



Jacobson's Progressive Muscle Relaxation and its Therapeutic Efficacy: A Systematic Review

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Abstract: Progressive Muscle Relaxation (JPMR) developed by Jacobson is a psychophysiological method aimed at reducing stress and anxiety by a process involving the tensing and releasing of muscle groups with the aim of achieving physiological and psychological relaxation respectively. The current systematic review intended to systematize empirical studies carried out between 2020 to 2025 and found in the literature that investigated the efficacy of JPMR in various populations and psychological and physiological outcomes. In line with the Preferred Reporting Items on the Systematic Reviews and Meta-Analyses (PRISMA) guidelines, Google Scholar, PubMed and ResearchGate were searched with keywords of JPMR, Jacobson Progressive Muscle Relaxation, stress, anxiety, sleep, and blood pressure. A total of 20 peer-reviewed studies were found to fit the inclusion criteria. All the reviewed literature repeatedly proved that JPMR has a considerably high-level stress and anxiety reduction, sleep quality improvement, reduction in blood pressure, and overall emotional well-being in a clinical and non-clinical population. Nevertheless, some studies had methodological weaknesses due to small sample sizes, short interventions, and lack of cultural validation. In general, JPMR turns out to be a low-cost, available, and non-pharmacological intervention with bright perspectives in stress management, psychosomatic regulation, and the holistic well-being. Future studies must focus on long term interventions, cross-cultural uses, and use of technology for the delivery in order to boost the usefulness and sustainability of JPMR interventions.

Keywords: *Jacobson Progressive Muscle Relaxation, Stress Reduction, Anxiety, Sleep, Blood Pressure, PRISMA, Systematic Review.*

1. Introduction

Stress, anxiety, and related psychosomatic problems are increasingly common in modern society due to rapid lifestyle changes, workplace pressures, and frequent exposure to technology. Repeated psychological stress has been known to stimulate the hypothalamic-pituitary-adrenal (HPA) axis and sympathetic nervous system that causes physiological arousal, acceleration of heart rate, and muscle tension. With time, these long-term effects of such chronic activation led to numerous health problems, including insomnia, hypertension, depression, and burnout. Therefore, relaxation practices have become more eminent as defining evidence-based interventions to overcome the psychophysiological impact of stress.

One of the most studied and one of the oldest relaxation techniques is Jacobson Progressive Muscle Relaxation (JPMR) by Edmund Jacobson, which was created in 1938. The rationale behind the method is that it is possible to be psychologically calm by deliberately relaxing the body. JPMR involves the process of tension and relaxation of major muscle groups with the emphasis on the experiences of tension release. This is done to make people aware of the distinction between muscle tension and relaxation hence encouraging the ability to be aware and control of their body reaction to stress. JPMR has over the years found wide usage in clinical, educational and occupational setting as a cost-effective way of improving emotional regulation, reducing anxiety, improving sleep and managing blood pressure.

Theoretical models underpinning JPMR indicates that relaxation slows down the activities of the sympathetic nervous system coupled with an increase in the predominance of the parasympathetic system which subsequently stabilizes physiological processes like heart rate and respiration. Psychologically, it increases mindfulness and body awareness, as well as emotion control, which decreases the severity of stress responses. The advantages of JPMR have been studied using empirical studies in the last decade among various groups of people such as students, healthcare workers, older adults, chronic illness patients and people with sleeping or anxiety disorders.

Nonetheless, as many studies have shown the effectiveness of JPMR, studies have been found to be all over, in various settings and outcome indicators and it is thus hard to generate a thorough picture of its overall effectiveness. Other studies are devoted mainly to physiological variables like blood pressure and pulse rate, whereas other ones discuss psychological ones like stress, anxiety, and emotional well-being. Also, the methodological

differences in terms of intervention time, frequency and follow-up evaluation have led to inconsistency. Thus, to synthesize the existing evidence, it is necessary to conduct a systematic review of the recent research to find the current trends and research gaps.

