Chapter 2

REVIEW OF LITERATURE

The databases of research papers MEDLINE, Google Scholar, pubmed and PsychINFO were searched from 2010 to 2025 for the topics 'Body pain' 'insomnia middle aged women' ' Reiki existential therapy and intervention for pain and insomnia', with an emphasis on treatment. This search yielded 732 articles, but only 215 were relevant to pain, insomnia and midlife women which were prioritized after eligibility checks. The Researcher systematically searched, MEDLINE, Google Scholar, pubmed and PsychINFO for the studies.

Studies on Pain and Insomnia

2.1.1 Mechanism of Pain - Sleep interaction

Akhtar, Bhatia and Dwivedi (2025) studied Pain Phenotyping in 6 patients with chronic Insomnia and sex matched healthy controls. The results showed that chronic insomnia was associated with dysregulation of the central pain modulation systems, particularly within the descending inhibitory pathways originating in the brainstem and modulated by the periaqueductal gray and rostroventromedial medulla.

Charles et al. (2025) assessed the impact of pain interference on insomnia severity among 17 older surgical patients (≥70 years) scheduled for total knee, total hip or spine surgery, One week before their scheduled surgery, participants were administered the Insomnia Severity Index questionnaire and the Patient Reported Outcomes Measurement Information System. The results showed that the pain interference contributed to greater insomnia severity in older surgical patients.

Gold et al. (2025) analyzed the randomized clinical trial on the impact of behavioural insomnia Treatment for 469 U.S. Veterans (mean age = 63 years) with pain severity were administered 4-5 sessions of behavioural insomnia treatment, including cognitive behavioural therapy for insomnia. Results showed that insomnia and sleep quality significantly improved post treatment and at follow-up, no significant changes were observed in pain severity outcomes and treatment effects on pain did not vary by age, sex, or race. The findings suggested that while behavioural insomnia treatments were effective for improving sleep, they do not produce changes in perceived pain severity in veterans.

Malaktaris, Holloway, Clare and Colvonen (2025) examined the impact of integrated cognitive behavioural therapy for insomnia and prolonged exposure on insomnia, PTSD and chronic pain among Veterans. A total of 94 Veterans with comorbid PTSD and chronic musculoskeletal pain were included in a randomized controlled trial. Results showed that the integrated PTSD/insomnia treatment was effective even in the presence of chronic pain and offered additional benefits for pain. This highlighted the efficacy and efficiency of a combined therapeutic approach for Veterans facing the complex interplay of PTSD, insomnia and chronic pain**.**

Nakad et al. (2025) scrutinized on the relationship between insomnia, pain inhibitory capacity, and temporal summation of pain in older adults using endotoxin. In this randomized, double blind, placebo controlled trial involved about 114 pain free older adults (mean age ≈63), participants with and without insomnia were randomized to receive either low dose endotoxin or placebo. No main effects of insomnia on inflammation or pain facilitation (temporal summation) were observed and females with insomnia showed heightened pain facilitation after endotoxin compared to males. The findings suggested systemic inflammation impairs central pain inhibition in older adults and insomnia may alter inflammatory pain responses in a sex specific manner.

Nowakowski et al. (2025) evaluated the efficacy of Cognitive Behavioural Therapy for Insomnia in reducing insomnia severity among patients recovering from hip or knee joint arthroplasty. A total of 70 participants age 67years, 68% female) were randomly assigned to either Cognitive Behavioural Therapy –I (n = 35) or a Health Education Control group (n = 35). Assessments included the Insomnia Severity Index, PROMIS Pain measures, and Hip/Knee Osteoarthritis Outcome Score (HOOS/KOOS) before and after the intervention. While it did not directly impact pain or function compared to the control, reductions in insomnia severity were associated with improvements in pain and quality of life, suggesting the value of treating insomnia in post surgical recovery.

Rauf et al. (2025) examined on prevalence of insomnia in 65 patients with chronic low back pain for six months. The Oswestry Disability Index and the Numeric Rating Scale were used to measure functional disability and pain intensity, respectively, while the Insomnia Severity Index was used to measure the severity of insomnia. As a result, higher insomnia scores were found to be significantly correlated with more severe pain, indicating that sleep disturbances may be a contributing factor to increased pain perception and disability.

A Research by Bonetti, Sangalli and Boggero (2024) examined the relationship between insomnia and pain in patients with chronic orofacial pain. In this cross sectional study of 450 treatment seeking patients with chronic orofacial pain, 45.1% reported elevated insomnia symptoms. Patients with sleep onset insomnia reported greater pain intensity and interference than those without sleep onset insomnia. In contrast, early morning awakening insomnia was not significantly associated with pain or health outcomes. Findings suggested that insomnia, particularly sleep onset insomnia, is strongly associated with poorer pain and mental health outcomes in chronic orofacial pain and should be addressed in treatment.

This study by Saleh et al. (2025) analyzed the impact of e-learning adoption on mental and physical health outcomes among students and staff in Palestine, a developing country with limited prior experience in e-learning. A total of 1116 participants (103 staff and 1013 students) were surveyed. Results showed that 45.7% experienced moderately severe insomnia, with a higher prevalence among female participants. These findings underscore the importance of addressing psychological, physical, and social factors - not just pedagogical concerns - in the implementation of e- learning systems in resource limited settings.

Ozkar (2024) studied the linkage between insomnia and post operative pain in athletes in Turkey. This study examining the impact of insomnia on postoperative pain in athletes undergoing elective laparoscopic cholecystectomy, 70 participants were divided into insomnia (n = 35) and control (n = 35) groups. Postoperative pain was measured using the Numeric Rating Scale at multiple time points (1, 2, 4, 8, 12, and 18 hours after surgery). Athletes with insomnia reported significantly higher pain scores and required more tramadol and rescue analgesia than controls. The findings suggested that preoperative insomnia served as a predictive factor for acute postoperative pain in athletic populations.

Cody et al. (2024) on) examined 10 adults with HIV and chronic pain received 4 weeks of telephone delivered Brief Behavioural Treatment for Insomnia, while 10 controls received brief mindfulness training. Participants in the Brief Behavioural Treatment for Insomnia group showed significantly greater reductions in insomnia severity and pain interference compared to the brief mindfulness training group, with improvements in sleep maintained at 1 month follow-up. The findings suggested that Brief Behavioural Treatment for Insomnia may offer an accessible and effective intervention for improving both sleep and pain in people with HIV.

Mariem et al. (2024) scrutinized Insomnia and pain in COVID-19 survivors. In this study of 121 Tunisian COVID-19 survivors assessed 6–9 months post discharge, this study examined the prevalence and association between insomnia and pain. Both insomnia severity (ISI) and pain intensity (VAS) significantly increased after COVID-19 infection. The prevalence of insomnia and pain among long haulers was 30.56% and 26.4%, respectively. Insomnia was significantly correlated with pain and age and was more prevalent in females.

