civil servants, and employees [68].

Further, the interest in yoga is increasing. A total of 19% of respondents who do not currently practise yoga or have never practised yoga expressed an interest in taking up yoga within the next 12 months (29% of women; 10% of men) [68]}. In 2014, this figure was still at 16% [32].

The main reasons given for taking up yoga practice were the improvement of physical well-being (e.g. for back problems, 66%) and mental well-being (e.g. for stress, 64%) [68]. Other reasons cited were a desired increase in physical performance (58%) and mental performance (53%) [68]. The same reasons were cited by respondents for their current yoga practice [68].

Of those currently practising yoga, 86% reported that they perceived a change as a result of their practice. The most frequently mentioned changes were a feeling of balance/calmness/relaxation (49%) and physical fitness (46%). A total of 14% stated that they felt "more comfortable" [68].

Another national survey with 1702 participants investigated the reasons for starting to and continuing to practice yoga [69]. The main reasons cited for starting to practice yoga were relaxation (26.6%), prevention / health promotion (25.5%), and treatment of a health problem (16.7%) [69]. The major reasons provided for continuing to practise yoga were prevention / health promotion (38.4%), spirituality (26.4%), and relaxation (18.2%) [69].

The data show that yoga is experiencing increasing interest and demand in Germany, its availability is growing accordingly, especially in urban regions, and yoga is being practised by more and more people in Germany. The reasons for taking up and continuing to practice yoga as cited in the 2 surveys reflect the population's positive expectations regarding the effects of yoga on their health and well-being.

In an interview, 1 burnout sufferer also addressed the following additional aspects: Compared to a physical diagnosis, the topic of burnout is difficult to communicate. Many listeners reportedly lack patience or time or even the willingness to listen. Relatives react to the topic with growing irritation. Yoga helps to improve focus or alertness, makes you more relaxed, and softer in contact.

6.3 Results on legal aspects

From a legal perspective, it is striking that yoga courses are practically unregulated: There are numerous different versions of yoga, and the term "yoga teacher" is not a protected professional title. However, 2 mechanisms are in place which appear to have a significant disciplinary influence on the range of offered yoga treatments:

On the one hand, employers generally seem to require proof of training when hiring a person as a yoga teacher. Some of these training programmes are certified by yoga associations, but sometimes the acceptance of certain training programmes is simply based on the provider's good reputation in the industry.

On the other hand, the SHI funds are obliged to offer services for behavioural prevention (§ 20 (4) No. 1, (5) SGB V). These may include yoga courses, but these then must be certified, which the National Association of Statutory Health Insurance Funds must ensure (§ 20 Para. 2 S. 2 SGB V). The latter has developed certification criteria for this purpose [34]; certification is carried out by the Central Prevention Testing Centre (ZPP) [70], which is based at the vdek association of health insurance funds.

The *International Yoga Alliance®* also offers yoga schools the opportunity to obtain certification. This certification offers an opportunity for quality assurance and standardization of yoga training.

These courses eligible for funding from the health insurance funds only under certain conditions, which include proof of training of the yoga teacher for a certain number of hours as well as further proof of qualification (e.g. proof of practical experience as a yoga teacher; type and scope depend on the applicant's other qualifications, e.g. a relevant university degree).

If yoga courses were to become eligible interventions for the treatment of burnout within the framework of SHI, such quality assurance measures, or even more extensive ones, would probably need to be introduced.

6.4 Results on organizational aspects

As already indicated (6.1.2), the competence of yoga teachers regarding therapeutic measures must be specified. In addition, the relationship between yoga therapies and other therapeutic approaches should be made transparent in order to prevent any potential competition between psychotherapy, complementary therapeutic measures, and yoga therapy.

7 Discussion

The benefit assessment determined a hint of benefit of yoga compared to passive control with regard to subjective stress. For the severity of burnout outcome, there were favourable effects of yoga compared to active control for the depersonalization subscale of the MBI. Overall, however, there is no hint of yoga having a benefit regarding the severity of burnout. For all other outcomes, there was likewise no hint of (greater) benefit or (greater) harm of yoga as a therapy for burnout in comparison with either passive-control or active-control groups.

At 5 included RCTs [45-49], the evidence is limited and does not allow any conclusions to be drawn regarding the effectiveness of yoga as a therapy for burnout. With regard to the health economic evaluation, the available evidence likewise did not allow a final assessment of cost-effectiveness; only a determination of the intervention costs was possible.

The unspecific symptoms and unclear diagnosis of burnout have already been noted in earlier reports [22]. This is also reflected in the current report. Due to the vague definition of the study population and inclusion criteria within the studies, only a very limited number of studies were eligible for inclusion. The inconsistent use of measurement instruments and the lack of standardized cutoffs for determining the presence of burnout also limit the validity of the studies. While some other studies also reported investigating burnout, they did not meet the inclusion criteria of this HTA for determining the presence of burnout. A social, ethical, and organizational challenge is the diagnosis of burnout due to the unspecific variety of symptoms, an unclear definition, and a lack of standardized measuring instruments. A standardized diagnosis of burnout is necessary for future studies. This dilemma of unclear definitions is also an issue with regard to yoga interventions: the offered yoga courses are practically unregulated. Many different types of yoga exist, and the term "yoga teacher" is not a protected professional title.