The current systematic review is expected to combine the results of the research published between 2020-25 and conducted the examination of the implications of Jacobson Progressive Muscle Relaxation on stress, anxiety, sleep quality, depression, and physiological indicators such as blood pressure. Through critical analysis of the current empirical research, this review aims at identifying the therapeutic potential of JPMR, recapping the methodological trends, and offering insights to the future research and practice in the fields of psychology and health.

2. Methodology

The systematic review was done in accordance with the recommendations of the Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) model to provide methodological transparency and reproducibility. The electronic databases, such as PubMed, Google Scholar, and ResearchGate, were searched. The search involved the use of keywords like Jacobson Progressive Muscle Relaxation, JPMR, Progressive Muscle Relaxation, Stress, Anxiety, sleep, blood pressure and psychological well-being. Only peer-reviewed articles published in the English language within the years 2020 and 2025 were included in the search.

The following criteria were used to include studies: (a) these studies had to use JPMR as the primary intervention method, (b) at least one of the following outcomes had to be measured; psychological or physiological outcomes with respect to stress, anxiety, sleep, blood pressure or mental health, (c) these studies had to use human subjects and (d) the studies had to be published in reputable peer-reviewed journals. The exclusion criteria were such that the studies that included the JPMR with other interventions without separate analysis were excluded.

The screening of all identified studies was done by reviewing their titles and abstracts to determine the relevance. Eligibility criteria were then checked against full texts to ensure that they met the inclusion criteria. A PRISMA flow was used in the selection process which included identification, screening, eligibility evaluation and inclusion of final studies. There is a total of 20 studies that were selected to undergo in-depth review and synthesis.

To extract data, every study included was reviewed with respect to details of the author, year of publication, sample size, demographics of the participants, the study design, duration,

and frequency of the intervention, outcome measures, and critical findings. The thematic analysis of the extracted data was performed instead of a statistical one because of the heterogeneity in study designs and measurement instruments. The findings were divided into big thematic groups such as reduction in stress and anxiety, improvement in sleep, controlling physiological parameters and improvement of mental well-being.

The rigor of the methodology of the studies selected was taken into consideration by reviewing the factors like adequacy of the sample size, use of control group, duration of the intervention and statistical validity of the results. Most studies utilized quasi-experimental or pre-test-post-test designs, and some of them utilized randomized controlled trials (RCTs). All of the reviewed studies addressed the ethical issues, as informed consent and participant confidentiality were maintained.

3. Review of Literature

The literature review of the past 2020-2025 years indicates a tendency towards the increased evidence of the effectiveness of the Jacobson Progressive Muscle Relaxation (JPMR) as a physiological and psychotherapeutic approach. The analyzed articles combined with each other show that JPMR is an effective stress reliever, anxiety-reducer, improved sleep quality and emotional well-being in heterogeneous population groups, such as students, medical workers, aging adults, and people with medical conditions. These findings are summarized thematically in the following paragraphs incorporating major findings of each study.

The studies continuously find JPMR as an effective stress reduction tool. Ngulu et al. (2023) studied the role of JPMR on final-year medical students of Nusa Cendana University and the results indicated that the perceived stress levels significantly decreased after the regular practice. Likewise, Ranjita and Jha (2021) explored that JPMR was found to have a beneficial effect on the occupational stress levels of healthcare workers, which was ascribed to the diminished muscular tension and autonomic balance. In a different study, Raj and Tripathi (2024) investigated how JPMR can be culturally integrated into the Indian population and how effective it can be in the context of collective stress management. Similar results were noticed in a quasi-experimental study conducted by Singh and Nair (2022), who proved that a 10-day JPMR intervention in nursing students resulted in a significant reduction of the stress scores, as well as better levels of concentration. The summed up effect of these studies is that JPMR has the capability of alleviating stress through facilitation of physiological relaxation and emotional regulation.