Ueda et al. (2024) studied 301 patients with chronic non cancer pain, 72.8% met the Athens Insomnia Scale criteria for insomnia. The results showed that patients with insomnia showed significantly higher scores in pain intensity, pain catastrophizing, anxiety and depression, pain related disability, and lower quality of life, compared to those without insomnia. The findings suggested that psychological distress, pain severity, and impaired quality of life are key risk factors for insomnia in chronic pain populations.

Soltani et al. (2023) assessed on Pain and insomnia as risk factors for first lifetime onsets of anxiety, depression, and suicidality in adolescence. This study involves of 145 youth (age 13) with parental histories of mood and/or anxiety disorders, baseline measures of pain symptoms, catastrophizing and insomnia severity were used to predict the first onset of depressive and anxiety disorders and suicidality over 18 months. Chronic pain was reported by 25% at baseline. Pain interference, intensity, catastrophizing and insomnia severity significantly predicted the onset of depressive disorders, while insomnia severity predicted anxiety onset. Chronic pain, pain intensity, and interference also predicted new onset suicidality. The findings highlighted chronic pain and insomnia as early risk markers for youth mental health issues, emphasizing the need for early identification and intervention.

De Souza, Vilella and Oliveira (2022) investigated the relationship between pain intensity and insomnia frequency in women with a diagnosis of deep endometriosis. Results revealed that women with moderate or severe pain had a high frequency of insomnia, increasing management complexity in patients with deep endometriosis. Pain intensity, pain duration, and low education level increased the chance of insomnia in those patients.

Findings suggest pain and insomnia has a strong correlation. Also the above studies shows the importance of identification and the effect of psychological intervention.

2.1.2 Indian studies on pain and insomnia

Goyal and Mohanty (2022) used the data from wave 1 of the Longitudinal Ageing Study in India conducted in 2017-2018. This study was restricted to 58,328 individuals from all states (except Sikkim), aged 45 years and above. It is estimated that approximately 37% of Indian middle aged and older populations were often troubled with pain. Study concluded that Pain reduces the quality of life among middle aged adults and older adults in India. This evidence could potentially help the policymakers to consider pain as a significant determinant of quality of life in India.

Bang et al. (2021) investigated two villages selected from a cluster of 39 villages in Gadchiroli district in India. All residents'≥20 years of age were surveyed in January 2010 by trained surveyors by making household visits. The 12 months period prevalence of pain in back and extremities was 75% in men and 91% in women. Among participants across the age and sex groups, the prevalence of mild pain was higher than severe pain at all the anatomical sites. Among various seasons, the highest prevalence of pain was in the rainy season (14%).

To assess the prevalence, pain intensity, and quality of life associated with Low back pain in northern India research was carried out by Bansal, Asrar, Ghai and Pushpendra (2020). A total of 1,531 patients were interviewed. Lifetime, point, 1 year, and age standardized lifetime prevalence (95% CI) were 57% (54%-59%), 32% (30%-34%), 48% (46%-51%), and 59% (56%-62%), respectively. Low back pain was highly prevalent in India, adversely affecting quality of life in respondents. This calls for action by health officials to plan prevention, education and management programmes in the society.

Kirubakaran and Dongre (2019) examined 55 field practice villages of the Rural Health Training Centre of the Department of Community Medicine, SMVMCH, Puducherry, by an Exploratory Mixed Method study design, where a qualitative phase (indepth interviews) followed the quantitative phase (Survey). A representative sample

of 850 respondents was selected by two stage cluster sampling. Since the chronic pain was found to be associated with aging and the presence of at least one of the chronic morbidities, it is crucial for treating community physicians to consider the comorbid conditions while managing chronic pain in elderly

Gulia and Kumar (2018) recorded that as people age; they tend to have a harder time falling asleep and more trouble staying asleep. Older people spend more time in the lighter stages of sleep than in deep sleep. Common medical problems of old age such as hypertension diabetes mellitus, renal failure, respiratory diseases such as asthma, immune disorders, gastroesophagal reflux disease, physical disability, dementia, pain, depression and anxiety were associated with sleep disturbances.

Two sets of questionnaires were designed by Saxena (2018). The first, a screening questionnaire was used telephonically to identify the prevalence of chronic pain and should persist; the second, a detailed questionnaire was administered, to characterize the features and impact of pain. The interviews were carried out face to face. A total of 4326 Indian patients were screened, and 836 completed a detailed pain questionnaire. In a rapidly aging population, chronic pain is emerging as a significant healthcare problem which may likely to exert an increasing toll on the existing social infrastructure within the next two decades.

Yaremchuk (2018) revealed that although some physiologic changes in sleep are a normal part of the aging process, other sleep complaints made by elderly patients can indicate a primary or secondary sleep disorder. It is important to recognize the difference between normal age related changes and what may require further testing to make an accurate diagnosis. Proper diagnosis and treatment of sleep disorders can improve the quality of life and safety for the elderly and their families.

Many studies have just measured the pain and insomnia but did not use any intervention approaches to deal with it. Few studies have examined integrative approaches for midlife women in non-clinical contexts. These research gaps justify the examination of integrative intervention combining psychological and complementary methods.

2.1.3 Bidirectional Relationship between insomnia and pain

Hamaoka et al. (2022) studied chronic Lumbar Pain and Insomnia in College aged students. This study involves of 494 university students, a web based survey assessed insomnia severity, pain characteristics and mental health indicators. Stepwise logistic regression revealed that chronic pain localized in the lumbar region was significantly associated with higher insomnia severity. The findings suggested that lower back pain was key contributor to sleep disturbances in college students.

Rehman (2022) investigated on The National Sleep Foundation‘s 2015 Sleep in America poll, one in five Americans suffer from chronic pain. A majority of these individuals reported substandard sleep quality, and one in four people with chronic pain also have a sleep disorder. Sleep and pain appear to have a bidirectional relationship. For those living with chronic pain, prioritizing sleep may be a key component in the path to recovery.

Souza, Vilella and Oliveira (2022) studied the relationship between pain intensity and insomnia in women with deep endometriosis. This study involves 234 women with deep endometriosis, those with moderate to severe pelvic pain reported significantly higher rates of insomnia compared to women with mild or no pain. The findings suggested that pain severity was a key contributor to insomnia in women with deep endometriosis.

Todd, Austin, Clarke, and Notebaert (2022) scrutinized chronic pain and insomnia are highly comorbid: Approximately 50% of those with chronic pain experience insomnia or clinically significant sleep disturbances, and 50% of those with insomnia experience chronic pain. Further, these conditions can be extremely disabling, particularly when they cooccur. There was increasing recognition of the need to tackle both chronic pain and insomnia together, as evidenced by growing empirical research in this area. On the basis of their findings and separate theoretical models, they present a novel, testable cognitive model of comorbid chronic pain and insomnia, to guide future research in this area.