Additionally, burnout syndrome is not scientifically coded as an illness. In the ICD-10, burnout is coded as "burnout" and "state of total exhaustion". It is found under the superordinate section Z73 and includes "problems related to life-management difficulty". In the ICD-11, too, burnout syndrome is still not classified as a separate clinical picture, but as a "factor influencing health status" and coded under section QD8 - "Problems related to work or unemployment". Burnout is therefore viewed more as a risk factor for illnesses such as depression or addiction rather than being categorized in the existing classification system of mental illnesses. In addition, the restriction of burnout syndrome to professional contexts is the subject of criticism. According to this categorization, burnout is a general or additional diagnosis and not a treatment diagnosis which requires therapy, for example.

7.1 HTA report compared with other publications

Within the scope of the benefit assessment, it was not possible to identify any studies which investigated yoga as a treatment for burnout in RCTs. The HTA by Korczak et al. (2012) [22] investigated the effectiveness of various forms of therapy for burnout, but it did not include any study evaluating yoga. The evidence regarding the effect of similar forms of therapy on the reduction of burnout, e.g. stress management training or Qigong therapy, delivered inconsistent results. The HTA criticized comparable aspects which impair the quality of the study results, e.g. heterogeneous study populations, study designs, intervention contents, and intervention durations as well as unstandardized cutoff values of the burnout measurement instruments.

A systematic overview on the topic of burnout reduction in medical and nursing staff included 22 reviews [71]. These 22 reviews evaluated behavioural interventions which focus on the individual (including yoga) as well as relationship interventions (e.g. workplace-related measures such as job rotation). The conclusion is that a combination of different measures is most effective. A systematic review and network metaanalysis on relaxation techniques for occupational stress included 15 RCTs, 7 of which were on yoga [72]. In this review, yoga was identified as the most effective method for stress reduction. Another systematic review evaluated studies investigating whether yoga can influence stress and burnout in nursing staff. Seven clinical studies were included; the conclusion tends to be favourable for yoga [21]. However, the conclusions of these reviews are hardly transferable to the research question of this HTA: Among other things, no consistent distinction is made between prevention and treatment of burnout, other stress-related therapeutic indications are considered in addition to burnout, and yoga interventions are not evaluated exclusively.

7.2 HTA report compared with guidelines

No guidelines are yet available for the treatment of burnout.

7.3 Critical reflection on the approach used

The diagnosis of burnout remains vague. This vagueness was also reflected by the patient populations included in the studies. It was often not adequately reported how the diagnosis of burnout was established and on the basis of which criteria study participants were included. The inclusion criteria originally defined for the benefit assessment of this HTA report with regard to the study population were fulfilled by 1 identified study [46], which is why the inclusion criteria were adjusted accordingly. This inclusive approach was chosen to avoid disregarding information which might be important regarding yoga as a therapy for burnout. The inclusion criteria were adjusted to require a higher average baseline value on a burnout scale. This adjustment had to be made due to the available data and the reporting of the respective authors. A resulting limitation is that some of the participants included may not

have reached the burnout cutoff value. Additional studies were included which enrolled employees unable to work due to burnout, but there, too, the diagnosis remains vague. Only inadequate testing was possible of the criterion of an elevated baseline score on validated burnout scales because no standardized cutoff values were available for the burnout measurement instruments used. As a point of reference and in the absence of alternatives, reference was made in this report to the article by Doulougeri et al. (2016) [73], which defines cutoff values for the various burnout scales. However, it should be emphasized again at this point that these are cutoff values are not generally valid and standardized. Such values are urgently needed to facilitate more standardized diagnostics. It was impossible to include the studies which used measurement instruments or versions of measurement instruments for which no cutoff reference values were available. Some studies used different MBI versions, e.g. versions which are tailored to certain occupational groups or feature a varying number of scale items. This reflects the problematic establishment of a burnout diagnosis in clinical practice. Conclusions on the effectiveness of yoga for burnout are therefore only possible to a limited extent and require further high-quality research to substantiate them.

With regard to the health economic evaluation, it was not possible to identify any suitable studies which would have allowed an evaluation of cost-effectiveness.

8 Conclusion

Benefit assessment

Five RCTs were included on the efficacy and safety of yoga as a therapy for burnout. Yoga as a form of therapy was compared in terms of its effectiveness to passive-control groups (standard therapy, waiting list, or no intervention) and active-comparator interventions (mindfulness-based cognitive therapy, cognitive behavioural therapy, or group fitness). The forms of yoga used included traditional yoga, trauma-informed hatha yoga, medical yoga as a supplement to standard therapy, yoga and mindfulness as well as a structured yoga programme. The duration of the yoga interventions used in the studies varied between 3 and 20 weeks.

The comparison of yoga versus active-control group showed favourable effects of yoga on the "depersonalization" subscale of the Maslach Burnout Inventory. Overall, however, there is no hint of yoga having a favourable effect on the severity of burnout. This comparison likewise shows no hint of an improvement in health-related quality of life. For this comparison, no data are available regarding the outcomes of depression and subjective stress.