JPMR has also received significant attention when used in the management of anxiety. Thomas and George (2021) performed experimental research with the group of university students who were anxious about exams and reported significant improvement in the level of anxiety after the two-week intervention with JPMR. Chen and Huang (2023) compared the effects of JPMR on the generalized anxiety disorder patients in a randomized controlled trial and reported statistically significant benefits in both self-reported and physiological measures of anxiety, including heart rate variability. Patel and Kaur (2022) also studied the anxiety levels of postmenopausal women and made a conclusion that frequent JPMR practice led to a more stable emotional state and lower cortisol levels. Moreover, in line with these results, Lim and Koh (2024) investigated the impact of JPMR in healthcare workers during the post-pandemic era and found that the level of anxiety and fatigue significantly declined, which also implies that the intervention should be considered as a preventive measure in reducing the anxiety levels.

The impact of JPMR on the quality of sleep and insomnia has been examined by several researchers. The latter study by Das and Bhattacharya (2023) examined the impact of JPMR on elderly individuals with age-related insomnia and found a substantial decrease in the sleep onset latency and sleep satisfaction in general. In the same manner, Ahmad and Rafiq (2022) showed that JPMR was efficient in enhancing the quality of sleep in medical students and explained that the effects of this strategy occurred due to a decrease in cognitive arousal at bedtime. In a correlated study, Hasan and Devi (2021) studied the case of patients with chronic pain and insomnia and found that JPMR led to relaxation of muscles and enhanced sleep continuity. Moreover, Gupta and Mehra (2024) studied dementia patients and their caregivers and found that the quality of their sleep and emotional relief was improved after eight-sessions of JPMR. Such results show that JPMR does not only reduce the symptoms of sleep disturbances but also plays a role in the overall psychological restoration as it helps in relaxation prior to sleep.

There is also good evidence of the effectiveness of JPMR in blood pressure control as well as in physiological relaxation as given in the literature. Shah and Menon (2022) have shown a large decrease in systolic and diastolic blood pressure in hypertensive adults who had JPMR sessions in four weeks. To add to this, Verma and Ali (2023) discovered that JPMR decreased resting heart rate and increased parasympathetic activity in middle-aged people with prehypertension. The similar findings were confirmed by another study by Bhatia and Kumar (2020) in a group of patients with cardiovascular risk factors, indicating that JPMR could become a good non-pharmacological adjunct to the treatment of hypertension. Also, Noor and

Iqbal (2025) have found positive cardiovascular improvement when relaxation techniques are introduced to adolescent participants at the early age, suggesting that the introduction of relaxation methods can lead to the development of positive physiological regulation. Altogether, these studies point to the ability of JPMR to normalize autonomic activity and encourage cardiovascular well-being.

In addition to the effects of stress and the physiological consequences, there are other studies that investigated the role of JPMR on the general emotional state, depression, and quality of life. Fernandez and Lopez (2021) examined JPMR in patients with mild cases of depressive symptoms and discovered that the four-week structured intervention led to significant mood, motivation, and life satisfaction improvements. The same tendency could be observed in the study by Chen and Wu (2022), who introduced JPMR to the oncology group of patients and reported a reduction in the depressive affect and fatigue. Aisha and Rahman (2023) found that self-efficacy and subjective happiness level went up in working adults through regular JPMR practice and that individuals who had recovered chronic illness were willing to experience emotional resilience (Kumar and Joshi, 2024). Collectively, these results suggest that the benefits of JPMR go beyond symptom-reduction to enhance emotional balance and psychosocial adaptation in general.

The accessibility and integration of the JPMR interventions in digital and cross-cultural environments is another topic that has been highlighted in recent studies. Raj and Tripathi (2024) suggested culturally modified relaxation plan that can integrate JPMR with the indigenous stress-coping patterns, enhancing involvement and permanence. In the meantime, a smartphone-delivered JPMR app was evaluated by Meena and Chauhan (2025) on college students and revealed that e-delivery was as effective as face-to-face delivery with additional convenience and compliance. These developments are indicative of the ways JPMR can transform itself with the changes of technology and cultural contextualization without losing therapeutic integrity.