Haack et al. (2020) found that pain can be both a cause and a consequence of sleep deficiency. This bidirectional relationship between sleep and pain had important implications for clinical management of patients, but also for chronic pain prevention and public health more broadly. In addition, they believed that it will provide a broad overview of pharmacological and non pharmacological approaches for the management of chronic pain comorbid with sleep disturbances and for the management of post operative pain, as well as argued the effects of sleep disturbing medications on pain amplification.

Burgess et al. (2019) evaluated both direct and indirect (mediated) pathways through which sleep disturbance might be related to chronic pain intensity and function. Cross-sectional mediation analyses revealed that the positive associations between sleep disturbance and chronic pain intensity were conveyed statistically not only via significant indirect effects of elevated emotional distress, lower positive affect, and greater catastrophizing associated with sleep disturbance, but also by significant direct effects of sleep disturbance on chronic pain intensity.

Bair et al. (2015) showed the prevalence of chronic pain has been estimated to exist in 17-25% of the general population, whereas approximately 10-15% of individuals live with insomnia. 24-32% of patients with chronic pain also reported experiencing insomnia. This was double the proportion of individuals in the general population. In addition, when insomnia was more broadly defined, the incidence of individuals living with both chronic pain and insomnia increases to a range of 40-80%. This signifies that patients with chronic pain were more likely to exhibit symptoms of insomnia.

All these above studies shows the bidirectional relationship of pain and insomnia but none of theses studies have used any coping strategies for pain and insomnia.

2.1.4 Indian Middle life women

Agarwal et al. (2018) conducted a research on 150 menopausal women aged 40-60 years were interviewed to document of 12 symptoms (divided into somatic, psychological and urogenital domain) commonly associated with menopause by administering modified MRS questionnaire. The mean age of menopause was 49.8 years (±4.9) (range 43 - 57 years). Perimenopausal women (47.2%) experienced higher prevalence of somatic and psychological symptoms compared to premenopausal (n=15.6) and postmenopausal (37.2%) women. Symptoms had variable onset in relation to menopause. Some women experienced symptoms earlier during perimenopause while some experienced them at a later time. The application of various coping methods, including the establishment of social support networks, was warranted to enhance postmenopausal women‘s behaviours in different aspects.

Frange et al. (2017) examined the impact of insomnia on pain in postmenopausal women. It involved 57 postmenopausal women, participants were categorized into control, sub threshold insomnia and insomnia groups to assess the relationship between

insomnia, pain and climacteric symptoms. Women with insomnia reported significantly greater pain interference in daily functioning and more severe climacteric symptoms compared to controls, despite no differences in pain intensity or objective sleep patterns. The findings suggested that insomnia in postmenopausal women was associated with greater functional impairment and symptom burden, underscoring the importance of addressing sleep disturbances to improve quality of life in this population.

Gupta (2015) evaluated the prevalence of low back pain in non working rural housewives. Also, an attempt has been made to determine the impact of social burden on low back pain. A sample of 301 non working rural housewives of Kanpur, aged between 30–70 years was selected. The findings of the study suggested that 83% of the non working rural housewives had low back pain and activity restriction due to their pain. They had significant impact of social burden on their low back pain. High prevalence (83%) of low back pain among rural housewives was an alarming sign for the society.

A cross-sectional study was carried out by Darivemula et al. (2016) at tertiary care hospital in New Delhi. All Group C desk job workers involved in the administrative work were included in the study. Four hundred and forty one participants were screened for work related neck pain by using pretested semi structured questionnaire. Majority of participants aged between 31-50 years. One year prevalence of neck pain and work related neck pain was reported as 43.3%, (95% CI 38.7%-47.9%) and 28.3%, (95% CI 24.3%-32.7%) respectively. High one year prevalence of work related neck pain was reported among desk job workers. Burden of work related neck pain was reported more among females as compared to males.

A cross sectional study was carried out by Muthunarayanan, Logaraj, Ramraj, Balaji and Russel (2015) among 1246 participants in 12 villages of Kattankulathur block in Kancheepuram District of Tamil Nadu from August 2013 to October 2013. Women over the age of 40 years who had attended medical camp with complaint of pain (intermittent or continuous) for 1 month or longer were included in the study. Results show that appropriate strategy and guidelines to be developed to manage the problem of pain among above 40 years age group at primary care level of the rural communities in India.

The studies on Indian midlife women suffering from pain and insomnia are few, almost no studies are done on the intergrated intervention to deal with pain and insomnia.

2.1.5 Intervention studies on pain and insomnia

Altieret al. (2025) assessed on cognitive behavioural therapy for insomnia improves pain squeal in traumatic brain injury. The participants (N=49) were randomly assigned to receive either on cognitive behavioural therapy-I or sleep hygiene education. A subgroup with moderate to severe pain (N=13) was analyzed. It was significantly improved anxiety, depression, pain catastrophizing, pre sleep arousal, sleep quality and sleep efficiency over time compared to the control group. However, pain severity itself did not significantly change. The findings suggested that cognitive behavioural therapy -I may enhance quality of life by targeting psychological and sleep related contributors to chronic pain in TBI patients.

Salween-Dermer et al. (2025) examined on Cognitive Behavioural Therapy for Insomnia may improve Sleep and Pain in Patients with Crohn‘s Disease. In a randomized controlled study, patients with mild to moderate active Crohn‘s disease and comorbid insomnia received Cognitive Behavioural Therapy for Insomnia. The intervention group showed significantly greater improvements in insomnia severity and wake after sleep onset compared to waitlist controls. In combined analyzes, Cognitive Behavioural Therapy for Insomnia led to significant improvements in sleep continuity, Crohn‘s Disease symptom severity, pain intensity, pain interference, fatigue, anxiety, and depression. C-reactive protein levels trended toward improvement, while foecal calprotectin remained unchanged. Findings support Cognitive Behavioural Therapy for Insomnia as a valuable intervention for improving sleep and pain in Crohn‘s Disease patients, with potential inflammatory benefits.

Gould et al. (2025) assessed on efficacy of Brief Behavioural Therapy for Insomnia for Veterans with PTSD versus Brief Behavioural Therapy for Insomnia with Eszopiclone. In veterans with PTSD and comorbid insomnia and sleep apnea (COMISA), a randomized controlled trial compared Brief Behavioural Therapy for Insomnia alone versus Brief Behavioural Therapy for Insomnia combined with eszopiclone (2 weeks). Both groups showed significant and similar improvements in sleep quality over 24 weeks. However, the combination therapy led to greater early reductions in insomnia severity and sleep latency, and a higher insomnia remission rate at 6 weeks. The combined group also had improved CPAP adherence at 6 weeks, though differences diminished by 24 weeks. Findings suggested that while Brief Behavioural Therapy for Insomnia alone is effective long term, adding eszopiclone can provide faster symptomatic relief and early adherence gains in veterans with PTSD and comorbid insomnia and sleep apnea.