For the comparison of yoga versus passive-control group, there is a hint of yoga reducing subjective stress. No hint was found for a reduction in the severity of burnout or depressive symptoms. For this comparison, no data are available regarding the outcome of health-related quality of life.

No data were found for the outcomes of all-cause mortality / overall survival, remission, or health-related self-efficacy expectation. Isolated data were reported on the outcomes of AEs and discontinuation due to AEs, but the reporting was too heterogeneous to allow an analysis of these outcomes.

Health economic evaluation

The average cost per treatment case of a 12-week yoga course is €148 or €226 for 60-minute or 90-minute sessions, respectively. No relevant publications on cost-effectiveness were found, so that no evaluation was possible.

Ethical, legal, social, and organizational aspects

In Germany, yoga as a hobby is experiencing increasing interest and demand; its availability is growing accordingly, especially in urban regions, and yoga is being practised by more and more people in Germany. From the patient perspective, yoga is seen as a way of positively influencing their own health. This ultimately strengthens the autonomy and self-efficacy of those affected. However, the approach of treating burnout with yoga should not exempt politicians or employers from taking workplace-related measures to prevent burnout. As a preventive measure, yoga courses to help people cope with health issues are only partially

subsidised by health insurance companies; as burnout therapy, the costs of yoga are not covered at all by health insurance companies. From a legal perspective, it is problematic that yoga courses are practically unregulated. Many different types of yoga exist, and the term "yoga teacher" is not a protected professional title.

Overall conclusion

The available evidence does not allow answering the research question of the benefit assessment. The comparison of yoga versus the active-control group showed favourable effects of yoga on the burnout subscale "depersonalisation" of the Maslach Burnout Inventory. Overall, however, there is no hint of yoga having a favourable effect on the severity of burnout. For the comparison of yoga versus a passive-control group, there is a hint of yoga reducing subjective stress. For all other outcomes, there is no hint of yoga being associated with (greater) benefit or (greater) harm. The available studies also did not allow an evaluation of cost-effectiveness; only a determination of the intervention costs was possible. Establishing the diagnosis of burnout represents a social, ethical, and organizational challenge due to the unspecific variety of symptoms, an unclear definition, and a lack of standardized measuring instruments. This dilemma of unclear definitions also presents an issue with regard to yoga interventions: the wide range of yoga programmes is virtually unregulated, and the term "yoga teacher" is not a protected professional title. In future, the quality of yoga programmes will need to be identified in a transparent manner. Quality assurance is urgently needed, particularly in light of the fact that yoga has, for years, been enjoying increasing interest and demand in Germany and surveys reflect the population's positive expectations regarding the effects of yoga on their health and well-being.

In addition, a uniform definition, classification, and standardized diagnosis of burnout are necessary to allow identifying and evaluating suitable forms of therapy. Further high-quality research into this form of treatment for burnout is needed.

References

Please see full HTA report for the full reference list.

1. Sozialgesetzbuch (SGB) Fünftes Buch (V) - Gesetzliche

Krankenversicherung - (Artikel 1 des Gesetzes v. 20. Dezember 1988, BGBl. I S. 2477) [online]. 2022 [Accessed: 08.05.2023]. URL: https://www.gesetze-im-internet.de/sgb_5/SGB_5.pdf.

2. Bundesinstitut für Arzneimittel und Medizinprodukte. ICD-10-GM Version 2023; Internationale statistische Klassifikation der Krankheiten und verwandter Gesundheitsprobleme; 10. Revision; German Modification; Version 2023 [online]. 2022 [Accessed: 08.05.2023]. URL: https://www.dimdi.de/static/de/klassifikationen/icd/icd-10-gm/kode-suche/htmlgm2023/index.htm.

3. Meyer M, Wing L, Schenkel A. Krankheitsbedingte Fehlzeiten in der deutschen Wirtschaft im Jahr 2021. In: Badura B, Ducki A, Meyer M, Schröder H (Ed). Fehlzeiten-Report 2022: Verantwortung und Gesundheit. Berlin: Springer; 2022. p. 287-368.

4. Deutsche Gesellschaft für Psychiatrie, Psychotherapie und Nervenheilkunde. Positionspapier der Deutschen Gesellschaft für Psychiatrie, Psychotherapie und Nervenheilkunde (DGPPN) zum Thema Burnout. 2012.

5. Canu IG, Marca SC, Dell'Oro F et al. Harmonized definition of occupational burnout: A systematic review, semantic analysis, and Delphi consensus in 29 countries. Scandinavian journal of work, environment & health 2021; 47(2): 95.

6. World Health Organization. Internationale statistische Klassifikation der Krankheiten und verwandter Gesundheitsprobleme 10. Revision (ICD 10) URL: http://www dimdi de/static/de/klassi/diagnosen/icd10/htmlgm2007/fr-icd htm Zugriff 2007; 15: 2008.

7. Azoulay E, De Waele J, Ferrer R et al. Symptoms of burnout in intensive care unit specialists facing the COVID-19 outbreak. Ann Intensive Care 2020; 10(1): 110. https://doi.org/10.1186/s13613-020-00722-3.