Altogether, it is clear that the literature reviewed highlights the fact that JPMR is still a well-rounded, economically proven, and empirically verified technique in the management of a broad range of psychological and physiological problems. The similarity of the results obtained with people and different cultural backgrounds indicates that the mechanisms of JPMR, which include muscular relaxation and parasympathetic activation mechanisms, are universal. Although certain research has some methodological limitations, the findings of 2020-25 are so overwhelming that JPMR plays a key role in facilitating psychological well-being, physiological regulation, and the overall health well-being.

4. Discussion

The results of the reviewed literature from 2020 to 2025 confirm the clinical and psychological role of Jacobson Progressive Muscle Relaxation (JPMR) as a low-cost, affordable, and empirically validated method. JPMR has repeatedly shown to be helpful in decreasing stress, anxiety, improving sleep, lowering blood pressure, and positively affect emotional state across a variety of populations and settings. This discussion incorporates and analyzes the evidence based on the theoretical considerations, methodological concerns and applications, in addition to pinpointing the gaps in the research and future perspectives.

4.1 Mechanism of JPMR

Psychophysiologically, JPMR is based on the principle that the regular muscle relaxation process can decrease the state of sympathetic arousal, thus allowing a person to experience emotional calm and a clear state of mind. The theoretical basis that answers the question of how JPMR lowers physiological activation that is linked to stress and anxiety is the relaxation response, which was first thought of by Benson (1975). Although the reviewed studies, such as Ranjita and Jha (2021); Chen and Huang (2023); and Singh and Nair (2022) all found that JPMR participants were characterized by a decrease in muscle tension, deceleration in heart rate, and an enhancement of parasympathetic tone. These physiological changes are consistent with the overall literature that reveals that conscious muscular relaxation affects the state of autonomic balance and emotion regulation.

JPMR facilitates body-mind integration and self-awareness at the cognitive level. The continuous repetition cycle of tension and relaxation of muscle groups raises the interoceptive sensitivity or awareness of internal body conditions enabling individuals to be able to respond proactively to early indicators of tension or anxiety. This self-regulation process is why the results of Thomas and George (2021) and Patel and Kaur (2022) indicated a persistent decrease in anxiety in the participants engaged in practices of JPMR. The method also results in a mindfulness-like effect whereby people are attentive to physical sensations without judging them. Therefore, JPMR can be used as a connector between behavioral relaxation and cognitive interventions like mindfulness-based stress reduction (MBSR).

4.2 Efficacy among Populations and Conditions

The literature analysis shows that JPMR can be used in a wide range of demographic and clinical populations. The results of studies of students (Ngulu et al., 2023; Ahmad & Rafiq, 2022), healthcare workers (Lim & Koh, 2024; Ranjita & Jha, 2021), and older people (Das & Bhattacharya, 2023) are associated with stress and anxiety reduction. The flexibility of the

technique implies that its processes do not depend on the personality traits or cultural backgrounds.

It is worth noting that JPMR has been found to be effective in clinical and non-clinical populations such as in hypertension and chronic pain management, a study by Shah and Menon (2022), Verma and Ali (2023), and Bhatia and Kumar (2020) revealed that JPMR had a quantifiable physiological effect. The findings suggests that JPMR may be used to supplement pharmacological interventions by taking care of the psychophysiological factors of disease. Similarly, JPMR enhances emotional stability, resilience, and life satisfaction in the community and workplace (Aisha & Rahman, 2023; Kumar & Joshi, 2024). The fact that JPMR is applicable to people of all ages highlights its possible use as a universal public health intervention that can facilitate mental health and resilience to stress.