Nam et al. (2025) on mindfulness based therapy for insomnia in Black women: a pilot randomized controlled trial. Participants were randomized to receive either mindfulness based therapy for insomnia (mindfulness meditation + behavioural sleep strategies) or health education on lifestyle topics. All 30 participants completed the 8 weeks intervention with high attendance (97% attending ≥ 6 sessions). The findings suggested mindfulness based therapy for insomnia was feasible, acceptable and potentially more effective than health education for addressing both sleep and mental health outcomes in Black women. Further studies with larger sample and longer follow-up are warranted.

In this randomized controlled trial by Erickson et al. (2024) on the effectiveness of cognitive behavioural therapy for insomnia on sleep outcomes in the context of pain among older adult veterans. This study involves about 106 older veterans (age 72) with chronic insomnia disorder; five sessions of manual based cognitive behavioural therapy for insomnia were delivered by non clinician ―sleep coaches under supervision. It is significantly improved insomnia severity, sleep quality, fatigue and daytime sleepiness. Notably, participants with higher baseline pain reported greater improvements in insomnia symptoms, though pain did not influence other sleep related outcomes. The results indicated that chronic pain does not diminish - and may even enhance its efficacy for insomnia in older adults, supporting its use regardless of pain severity in this population.

Golovacheva, Fateeva and Parfenov (2024) analyzed the cognitive behavioural therapy in the treatment of patients with chronic migraine and concomitant chronic insomnia. Ninety six patients were randomized into two groups: one received the cognitive behavioural therapy -integrated multidisciplinary programme alongside standard migraine treatment; the other received standard pharmacotherapy and sleep hygiene advice. At 3, 6, 12, and 18 months, the cognitive behavioural therapy group showed significantly greater and sustained improvements in headache frequency, insomnia severity, anxiety, depression and migraine related disability. At 18 months, 81.5% of the cognitive behavioural therapy group achieved clinical improvement in migraine symptoms and 85% in insomnia, compared to 33% and 38% in the standard treatment group, respectively. The findings supported the long term efficacy of cognitive behavioural therapy as part of a multidisciplinary approach for managing CM and CI.

Malfliet et al. (2024) analyzed on Cognitive Behavioural Therapy for Insomnia in Pain Management for Nonspecific Chronic Spinal Pain. This study involves 123 patients with nonspecific chronic spinal pain and comorbid insomnia, participants received either cognitive behavioural therapy for insomnia integrated with best evidence pain management or best evidence pain management alone. Over a 12 months follow-up, both groups showed reductions in pain intensity, with a 40% decrease in the cognitive behavioural therapy for insomnia integrated with best evidence pain management group and a 24% decrease in the best evidence pain management - only group. These results support the integration of cognitive behavioural therapy for insomnia into pain treatment for patients with nCSP and insomnia to improve sleep and related outcomes, even if pain intensity reduction is comparable.

Gulia and Sreedharan (2023) attained complete emotional, physical and mental relaxation of body and mind. In postmenopausal phase of life, regular practice of Yoga Nidra at home preferably in morning, can help in reduction in anxiety and pain associated with early morning awakenings. This non pharmacological technique has a therapeutic potential to improve sleep quality and quantity and overall well-being.

Ashar et al. (2022)analyzed 33 of 50 participants (66%) randomized to 4 weeks of pain reprocessing therapy were pain free or nearly pain free at post treatment, compared with 10 of 51 participants (20%) randomized to placebo and 5 of 50 participants (10%) randomized to usual care, with gains largely maintained through 1 year follow-up. Psychological treatment focused on changing beliefs about the causes and threat value of primary chronic back pain provided substantial and durable pain relief.

Liu, Yang and Jia (2022) explored the bidirectional relationship between chronic pain and insomnia symptoms in adolescents in Shandong, China. A total of 7072 adolescents (mean age 14.6) were assessed at baseline and again after one year. At baseline, 8.4% reported frequent pain and 15.2% had moderate to severe insomnia symptoms; similar rates were observed at follow-up. Logistic regression analyses revealed a reciprocal association: adolescents with frequent pain at baseline had higher odds of developing insomnia symptoms after one year, and those with insomnia symptoms at baseline had higher odds of developing frequent pain. This bidirectional link

held true across headache, stomachache and non specific pain and remained significant after adjusting for depression, substance use and family environment. The study emphasized the mutual reinforcement of pain and insomnia in adolescents, highlighting the need for integrated screening and interventions in both clinical and school settings.

Husak and Bair (2020) found that cognitive behaviour therapy was the most common non pharmacological treatment. Cognitive behaviour therapy for insomnia was found to improve sleep by decreasing the amount of time taken to fall asleep and increasing the duration of sleep. Reported pain was also mildly improved. A combination of both pharmacological and non pharmacological treatments is a promising avenue to alleviate the symptoms and co occurrence of both conditions.

Skelly et al. (2020) observed evidence from 2018 report assessing persistent improvement in outcomes following completion of therapy for non invasive, non pharmacological treatment for selected chronic pain conditions. Trials identified subsequent to the earlier report largely support previous findings - namely that exercise, multidisciplinary rehabilitation, acupuncture, cognitive behaviour therapy, mindfulness practices, massage and mind body practices most consistently improve function and/or pain beyond the course of therapy for specific chronic pain conditions.

Compared to patients with mild or moderate pain, individuals with severe pain report higher levels of emotional discomfort. Additionally, research by Wager (2022) shown a strong correlation between opioid usage and problems related to stress, anxiety and depression. Findings highlighted the value of psychological therapies as a crucial part of pain management, as they can help patients feel better mentally, lessen their dependence on opioids and in certain situations, even replace medication assisted analgesia.

Anantharaman and Muthunarayanan (2017) among 7124 female patients who attended weekly mobile medical camp conducted in 30 villages selected conveniently in the rural block of Kancheepuram District of Tamil Nadu in the year 2013 and analyzed for the presence or absence types and site of pain (intermittent or continuous) for 1 month or longer. As the age advances the prevalence of myalgia, chest pain, knee pain, multiple joint pains also increases and it was found statistically significant. As the age advances the patients with pain symptoms also increased with 29.5% of the patients below the age 19 years to 74.5% of the patients above the age of 60 years. In conclusion more than 60% of the patients attending of the medical camp complained of pain.