8. DAK-Gesundheit. Psychreport 2021 Entwicklungen der psychischen Erkrankungen im Job: 2010-2020 [online]. 2021 [Accessed: 21.10.2021].

9. Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. World psychiatry : official journal of the World Psychiatric Association (WPA) 2016; 15(2): 103-111. https://doi.org/10.1002/wps.20311.

10. Maslach C, Jackson SE, Leiter MP. Maslach burnout inventory. Scarecrow Education; 1997.

11. Schaufeli W, Enzmann D. The burnout companion to study and practice: A critical analysis. CRC press; 1998.

12. Bryant EF. The yoga sutras of Patanjali: A new edition, translation, and commentary. North Point Press; 2015.

13. Kraftsow G. What is Yoga Therapy? [online]. [Accessed: 13.08.2021]. URL: https://viniyoga.com/about/what-is-yoga-therapy/.

14. Cramer H, Lauche R, Langhorst J, Dobos G. Yoga for depression: A systematic review and meta-analysis. Depression and anxiety 2013; 30(11): 1068-1083.

15. Kirkwood G, Rampes H, Tuffrey V et al. Yoga for anxiety: a systematic review of the research evidence. British journal of sports medicine 2005; 39(12): 884-891.

16. Cramer H, Haller H, Lauche R et al. A systematic review and meta-analysis of yoga for hypertension. American journal of hypertension 2014; 27(9): 1146-1151.

17. Bower JE, Garet D, Sternlieb B et al. Yoga for persistent fatigue in breast cancer survivors: a randomized controlled trial. Cancer 2012; 118(15): 3766-3775.

18. Cramer H, Lauche R, Anheyer D et al. Yoga for anxiety: A systematic review and meta-analysis of randomized controlled trials. Depression and anxiety 2018; 35(9): 830-843.

19. Kjaer TW, Bertelsen C, Piccini P et al. Increased dopamine tone during meditation-induced change of consciousness. Cognitive Brain Research 2002; 13(2): 255-259.

20. Streeter CC, Gerbarg PL, Saper RB et al. Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. Medical hypotheses 2012; 78(5): 571-579.

21. Cocchiara RA, Peruzzo M, Mannocci A et al. The Use of Yoga to Manage Stress and Burnout in Healthcare Workers: A Systematic Review. J Clin Med 2019; 8(3). https://doi.org/10.3390/jcm8030284.

22. Korczak D, Wastian M, Schneider M. Therapie des Burnout-Syndroms. Schriftenreihe Health Technology Assessment (HTA) in der Bundesrepublik Deutschland (Bd 120) Deutsches Institut für Medizinische Dokumentation und Information (DIMDI), Köln 2012.

23. Dreison KC, Luther L, Bonfils KA et al. Job burnout in mental health providers: A meta-analysis of 35 years of intervention research. Journal of occupational health psychology 2018; 23(1): 18.

24. Hochstrasser B, Brühlmann T, Cattapan K et al. Burnout-Behandlung Teil 1: Grundlagen. EMH Media; 2016.

25. Hochstrasser B, Brühlmann T, Cattapan K et al. Burnout-Behandlung Teil 2: Praktische Empfehlungen. EMH Media; 2016.

26. Von Känel R. Das Burnout-Syndrom: eine medizinische Perspektive. Praxis 2008; 97(9): 477-487.

27. Hillert A. Wie wird Burn-out behandelt? Bundesgesundheitsblatt-Gesundheitsforschung-Gesundheitsschutz 2012; 55(2): 190-196.

28. Dreher M, Dößereck N, Lachtermann E. [Physical activity and its effects on burnout syndrome - A systematic review]. Laryngorhinootologie 2020; 99(2): 85-95. https://doi.org/10.1055/a-1071-1905.

29. Kabat-Zinn J. Mindfulness. Mindfulness 2015; 6(6): 1481-1483.

30. Kabat-Zinn J. Mindfulness-based interventions in context: past, present, and future. 2003.

31. Martin L, Oepen R, Bauer K et al. Creative Arts Interventions for Stress Management and Prevention-A Systematic Review. Behav Sci (Basel) 2018; 8(2). https://doi.org/10.3390/bs8020028.

32. Cramer H. Yoga in Deutschland-Ergebnisse einer national repräsentativen Umfrage. Complementary Medicine Research 2015; 22(5): 304-310.

33. Cramer H. Meditation in Deutschland: eine national repräsentative Umfrage. Complementary medicine research 2019; 26(6): 382-389.

34. GKV-Spitzenverband. Kriterien zur Zertifizierung von Kursangeboten in der individuellen verhaltensbezogenen Prävention nach § 20 Abs. 4 Nr. 1 [online]. 2020 [Accessed: 06.09.]. URL: https://www.gkv-spitzenverband.de/media/dokumente/krankenversicherung_1/praevention_selbsthilfe_beratung/praevention/praevention_leitfaden/Leitfaden_Praev_Kriterien_zur_Zertifizierung_2020_11_23.pdf.

35. Institut für Qualität und Wirtschaftlichkeit im Gesundheitswesen. Allgemeine Methoden; Version 6.1 [online]. 2022 [Accessed: 27.01.2022]. URL: https://www.iqwig.de/methoden/allgemeine-methoden-v6-1.pdf.

