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The role of exercise in alleviating stress and anxiety in high-risk pregnancy with hypertension: A case report

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Dear Editor,

We would like to share our experience with the Psychiatric Danubina audience regarding the growing role of Physiotherapy in managing pregnancy-related psychological disturbances, particularly stress and anxiety, and its potential in preventing preterm delivery. As physiotherapists in maternal health, we have seen firsthand the positive impact of targeted therapeutic exercises. This letter highlights a case of a primigravida who benefited from relaxation exercises, breathing techniques, and yoga, resulting in improved psychological well-being and a successful term delivery.

Case Overview

A 28-week primigravida with high blood pressure and pregnancy-related anxiety, a known risk factor for preterm birth, was assessed with a pregnancy-related anxiety questionnaire (Pre-test score: 32). She underwent a 4-week program

of relaxation exercises, diaphragmatic breathing, yoga, and mindfulness. Following treatment, her anxiety score dropped significantly (Post-test score: 21), and she reported feeling more relaxed and in control. She delivered a healthy baby at 35 weeks, a notable improvement from the initial risk of preterm labor. This case highlights the potential of physiotherapeutic interventions in reducing pregnancy-related anxiety and preventing preterm birth.

Pregnancy-Related Anxiety and Preterm Birth

Anxiety, as defined by the American Psychological Association, involves feelings of tension, worried thoughts, and physical changes like increased blood pressure. Pregnancy-related anxiety, affecting 15-20% of pregnant women, is common, especially in the third trimester. Concerns about baby health, physical changes, labor, and motherhood contribute to this anxiety (Çelik & Güneri, 2020). High levels have

been linked to adverse outcomes like preterm birth, low birth weight, and complications such as gestational hypertension and preeclampsia (Zhang et al., 2025). Anxiety activates the stress response, elevating cortisol and sympathetic nervous system activity, which can negatively impact pregnancy outcomes (Şanlı & Aypar Akbağ, 2022).

The Role of Physiotherapy in Pregnancy-Related Anxiety and Preterm Birth Prevention

Physiotherapists, particularly those trained in maternal health, are increasingly recognized as essential contributors to the management of pregnancy-related complications, including psychological disturbances. Through targeted physical interventions such as relaxation exercises, breathing techniques, and yoga, physiotherapists can help mitigate the effects of stress and anxiety, potentially reducing the risk of preterm birth.

1. Relaxation Exercises

Relaxation techniques like progressive muscle relaxation (PMR) are effective in reducing stress and enhancing well-being during pregnancy. PMR, which involves tensing and relaxing muscle groups, helps lower anxiety, blood pressure, and improve sleep. In our patient, it significantly reduced anxiety scores.

2. Breathing Exercises

Diaphragmatic breathing exercises activate the parasympathetic nervous system, improving oxygenation and releasing endorphins, which lower heart rate and reduce cortisol production. In our case, incorporating these exercises helped the patient feel calmer and more in control of her anxiety, making it a valuable tool in managing pregnancy-related anxiety.

3. Yoga

Yoga during pregnancy helps alleviate physical discomforts like back and pelvic pain, while mindfulness practices enhance emotional regulation and reduce anxiety (Villar-Alises et al., 2023). For our patient, yoga improved body awareness, relaxation, and overall well-being.

The combination of relaxation exercises, breathing techniques, and yoga effectively managed the patient's anxiety, potentially contributing to pregnancy stabilization and preventing preterm labor.

Mechanism of Action

Physiotherapists' interventions, like relaxation and breathing techniques, positively impact the autonomic nervous system, hormonal balance, and uterine function, aiding in preterm birth prevention.

Reduction of Sympathetic Nervous System Activity: Anxiety and stress activate the sympathetic nervous system, increasing heart rate and stress hormones, which can disrupt uterine blood flow and trigger contractions. Relaxation techniques and deep breathing activate the parasympathetic system, reducing stress and lowering preterm birth risk.

Improved Blood Flow and Oxygenation: Relaxation exercises and yoga improve circulation and oxygenation for both mother and fetus, promoting healthy blood flow to the uterus and placenta, reducing the risk of complications like preeclampsia and growth restrictions (Brownfoot & Rolnik, 2024).

Musculoskeletal Relaxation: Musculoskeletal tension in pregnancy, especially in the lower back and pelvis, can cause discomfort and stress. Yoga and stretching help alleviate pain, improving comfort and reducing anxiety.

Conclusion

This case demonstrates the vital role physiotherapists play in managing pregnancy-related anxiety and preventing preterm birth. Using relaxation exercises, breathing techniques, and yoga provides a holistic approach to reducing stress and enhancing well-being. As evidence of physiotherapy's benefits in maternal care grows, these interventions should be integrated into routine prenatal care to improve outcomes.

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Efficacy of transcutaneous auricular vagal nerve stimulation on sleep quality in construction workers with insomnia

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Dear Editor,

We would like to share our experience with the *Psychiatria Danubina* audience regarding Stressors related to work force and employees face increasing workloads, and most workers will have anxiety, depression, lack of sleep, and other mental illness (Dai et al., 2022). Insomnia is a common sleep problem that affects everyday activity. It may lead to the development of many comorbidities, such as significant depression or arterial hypertension (Galuszko-Wegielnik et al., 2012).

Because of the prevalence of sleep disorders, specific diagnostic surveys and clinical diagnosis models have already been established. Today, there are easily accessible and applicable surveys Epworth Sleepiness Scale, STOP-Bang, Insomnia Severity Index, and Pittsburgh Sleep Quality Index that could be highly useful in clinical practice for this exact purpose (Darko et al., 2022). Sleep disorders are mental and physical problems that cause a variety of negative outcomes as a result of insufficient sleep or poor sleep quality (Han et al., 2016). Studies show non-invasive transcutaneous vagal nerve stimulation (TaVNS) has a vital role in controlling sleep (Wu et al., 2022).

Our research included ten subjects, both male and female, age between 35-40, who were recently diagnosed with Insomnia (sleep disturbance) based on their Pittsburgh Sleep Quality Index scores of more than 8 score are included. At present, VNS is recognized as an effective supplementary therapy for conditions like epilepsy, depression, and insomnia. Patients who receive VNS have reported enhancements in sleep quality, improved overall well-being, reduced daytime fatigue, and elevated mood. Interestingly, these improvements occurred separately from VNS's anti-epileptic and anti-depressive effects, suggesting its potential role in sleep regulation (Wu et al., 2022).

The purpose of this study was to examine the effect of Transcutaneous Auricular Vagal Nerve Stimulation on sleep quality in Construction Workers with Insomnia. The study was approved by the institutional ethics committee on human subject (01/054/2023/ISRB/PGSR/SCPT) and followed the Helsinki Declaration guidelines. For the selected participants, pre-test values were obtained using the Pittsburgh Sleep Quality Index. The transcutaneous auricular vagal nerve stimulation, the subjects were treated with the parameter settings of 20Hz pulse frequency, pulse width of 0.2ms, current of 1mA and