Vadivelu et al. (2017) showed the relationship between depression and pain is complex, as suggested by numerous studies that propose depression to be a moderator of the relationship between pain severity, physical functioning and opioid use. The intricate relationship between pain and psychology was evidenced by the clinical overlap in their presentations and the overlap between the anatomic regions in the brain associated with the emotional and sensory features of pain and the areas affected by depression. Studies are beginning to improve the understanding of these two systems, but more studies are needed to elucidate the relationship.

Midilli and Eser (2015) investigated the effect of Reiki on pain, anxiety and hemodynamic parameters on postoperative days 1 and 2 in patients who had undergone delivery. Results showed that Reiki application reduced the intensity of pain, the value of anxiety and the breathing rate, as well as the need for and number of analgesics.However, it did not affect blood pressure or pulse rate. Reiki application as a nursing intervention was recommended as a pain and anxiety relieving method in women after caesarean delivery.

Dureja et al. (2014) analyzed 5004 respondents from eight cities across India, on the overall point prevalence of chronic pain was 13%, and the mean intensity of pain on NRS scale was 6.93. Respondents with chronic moderate and chronic severe pain were 37% and 63%, respectively. A significant population of India suffers from chronic pain, and their QoL is affected leading to disability. A proportion of respondents receiving pain treatment were taking nonprescription medications with a majority of respondents on NSAIDs. A very few were consulting pain management specialists.

Saccomano (2014) found that sleep pattern changes are considered normal as individuals age. However, changes in sleep patterns can ultimately affect the quality of life of many older adults. In addition, many sleep conditions were associated with an increase in morbidity and mortality. It is essential for clinicians to recognize sleep changes to lead to appropriate treatment.

2.1.6. Intervention studies

Baser and Mollaoglu (2025) studied the effect of Reiki on Pain, Fatigue, and Itching in Haemodialysis Patients. Seventy four participants were divided into an intervention group (10 Reiki sessions over 5 weeks) and a control group (routine treatment only). Results showed significant reduction in pain, fatigue and itching in the Reiki group, particularly by the second and third follow-up measurements . The control group experienced no change in pain and fatigue and an increase in itching. The findings suggested that Reiki can be an effective complementary therapy for symptom management in haemodialysis patients, potentially improving their overall quality of life.

Kahveci, Engin and Goker (2025) evaluated the on the effect of Reiki applied to cancer patients on pain, anxiety and stress levels. About 58 patients were assigned to either a Reiki group, Sham Reiki (placebo) group, or Progressive Relaxation Exercise (control) group. Interventions were administered over 4 days, with follow-up assessments at 4 days, 21 days and 3 months. The Reiki group showed the greatest and most sustained reductions in pain and anxiety compared to other groups. While cortisol levels did not differ significantly between groups, Reiki led to significantly lower stress scores by the 3 months follow-up. The findings suggested that Reiki was more effective complementary therapy than relaxation exercises for managing pain, anxiety and stress in cancer patients and could be integrated into nursing practice.

Prasad et al. (2025) studied the effect of Reiki on measures of well-being in low income patients with mental health diagnoses. Reiki was offered to adult outpatients at a community behavioural health center in Rochester, Minnesota. Patients were asked to report their ratings of pain, anxiety, fatigue and feelings (happy, calm) on 0 to 10 point numeric rating scales. As a result among 91 patients who completed a Reiki session during the study period, 74 (81%) were women. Major depressive disorder (71%), post traumatic stress disorder (47%) and generalized anxiety disorder (43%) were the most common diagnoses. Patient ratings of pain, fatigue, anxiety, stress, sadness and agitation were significantly lower and ratings of happiness, energy levels, relaxation and calmness were significantly higher after a single Reiki session.

Sisman, Bildirici and Atilgan (2025) analyzed on the effect of Reiki on Surgical Fear and Anxiety in Cholecystectomy Patients. A total of 48 patients were divided into three groups: Reiki, Sham Reiki and control. Pre and post intervention assessments were conducted using the Surgical Fear Questionnaire and Surgical Anxiety Questionnaire.

Results showed that patients in the Reiki group had significantly lower surgical fear and anxiety scores compared to both Sham Reiki and control groups. The findings suggested that Reiki was an effective complementary therapy for reducing preoperative fear and anxiety in surgical patients.

Sisman, Bildirici and Atilgan (2025) evaluated the impact of Reiki on pain, functional status and holistic well-being in 42 patients with knee osteoarthritis. The intervention groups received face to face and distance Reiki in addition to standard treatment, while the control group received standard treatment only. Compared to controls, the Reiki group reported significantly lower pain scores and improvements in holistic well-being, particularly in sadness, spiritual disruption, cognitive awareness and mood. The study suggested Reiki is a safe, noninvasive, and cost effective adjunct therapy for managing knee osteoarthritis symptoms.

McGuire et al. (2024) investigated the impact of Reiki and massage therapy on sleep quality among breast and prostate cancer patients undergoing hormone therapy who reported significant fatigue and insomnia. A total of 87 participants (56 breast cancer and 31 prostate cancer patients) were randomized into three groups: one receiving two massage sessions, another receiving two Reiki sessions, and a third receiving four Reiki sessions over four weeks. Each session lasted approximately 75 minutes. Of the participants, 75% (n = 65) met the criteria for clinically meaningful insomnia at baseline. Results showed that both Reiki and massage therapies improved sleep quality but Reiki demonstrated a more significant effect. Participants who received Reiki therapy had a mean reduction, while massage therapy showed a trend toward improvement with a mean reduction. Additionally, a clinically meaningful reduction in insomnia was achieved in 25% of Reiki recipients compared to 15% in the massage group. The findings suggested that Reiki is an effective non pharmacological approach to enhancing sleep quality in cancer patients undergoing hormone therapy, potentially more so than massage therapy.

Avci and Gun (2023) examined the effectiveness of Reiki in managing pain among cancer patients. This study involves a total of 572 participants with sample sizes ranging from 18 to 180. Among these studies, six used in person Reiki while one used distance Reiki. The findings revealed that Reiki reduced pain in five studies, whereas two studies did not find it effective. Overall, the results suggested that Reiki may have a positive effect on alleviating pain in cancer patients; however, due to the limited number of high quality studies and some inconsistencies in outcomes more research is recommended on Reiki.

Babakhani, Azarmi and Piri (2023) investigated the effectiveness of existential group therapy on existential anxiety and quality of life in the elderly. A total of 24 elderly participants (aged 60–85) were randomly assigned to experimental and control groups. The intervention included 12 online 90 minutes existential group therapy sessions. Pre and post intervention data were collected using the Existential Anxiety Questionnaire and the Quality of Life Questionnaire. Results, analyzed via ANCOVA, showed a significant reduction in existential anxiety in the existential group therapy group. However, there was no significant improvement in quality of life. The findings suggested that existential group therapy can effectively reduce existential anxiety in older adults and may be a beneficial treatment for addressing emotional concerns in later life.