36. Achtsamkeits-Zentrum Köln. MBSR - Stressbewältigung im Alltag durch die Praxis der Achtsamkeit - Stärkung der eigenen Resilienz. [online]. 2022 [Accessed: 15.06.2022]. URL: https://www.achtsamkeits-zentrum.de/mbsr.

37. Fjorback LO, Arendt M, Ornbøl E et al. Mindfulness-based stress reduction and mindfulness-based cognitive therapy: a systematic review of randomized controlled trials. Acta Psychiatr Scand 2011; 124(2): 102-119. https://doi.org/10.1111/j.1600-0447.2011.01704.x.

38. Santorelli SF, Meleo-Meyer F, Koerbel L. Mindfulness-Based Stress Reduction (MBSR). Authorized Curriculum Guide. [online]. 2017 [Accessed: 15.06.2022]. URL: https://www.tarkustekool.ee/wp-content/uploads/2021/09/CFM-Teaching-UMass-MBSR-Curriculum-Teaching-Guide-2017.pdf.

39. Strech D, Marckmann G. Public Health Ethik. Berlin/Münster: Lit-Verlag; 2010.

40. Hofmann B, Droste S, Oortwijn W et al. Harmonization of ethics in health technology assessment: a revision of the Socratic approach. Int J Technol Assess Health Care 2014; 30(1): 3-9. https://doi.org/10.1017/s0266462313000688.

41. Lysdahl KB, Mozygemba K, Burns J et al. Guidance for assessing effectiveness, economic aspects, ethical aspects, socio-cultural aspects and legal aspects in complex technologies [online]. 2016 [Accessed: 23.12.2020]. URL: https://www.integrate-hta.eu/wp-content/uploads/2016/08/IPP_Guidance-INTEGRATE-HTA_Nr.3_FINAL.pdf.

42. Mozygemba K, Hofmann B, Lysdahl KB et al. Guidance to assess socio-cultural aspects [online]. 2016 [Accessed: 29.07.2019]. URL: https://www.integrate-hta.eu/wp-content/uploads/2016/08/IPP_Guidance-INTEGRATE-HTA_Nr.3_FINAL.pdf.

43. Brönneke JB, Hofmann B, Bakke Lysdal K et al. Guidance to assess legal aspects [online]. 2016 [Accessed: 23.12.2020]. URL: https://www.integrate-hta.eu/wp-content/uploads/2016/08/IPP_Guidance-INTEGRATE-HTA_Nr.3_FINAL.pdf.

44. Perleth M, Gibis B, Velasco Garrido M, Zentner A. Organisationsstrukturen und Qualität. In: Perleth M, Busse R, Gerhardus A et al (Ed). Health Technology Assessment; Konzepte, Methoden, Praxis für Wissenschaft und Entscheidungsfindung. Berlin: Medizinisch Wissenschaftliche Verlagsgesellschaft; 2014. p. 265-279.

45. Ancona MR, Mendelson T. Feasibility and preliminary outcomes of a yoga and mindfulness intervention for school teachers. Advances in School Mental Health Promotion 2014; 7(3): 156-170. https://doi.org/10.1080/1754730x.2014.920135.

46. Grensman A, Acharya BD, Wandell P et al. Effect of traditional yoga, mindfulness-based cognitive therapy, and cognitive behavioral therapy, on health related quality of life: a randomized controlled trial on patients on sick leave because of burnout. BMC Complementary &Alternative Medicine 2018; 18(1): 80. https://doi.org/10.1186/s12906-018-2141-9.

47. Kohn M, Persson Lundholm U, Bryngelsson IL et al. Medical yoga for patients with stress-related symptoms and diagnoses in primary health care: a randomized controlled trial. Evidence-Based Complementary &Alternative Medicine: eCAM 2013; 2013: 215348. https://doi.org/10.1155/2013/215348.

48. Mandal S, Misra P, Sharma G et al. Effect of Structured Yoga Program on Stress and Professional Quality of Life Among Nursing Staff in a Tertiary Care Hospital of Delhi-A Small Scale Phase-II Trial. Journal of Evidence-based Integrative Medicine 2021; 26: 2515690X21991998. https://doi.org/10.1177/2515690x21991998.

49. Taylor J, McLean L, Richards B, Glozier N. Personalised yoga for burnout and traumatic stress in junior doctors. Postgraduate Medical Journal 2020; 96(1136): 349-357. https://doi.org/10.1136/postgradmedj-2019-137413.

50. Klaus K. Art. „Yoga“. In: Theologische Realenzyklopädie Online. Berlin, New York: De Gruyter; 2010.

51. Singleton M. Yoga Body. The origins of modern posture practice. Oxford Oxford University Press; 2010.

52. Cramer H, Quinker D, Schumann D et al. Adverse effects of yoga: a national cross-sectional survey. BMC Complement Altern Med 2019; 19(1): 190. https://doi.org/10.1186/s12906-019-2612-7.