4.3 Comparison with other relaxation-based interventions

In the literature, JPMR has shown to have equal or even better results in comparison to other relaxation-based interventions. Chen and Huang (2023) have provided an example, in which JPMR was found to be equally effective as deep-breathing exercises in anxiety reduction but more physiologically relaxing in the long term. On the same note, Lim and Koh (2024) found that JPMR yielded more beneficial effects on fatigue and focus than short mindfulness meditation. These results indicate that the systematic muscle activity that is offered by JPMR may be more effective in generating deeper somatic relaxation of the human body compared to the cognitive or attentional methods.

4.4 Relevance of Digitalization of JPMR

One of the most interesting tendencies in the recent literature is the digitalization of JPMR interventions. Meena and Chauhan (2025) have shown that the application-based or video-based JPMR programs can deliver relaxation benefits just as the traditional face-to-face training can. The development has significant implications on the aspect of accessibility, particularly among students and working adults, who might not have time to engage in face-to-face sessions. Mobile delivery is also feasible, which also proves to be effective for coping with stress or anxiety.

4.5 Cultural, Social, and Emotional Aspects

JPMR research focusing on cross-cultural dimension suggests that it is universal, but it also emphasizes that it has to be adapted to the context. It has been demonstrated by Raj and Tripathi (2024) that the integration of JPMR into the traditions of yoga and meditation made participants more motivated and perceived the session as meaningful. The increased acceptability of such integration is present in collectivist societies where the group-based or

spiritual methodology of health is appreciated. Besides, Fernandez and Lopez (2021); Chen and Wu (2022) discovered that JPMR enhanced emotional resilience and depressive affect, which support the idea that in addition to physical relaxation, the practice led to the creation of positive emotional states and interpersonal connectedness.

As a whole, the reviewed studies indicate that JPMR has a positive effect on self-efficacy, emotional intelligence, and coping flexibility all essential in psychological well-being.

4.6 Research Gaps and Future Directions

Although there is high empirical evidence, there are still certain areas that are not well investigated. Few research had investigated the neurobiological processes that justify the effects of JPMR (e.g., brainwave patterns or neuroendocrine markers like cortisol, oxytocin). Neuroimaging or psychophysiological measures would be beneficial in enhancing the insight into the effect of JPMR on brain-body pathways. Also, gender variations, age variations, and cross-cultural efficacy require further research since the existing studies have been conducted on small groups of people.

Also, there are certain methodological shortcomings that need to be mentioned. A lot of research utilized small sample sizes, limited intervention periods (usually 2-4 weeks), and self-reporting outcomes. Although the majority of them found statistically significant results, not many of them involved long-term follow-up information to determine the sustainability. Also, the difference in intervention procedures, such as the duration of the session, the amount of muscle groups engaged, and the experience of the instructor, makes the distinction between the studies rather challenging. Future studies must thus be more focused towards using standardized JPMR protocols, larger randomized controlled trials (RCTs) and long-term outcome measure.

The contribution of JPMR in dealing with post-traumatic stress, obsessive-compulsive symptoms etc. is also worth considering. Since it is based on body consciousness, JPMR has a possible application in people with sense of somatic tension, but there is little evidence in this field. Further, the future research needs to be longitudinal to evaluate the resilience improvement, quality of life, and social functioning in addition to the reduction of symptoms.

5. Conclusion

Conclusively, the literature review of 2020-2025 supports the evidence that Jacobson Progressive Muscle Relaxation (JPMR) is a powerful scientifically based intervention with diverse applications. It is effective in the reduction of stress, anxiety and depression, enhancement of sleep and physiological control and the general psychological wellbeing. Its

flexibility in both clinical, educational, and occupational spheres highlights its international applicability in the contemporary mental health practice.

Although methodological improvements are required, especially on the aspects of standardization and long-term follow-up, the uniform results of JPMR in varying populations prove its worthiness as a therapeutic and preventative intervention. The direction in the future must be on how to incorporate JPMR in psychoeducational programs, digital health applications, and community-based wellness programs.

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