Pattan Shetty, Ahmed and Deshpande (2022) evaluated the impact of hands on Reiki therapy on pain, depression, anxiety and quality of life in cancer survivors. Reiki was administered daily for seven consecutive days, and outcomes were assessed using the Brief Pain Inventory-Short Form, Hospital Anxiety and Depression Scale, and Functional Assessment of Cancer Therapy-General. Post intervention scores showed significant improvements in pain , depression and anxiety, and overall quality of life. The findings suggested that Reiki may be effective in alleviating pain and psychological distress, while enhancing quality of life among cancer survivors.

Karaman (2021) established the effect of Reiki therapy on the quality of life and fatigue levels in breast cancer patients receiving chemotherapy. It was a pre test, post test, quasi experimental study with a control group: 70 patients enrolled with 35 participants in the experimental group and 35 in the control group. The experimental group received 6 sessions of Reiki therapy. The findings of the study revealed that Reiki can reduce fatigue and increase the quality of life of breast cancer patients receiving chemotherapy.

A total of 1411 Reiki sessions were conducted by Baldwin and Rand (2021) and included in the analysis. Statistically significant improvements were observed for all outcomes of psychological and physical health, including pain, drowsiness, tiredness, nausea, appetite, shortness of breath, anxiety, depression, mood and overall well-being, with moderate to large effect. The results from this large scale multi site effectiveness trial suggested that a single session of Reiki improves physical and psychological health.

Bauereiß, Obermaier, Özünal and Baumeister (2019) analyzed 3461 records were identified, of which 30 unique studies (3511 participants) were included in the review and 24 studies were included in meta analyses. Existential interventions showed significant effects on existential well-being and quality of life at post treatment, on hope at post treatment and after 6 months and on self-efficacy at post treatment. This systematic review and meta analysis provides evidence that adult patients with cancer across all stages and types benefit from existential interventions. Future research should strive towards a higher standardization in particular with respect to outcome assessments.

Feizi et al. (2019) used the pre test post test design and included 68 homemakers with university education who live in Neyshabur, Iran. The women in the intervention group participated in 10 sessions of existential therapy group. The results emphasized that existential group therapy was effective in attitude to life and self flourishing of educated homemakers. This therapy can also be used to enhance individual and social abilities the importance and impact of existential psychotherapy in enhancing capabilities such as a positive attitude to life and self-flourishing.

The well validated 20 items Positive and Negative Affect Schedule was used by Natalie, Baldwin and Rand (2019) to assess affect, and brief, single item self-report measures to assess a wide range of physical and psychological variables immediately before (pre) and after (post) the Reiki session. Statistically significant improvements were observed negative affect, pain, drowsiness, tiredness, nausea, appetite, shortness of breath, anxiety, depression and overall well-being.

Dogan (2018) analyzed 212 participants were included in the meta-analysis. The result obtained after the final Reiki application was evaluated in Visual Analog Scale pain score. Reiki was observed to cause a statistically significant decrease in Visual Analog Scale score. Consequently, this meta analysis revealed that Reiki was an effective approach in relieving the pain.

Patients with advanced cancer have high rates of psychological distress, including depression, anxiety and spiritual despair. This study by Breitbart et al. (2018) examined the effectiveness of individual meaning-centered psychotherapy in comparison with supportive psychotherapy and enhanced usual care in improving spiritual well-being and quality of life and reducing psychological distress in patients with advanced cancer. The benefits of meaning centered psychotherapy appear to be unique to the intervention and highlight the importance of addressing existential issues with patients approaching the end of life.

Dezutter et al.(2017) investigated (a) how satisfied patients were with the attention of their practitioners to the impact of pain on biological, psychological, social and existential life domains and (b) how satisfaction with each domain was related to patient functioning. Patients reported low satisfaction with the attention of their practitioners to the social and existential domains. Only satisfaction with the existential domain was able to predict all functional outcomes above and beyond all other satisfaction variables modeled simultaneously.

McManus (2017) reviewed the available clinical studies of Reiki to determine whether there is evidence for Reiki providing more than just a placebo effect. The available English language literature of Reiki was reviewed, specifically for peer reviewed clinical studies with more than 20 participants in the Reiki treatment arm, controlling for a placebo effect. Viewed collectively, these studies provide reasonably strong support for Reiki being more effective than placebo. From the information currently available, Reiki is a safe and gentle ―complementary‖ therapy that activates the parasympathetic nervous system to heal body and mind. It has potential for broader use in management of chronic health conditions, and possibly in post operative recovery.

Midilli and Gunduzoglu (2016) studied Reiki in 45 patients with three randomized control groups including (1) 15 minutes of Reiki applied directly to the incision area, (2) 15 minutes of non trained personnel imitating Reiki (sham) therapy directly applied to the incision area, and (3) control. Findings demonstrated a reduction of pain, using a visual analog scale 0 to 100, in the Reiki group ($p < 0.05$) and a decreased need for analgesics as compared to the control and sham Reiki groups ($p < 0.05$). Reiki had no significant effect

on vital signs. One of the investigators, Midilli, had conducted an earlier study in the same patient population (n = 90) comparing 30 minutes of therapy over 10 body regions for 3 minutes each to a control group (Midilli & Ester, 2015). Findings showed statistically significant differences in pain intensity (p = 0.00), anxiety (p = 0.00), and rate of breathing (p = 0.00) between the two groups. Additionally, women needed fewer analgesics after Reiki.

Vos, Craig and Cooper (2015) investigate 21 eligible randomized controlled trials of existential therapy were found, from which 15 studies with unique data were included, comprising a total of 1,792 participants. Meaning therapies showed large effects on positive meaning in life immediately post intervention. Despite the small number and low quality of studies, some existential therapies appear beneficial for certain populations. They found particular support for structured interventions incorporating psychoeducation, exercises and discussing meaning in life directly and positively with physically ill patients. It is important to study more precisely which existential intervention works the best for which individual client.

Kissane (2012) studied on Advanced and progressive illnesses bring existential suffering to patients as an inevitable consequence of the disease and its treatment. Physicians need a typology of existential distress to aid its recognition and improved management. The major forms of existential challenge include (1) death anxiety (2) loss and change (3) freedom with choice or loss of control (4) dignity of the self (5) fundamental aloneness (6) altered quality of relationships (7) search for meaning and (8) mystery about what seems unknowable. An adaptive response to each challenge promotes equanimity, peace and fulfillment while sustaining engagement with life, creativity and joy. Physicians can do much to nurture courage and maintain each person's sense of meaning, value and purpose.