53. Pollack D, Krech V, Müller O, Hero M. Handbuch Religionssoziologie. Wiesbaden: Springer VS; 2018.

54. Nida-Rümelin J. Plädoyer für eine normative Anthropologie. In: Heilinger J-CD (Ed). Anthropologie und Ethik (Humanprojekt Interdisziplinäre Anthropologie 12**)**. Berlin/Boston: Walter de Gruyter; p. 3-17.

55. Cramer H, Lauche R, Klose P et al. Yoga for improving health-related quality of life, mental health and cancer-related symptoms in women diagnosed with breast cancer. Cochrane Database Syst Rev 2017; 1(1): Cd010802. https://doi.org/10.1002/14651858.CD010802.pub2.

56. Deutscher Yoga Dachverband. 2022. URL: https://dyv.de/

57. Beauchamp T, Childress J. Principles of Biomedical Ethics. New York/Oxford: 2013.

58. Woolery A, Myers H, Sternlieb B, Zeltzer L. A yoga intervention for young adults with elevated symptoms of depression. Altern Ther Health Med 2004; 10(2): 60-63.

59. Kamradt JM. Integrating yoga into psychotherapy: The ethics of moving from the mind to the mat. Complement Ther Clin Pract 2017; 27: 27-30. https://doi.org/10.1016/j.ctcp.2017.01.003.

60. Srinivasan TM. Ethics in Yoga. Int J Yoga 2021; 14(2): 87-88. https://doi.org/10.4103/ijoy.ijoy_40_21.

61. Dabrock P. Befähigungsgerechtigkeit. Ein Grundkonzept konkreter Ethik in fundamentaltheologischer Perspektive. Gütersloh: Gütersloher Verlagshaus; 2012.

62. Organization WH. International Statistical Classification of Diseases and Related Health Problems (11th ed.) [online]. 2019. URL: https://icd.who.int/.

63. Buchner B, Hase F, Borchers D, Pigeot I. Aufgaben, Regularien und Arbeitsweise von Ethikkommissionen. Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz 2019; 62(6): 690-696. https://doi.org/10.1007/s00103-019-02945-7.

64. Pigeot I, Foraita R, Frömke C et al. [Ethical consideration of studies involving human subjects outside the regulatory framework: not mandatory, but of high relevance]. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz 2019; 62(6): 722-728. https://doi.org/10.1007/s00103-019-02947-5.

65. Pigeot I, Mansmann U, Rauch G. [Research involving human subjects-principles and challenges for the work of ethics committees]. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz 2019; 62(6): 679-681. https://doi.org/10.1007/s00103-019-02961-7.

66. Weltärztebund. Deklaration von Helsinki – Ethische Grundsätze für die medizinische Forschung am Menschen [online]. 2013 [Accessed: 06.03.2022]. URL: https://www.bundesaerztekammer.de/fileadmin/user_upload/_old-files/downloads/pdf-Ordner/International/Deklaration_von_Helsinki_2013_20190905.pdf

67. Villwock J. Yoga-Markt in Deutschland 2016. Köln: Fitogram; 2016.

68. Research GSOaL. Yoga in Zahlen [online]. Januar 2018 [Accessed: 28.02.2022]. URL: https://www.yoga.de/yoga-als-beruf/yoga-in-zahlen/yoga-in-zahlen-2018/.

69. Park CL, Quinker D, Dobos G, Cramer H. Motivations for adopting and maintaining a yoga practice: A national cross-sectional survey. The Journal of Alternative and Complementary Medicine 2019; 25(10): 1009-1014.

70. Prävention ZP. URL: https://www.vdek.com/vertragspartner/Praevention/zentrale_pruefstellepraevention.html.

71. Zhang XJ, Song Y, Jiang T et al. Interventions to reduce burnout of physicians and nurses: An overview of systematic reviews and meta-analyses. Medicine (Baltimore) 2020; 99(26): e20992. https://doi.org/10.1097/md.0000000000020992.

72. Zhang M, Murphy B, Cabanilla A, Yidi C. Physical relaxation for occupational stress in healthcare workers: A systematic review and network meta-analysis of randomized controlled trials. J Occup Health 2021; 63(1): e12243. https://doi.org/10.1002/1348-9585.12243.

73. Doulougeri K, Georganta K, Montgomery A. "Diagnosing" burnout among healthcare professionals: Can we find consensus? Cogent Medicine 2016; 3(1): 1. https://doi.org/10.1080/2331205X.2016.1237605.

74. European Network for Health Technology Assessment. EUnetHTA HTA Adaptation Toolkit & Glossary [online]. 2011 [Accessed: 23.12.2020]. URL: https://www.eunethta.eu/wp-content/uploads/2011/01/EUnetHTA_adptation_toolkit_2011_version_5.pdf.

75. Wong SSL, Wilczynski NL, Haynes RB. Comparison of top-performing search strategies for detecting clinically sound treatment studies and systematic reviews in MEDLINE and EMBASE. J Med Libr Assoc 2006; 94(4): 451-455.

76. Lefebvre C, Glanville J, Briscoe S et al. Cochrane handbook for systematic reviews of interventions; version 6; technical supplement to chapter 4: searching for and selecting studies [online]. [Accessed: 15.01.2020]. URL: https://training.cochrane.org/handbook/version-6/chapter-4-tech-suppl.

77. Eady AM, Wilczynski NL, Haynes RB. PsycINFO search strategies identified methodologically sound therapy studies and review articles for use by clinicians and researchers. J Clin Epidemiol 2008; 61(1): 34-40.

78. Glanville J, Fleetwood K, Yellowlees A et al. Development and testing of search filters to identify economic evaluations in MEDLINE and EMBASE. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2009.

The full HTA report (German version) is published under

https://www.iqwig.de/sich-einbringen/themencheck-medizin/berichte/ht21-02.html

Appendix A– Topics of the EUnetHTA Core Model

The European Network for Health Technology Assessment (EUnetHTA) is a network of European HTA agencies. EUnetHTA promotes the exchange of HTA information between its members and developed the core model [74] for this purpose. IQWiG is also a member of the network.

In order to make it easier for readers of this HTA report to find information on the superordinate domains of the EUnetHTA Core Model, Table 6 indicates where the relevant information can be found. The original names of the domains of the core model are used to describe the topics.

Table 6: Domains of the EUnetHTA Core Model

EUnetHTA domain	**Information in chapters and sections of the HTA report**
Health problem and current use of the technology (CUR)	**Background** Chapter 1
Description and technical characteristics of technology (TEC)	
Safety (SAF)	**Benefit assessment** Section 3.1; Chapter 4
Clinical effectiveness (EFF)	
Costs and economic evaluation (ECO)	**Health economic evaluation** Section 3.2; Chapter 5
Ethical analysis (ETH)	**Ethical aspects** Section 3.3; Section 6.1
Patients and social aspects (SOC)	**Social aspects** Section 3.4; Section 6.2
Legal aspects (LEG)	**Legal aspects** Section 3.4; Section 6.3
Organizational aspects (ORG)	**Organizational aspects** Section 3.4; Section 6.4

Appendix B – Search strategies

B.1 – Search strategies for the benefit assessment

B.1.1 – Searches in bibliographic databases

Search for systematic reviews

1. MEDLINE

Search interface: Ovid

- Ovid MEDLINE(R) ALL 1946 to July 21, 2021

The following filter was adopted:

- Systematic review: Wong [75] – High specificity strategy

#	Searches
1	exp Stress, Psychological/
2	(stress* or burnout*).ti,ab.
3	or/1-2
4	Yoga/
5	yoga*.ti,ab.
6	or/4-5
7	3 and 6
8	Cochrane database of systematic reviews.jn.
9	(search or MEDLINE or systematic review).tw.
10	meta analysis.pt.
11	or/8-10
12	11 not (exp animals/ not humans.sh.)
13	7 and 12
14	13 and (english or german).lg.

2. Health Technology Assessment Database

Search interface: INAHTA

#	Searches
1	"Stress, Psychological"[mhe]
2	stress* OR burnout*
3	#2 OR #1
4	"Yoga"[mh]
5	yoga*
6	#5 OR #4
7	#6 AND #3

Search for primary studies

1. MEDLINE

Search interface: Ovid

- Ovid MEDLINE(R) 1946 to November 24, 2021

The following filter was adopted:

- RCT: Lefebvre, Glanville [76] – Cochrane Highly Sensitive Search Strategy for identifying randomized trials in MEDLINE: sensitivity-maximizing version (2008 revision)

#	Searches
1	exp Stress, Psychological/
2	(stress* or burnout*).ti,ab.
3	or/1-2
4	Yoga/
5	yoga*.ti,ab.
6	or/4-5
7	randomized controlled trial.pt.
8	controlled clinical trial.pt.
9	(randomized or placebo or randomly or trial or groups).ab.
10	drug therapy.fs.
11	or/7-10
12	11 not (exp animals/ not humans.sh.)
13	and/3,6,12
14	(animals/ not humans/) or comment/ or editorial/ or exp review/ or meta analysis/ or consensus/ or exp guideline/
15	hi.fs. or case report.mp.
16	or/14-15
17	13 not 16
18	17 and (english or german or multilingual or undetermined).lg.

Search interface: Ovid

- Ovid MEDLINE(R) Epub Ahead of Print and In-Process, In-Data-Review & Other Non-Indexed Citations November 24, 2021

#	**Searches**
1	(stress* or burnout*).ti,ab.
2	yoga*.ti,ab.
3	and/1-2
4	(clinical trial* or random* or placebo).ti,ab.
5	trial.ti.
6	or/4-5
7	and/3,5

2. Embase

Search interface: Ovid

- Embase 1974 to 2021 November 24

The following filter was adopted:

- RCT: Wong [75] – Strategy minimizing difference between sensitivity and specificity

#	**Searches**
1	exp stress/
2	(stress* or burnout*).ti,ab.
3	or/1-2
4	exp yoga/
5	yoga*.ti,ab.
6	or/4-5
7	3 and 6
8	(random* or double-blind*).tw.
9	placebo*.mp.
10	or/8-9
11	7 and 10
12	11 not medline.cr.
13	12 not (exp animal/ not exp human/)
14	13 not (Conference Abstract or Conference Review or Editorial).pt.
15	14 not ((afrikaans or albanian or arabic or armenian or azerbaijani or basque or belorussian or bosnian or bulgarian or catalan or chinese or croatian or czech or danish or dutch or english or esperanto or estonian or finnish or french or gallegan or georgian or german or greek or hebrew or hindi or hungarian or icelandic or indonesian or irish gaelic or italian or japanese or korean or latvian or lithuanian or macedonian or malay or norwegian or persian or polish or polyglot or portuguese or pushto or romanian or russian or scottish gaelic or serbian or slovak or slovene or spanish or swedish or thai or turkish or ukrainian or urdu or uzbek or vietnamese) not (english or german)).lg.