Vandervaart et al. (2011) analyzed the women who underwent an elective C-section and allocated to either usual care (control, n = 40) or three distant Reiki sessions, provided by a single Reiki master over 100 km away, in addition to usual care (n = 40), investigators found that pain was not significantly different between the groups over 3 days of hospitalization. There were no significant differences in opioid consumption or rate of healing, but the distant Reiki group had a significantly lower heart rate (p = 0.003) and blood pressure (p = 0.02) post surgery. Experiencing pain not only affects patients‘ biopsychosocial functioning but also the existential domain.

Middle aged women

Chen, Zhu and Luo (2024) investigated the association between visual impairment and insomnia symptoms among adults aged 45 and above in India, using data from the 2017–2018 Longitudinal Aging Study in India. Among 65,840 participants, 29.6% reported insomnia symptoms, which included difficulty initiating or maintaining sleep and early morning awakening. Self-reported visual impairments (such as presbyopia, cataracts, glaucoma, myopia, and hyperopia) were significantly associated with higher odds of insomnia, even after adjusting for confounders. Interaction analyses revealed that age, sex and smoking status modified the relationships between insomnia and specific types of visual impairment. The findings highlighted the need for targeted interventions to improve sleep quality and overall well-being in visually impaired, middle aged, and older adults in India.

Pengpid and Peltzer (2023) assessed the prevalence and correlates of major depressive disorder among middle aged and older adults in India. The cross sectional sample was collected by of 72,262 persons (45 years and older) from the 2017 to 2018 (Longitudinal Ageing Study in India). Being female, married, high socioeconomic status, living in urban areas, high spirituality/religiosity, health insurance and medium social network were negatively associated with major depressive disorder. Almost one in ten middle aged and older adults in India had major depressive disorder and several associated factors were identified.

Puri et al. (2022) utilized data from the first round of the Longitudinal Ageing Study in India, 2017-2019. They included women aged 45–65 years (n = 23,951) for analysis. To explore the linkages between multi morbidity and selected indicators of Health Related Quality of Life an array of regression models were executed. Multi morbidity was reported amongst 29.8% of women in midlife. Chandigarh (PR-54.8 PER 100 women) and Punjab (PR-52.8 per 100 women) reported the highest prevalence of multi morbidity. Women with multi morbidity reported compromised Health Related Quality of Life indicators such as self-rated health, work limiting health conditions, mobility and activities of daily living.

A systematic analysis by the Global Burden of Disease Study (2021) attempted on understanding the health consequences associated with exposure to risk factors. The risk factor analysis used data from 54,561 total distinct sources to produce epidemiological estimates for 88 risk factors and their associated health outcomes for a total of 631 risk outcome pairs. Substantial progress has been made in reducing the global disease burden attributable to a range of risk factors, particularly those related to maternal and child health, WaSH, and household air pollution. Maintaining efforts to minimize the impact of these risk factors, especially in low SDI locations, is necessary to sustain progress.

Rulu, Sievert, Dhall and Bertone-Johnson (2021) highlighted the prevalence of symptom frequencies in Nagaland, India, with a focus on depressed mood and hot flashes. They also examined how symptoms cluster together among Naga women and identify factors associated with symptom experience. Standardized questionnaires with close ended questions were used to determine the frequency of symptoms and sociodemographic and health parameters among women aged 35 to 65 years (n = 352). Menopausal symptoms, such as feeling dizzy or faint, anxiety or panic and excitable, were significantly higher in premenopausal women; hot flashes in peri menopausal women and feeling tired or lack in energy, headaches, difficulty in sleeping, and muscle or joint pain in postmenopausal women.

Sivakumar and Manimekalai (2021) reviewed the rapidly changing sex ratios and increasing evidence of violence against women are the strong pointers that have justified the scrutiny of gender framework that defines how masculinities are constructed and manifested. Women behave in self-limiting ways not because they are socialized as females but because they are locked into a lack of decision making power, invisibility, multiple roles in the gender injustice society. This article stresses the need for sustained efforts to increase the involvement of both men and women to remove sociocultural barriers, stereotypical attitudes, and violence against women for creating a gender balanced society.

This paper by Mittal and Singh (2020) attempts to understand gender based violence as an aspect of the COVID-19 lockdown. It reviews the pattern of rise in gender violence cases and the resultant psychological and social issues and attempts to create awareness by initiating a discourse urging for change in the response towards the victims

of gender based violence. The paper further attempts to suggest measures to mitigate the issues arising out of gender violence during quarantine. To reduce the prevalence of the issue, it is crucial to acknowledge the extent of gender based violence, reimagine government policies, and support networks to make it easier for the victims to access them and, lastly, create awareness about the issue as well as the resources available to tackle it.

Culture and ethnicity are acknowledged as important factors in the context of the biopsychosocial model. Holt and Waterfield (2018) explored these issues in a sample of Indian Asian women in the UK. Based on a phenomenological approach, 17 women participated in five semi structured group interviews. Data were analyzed using qualitative content analysis, so as to identify core themes and subthemes inductively from the data. Six themes were identified: meaning of pain; personal experience of pain; causes of pain; coping strategies; family and friends; experience of healthcare. Pain was conceptualized in both physical and mental terms, and its experience was explained largely in terms of functional consequences. The causes of pain suggested externalized beliefs, relating to events in participants' lives, rather than being expressed in biomedical terms.

Maji (2018) aims at conceptualizing the psychological, social and cultural factors in the context of gender difference in depression. The work reveals that psychological variables such as women‘s unique attachment patterns, relational self-construal, as well as a macro level issue like power dynamics based on gender, and the skewed division of labour play an important role in gender difference in depression. The work also suggested that focusing solely on biological underpinnings may result in losing the entire scenario; therefore, social and cultural issues that place women in a socially disadvantaged position are equally important.

Nagarkar and Kulkarni (2018) found out the prevalence of obesity and its consequences on the health of middle-aged (45-59 years) women in slum areas. This study includes 559 women between 45 and 59 years of age from slums of Pune city, Maharashtra. Results revealed that the prevalence of obesity is higher among women even in the low income areas. This indicated a need for specific interventions targeted to women in urban slum. The inclusion of multi component intervention will prove to be beneficial at the community level.

Odai, Hirose and kato (2018) investigated factors associated with myalgia and arthralgia in 305 Japanese women aged 40-59 attending a menopause clinic. Using data from first visit health and nutrition assessments and the Menopausal Health Related Quality of Life Questionnaire, the researchers found that 56.1% of participants experienced daily muscle and joint pain. The findings suggested that insomnia and reduced physical strength are key contributors to musculoskeletal pain during menopausal transition, and that targeting sleep quality or muscular function may offer therapeutic benefits.