3. The Cochrane Library

Search interface: Wiley

- Cochrane Central Register of Controlled Trials: Issue 11 of 12, November 2021

#	**Searches**
#1	[mh "Stress, Psychological"]
#2	(stress* or burnout*):ti,ab
#3	#1 or #2
#4	[mh ^"Yoga"]
#5	yoga*:ti,ab
#6	#4 OR #5
#7	#3 AND #6
#8	#7 not (*clinicaltrial*gov* or *who*trialsearch* or *clinicaltrialsregister*eu* or *anzctr*org*au* or *trialregister*nl* or *irct*ir* or *isrctn* or *controlled*trials*com* or *drks*de*):so
#9	#8 not ((language next (afr or ara or aze or bos or bul or car or cat or chi or cze or dan or dut or es or est or fin or fre or gre or heb or hrv or hun or ice or ira or ita or jpn or ko or kor or lit or nor or peo or per or pol or por or pt or rom or rum or rus or slo or slv or spa or srp or swe or tha or tur or ukr or urd or uzb)) not (language near/2 (en or eng or english or ger or german or mul or unknown))) in Trials

4. PsycInfo

Search interface: Ovid

- APA PsycInfo 1806 to November Week 3 2021

The following filter was adopted:

- RCT: Eady, Wilczynski and Haynes [77] combination of terms – small drop in specificity with a substantive gain in sensitivity

#	Searches
1	exp stress/
2	(stress* or burnout*).ti,ab.
3	or/1-2
4	Yoga/
5	yoga*.ti,ab.
6	or/4-5
7	3 and 6
8	(double-blind or randomized or randomly assigned).tw.
9	7 and 8
10	9 not ((albanian or arabic or bulgarian or catalan or chinese or croatian or czech or danish or dutch or english or estonian or farsi iranian or finnish or french or georgian or german or greek or hebrew or hindi or hungarian or italian or japanese or korean or lithuanian or malaysian or nonenglish or norwegian or polish or portuguese or romanian or russian or serbian or serbo croatian or slovak or slovene or spanish or swedish or turkish or ukrainian or urdu) not (english or german)).lg.

B.1.2 – Searches in study registries

ClinicalTrials.gov

Provider: U.S. National Institutes of Health

- URL: http://www.clinicaltrials.gov
- Type of search: Expert Search

Search strategy
AREA[ConditionSearch] (stress OR burnout) AND AREA[InterventionSearch] yoga

2. International Clinical Trials Registry Platform Search Portal

Provider: World Health Organization

- URL: https://trialsearch.who.int
- Type of search: Standard Search

Search strategy
(stress OR burnout) AND yoga [without synonyms]

B.2 – Search strategies for the health economic evaluation

1. MEDLINE

Search interface: Ovid

Ovid MEDLINE(R) ALL <1946 to November 24, 2021>

The following filters were adopted:

- Health economic study: Glanville, Fleetwood [78] – Emory University (Grady)

#	Searches
1	exp Stress, Psychological/
2	(stress* or burnout*).ti,ab.
3	or/1-2
4	Yoga/
5	yoga*.ti,ab.
6	or/4-5
7	(economic$ or cost$).ti.
8	cost benefit analysis/
9	treatment outcome/ and ec.fs.
10	or/7-9
11	10 not ((animals/ not humans/) or letter.pt.)
12	and/3,6,10
13	12 not (comment or editorial).pt.
14	13 and (english or german).lg.

2. Embase

Search interface: Ovid

- Embase 1974 to 2021 November 24

The following filters were adopted:

- Health economic study: GlanvilleGlanville, Fleetwood [78] – Emory University (Grady)

#	**Searches**
1	exp stress/
2	(stress* or burnout*).ti,ab.
3	or/1-2
4	exp yoga/
5	yoga*.ti,ab.
6	or/4-5
7	(Cost adj effectiveness).ab.
8	(Cost adj effectiveness).ti.
9	(Life adj years).ab.
10	(Life adj year).ab.
11	Qaly.ab.
12	(Cost or costs).ab. and Controlled Study/
13	(Cost and costs).ab.
14	or/7-13
15	and/3,6,14
16	15 not medline.cr.
17	16 not (exp animal/ not exp human/)
18	17 not (Conference Abstract or Conference Review or Editorial).pt.
19	18 and (english or german).lg.

3. Health Technology Assessment Database

Search interface: INAHTA

#	Searches
1	"Stress, Psychological"[mhe]
2	stress* OR burnout*
3	#2 OR #1
4	"Yoga"[mh]
5	yoga*
6	#5 OR #4
7	#6 AND #3