Chirico et al. (2017) evaluated the role of self-efficacy for coping with cancer as buffer of the Reiki treatment effects on cancer related symptoms in a randomized controlled trial (intervention versus control group) of breast cancer patients (N=110) during the pre surgery phase. Results showed that self-efficacy for coping with cancer can influence the effect of a Reiki treatment. Higher efficacious patients showed a more powerful effect of the Reiki intervention on both anxiety and mood than the low efficacious patients. From a practical perspective, the study provides insightful results for healthcare professionals.

Takegata, Ohashi, Lazarus and Kitamura (2017) compared the literature regarding related factors relating to peri natal depression in India and Japan, and to synthesize the evidence common to both countries in addition to the country specific evidence. To conclude, involving the family and community may be important for implementing both global standardized and culture specific interventions. In India, treatment involving the in laws may be effective because large family structure is a significant predictor of peri natal depression. In Japan, a family/community approach involving not only the mother‘s family of origin but also the working environment is essential.

Sandhu et al. (2016) analyzed about the considerable variation in prevalence rates of triple negative breast cancer reported by various studies from India. Data were obtained from 17 studies that involved 7,237 patients with breast cancer. Overall combined prevalence of triple negative breast cancer was 31% (95% CI, 27% to 35%). The prevalence of triple negative breast cancer in India is considerably higher compared with that seen in Western populations. As many as one in three women with breast cancer could have triple negative disease. This finding has significant clinical relevance as it may contribute to poor outcomes in patients with breast cancer in India.

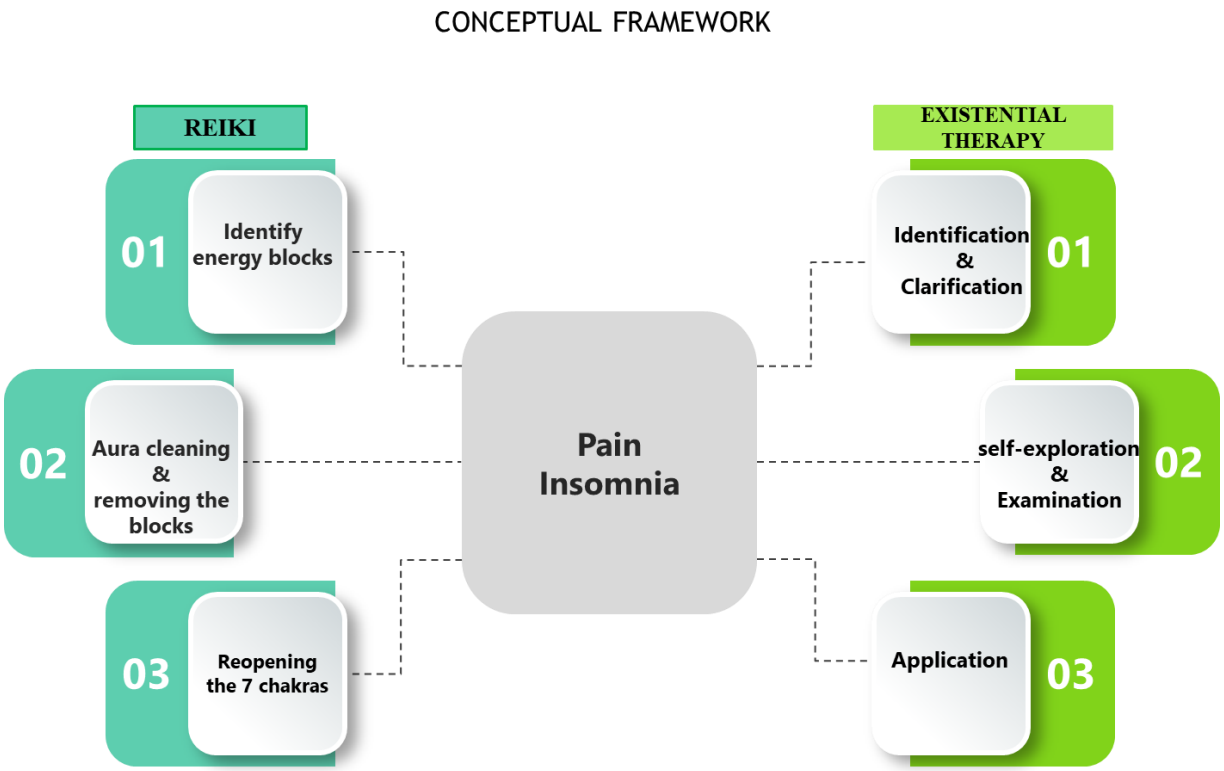
Kalokhe et al. (2016) performed a systematic review of 137 quantitative studies published in the prior decade that directly evaluated the domestic violence experiences of Indian women to summarize the breadth of recent work and identify gaps in the literature. Among studies surveying at least two forms of abuse, a median 41% of women reported experiencing domestic violence during their lifetime and 30% in the past year. Additionally, review highlighted a gap in research evaluating the impact of domestic violence on physical health. They concluded with a research agenda calling for additional qualitative and longitudinal quantitative studies to explore the domestic violence correlates proposed by this quantitative literature to inform the development of a culturally tailored domestic violence scale and prevention strategies.

Khadilkar and Mandlik (2015) analyzed 230 million Indians expected to be over the age of 50 years, in a study by shows that 20%, ie, ~46 million, are women with osteoporosis. Thus, osteoporosis is a major public health problem in Indian women. Low calcium intakes with extensive prevalence of vitamin D deficiency, increasing longevity, sex inequality, early menopause, genetic predisposition, lack of diagnostic facilities, and poor knowledge of bone health have contributed toward the high prevalence of osteoporosis. Major gaps still remain in the diagnosis and management of osteoporosis, thus highlighting the need for more structured research in this area. This review focused on the epidemiology of osteoporosis in Indian women and available treatments.

Prasko et al. (2012) investigated on existential psychotherapy and cognitive behaviour therapy strongly accent the central role of the subjective meaning, phenomenology, rationality, training of coping skills, the importance of immediate emotional experience in assisting clients to accept all aspects of experience, as more important than exploration of the unconscious. In addition, the existential psychotherapy more emphasizes transcendence of the man, responsibility, acceptance, and the motivation of the man to achieve the subjective sense of life. An integration of existential views to the cognitive behaviour therapy approach could notably enrich the treatment of the clients. Many approaches deriving from existential psychotherapy could supplement pragmatic cognitive behaviour therapy approaches with philosophical extension.

Figure 9

Conceptual Framework for the study



Organisation of the Thesis

Chapter 2 includes review of literature for the research

Chapter 3 describes the methodology of the study

Chapter 4 presents the Results and Discussion of the findings and

Chapter 5 deals with the summary and conclusion of the research