



Physiotherapy use of Paraffin Wax for Rheumatoid Arthritis in Sudan

Rawia Osman¹, Hassan Abdelnour², Amira Elaalem³

¹BSc PT, Physiotherapy Department, Assafa College, Khartoum, Sudan

²Assistant Professor, Physiotherapy Department, Faculty of Applied Medical Sciences, Jerash University, Jerash, Jordan

³Lecturer, Department of Neurology, Assafa College, Khartoum, Sudan

ABSTRACT

Introduction: Rheumatoid arthritis (RA) is a long-term autoimmune disorder that primarily affects joints. RA is one of major causes of the physical and functional abnormalities worldwide. Paraffin Wax (PW) bath therapy is an application of molten paraffin wax and mineral oil to parts of the body. PW produce thermal conductivity and helps in reducing pain and stiffness without drugs involvement.

Purpose of the study: To explore the use of PW in management of rheumatoid arthritis among Sudanese physiotherapist.

Methodology: The study conducted in Khartoum City, Sudan. Descriptive Cross- Sectional study with a sample of 49 physiotherapists used in the study. A questionnaire of 14 items was used for data collection. Statistical package for social science (SPSS) version 24 was used for data analysis. Ethical consideration been maintained.

Results: The study showed that only 44.9% of participants said Paraffin Wax (PW) is used in the physiotherapy centres in Sudan, while the majority said it is not according to their experience. There are 59.2% of participants think that Paraffin Wax (PW) is one of the most important types of physiotherapy modalities and it is important to have in the physiotherapy centre. There were 61.2% of participants have used Paraffin Wax (PW) for Rheumatoid Arthritis (RA).

Conclusion: Sudanese physiotherapists are aware of the importance of physiotherapy tools and the effect of PW on Rheumatoid arthritis (RA) patients. This is a positive indicator for more improvement in physiotherapy services access and outcomes.

Keywords: Paraffin Wax, Rheumatoid Arthritis, Physiotherapy, Sudan.

INTRODUCTION

Rheumatoid arthritis (RA) typically results in warm, swollen, and painful joints. Pain and stiffness often worsen following rest. Often; symptoms come on gradually over weeks to months and can reach maximum complicated medical condition. The prevalence and incidence of RA is increasing worldwide. In 2020, an estimated 17.6 million people had rheumatoid arthritis worldwide (Black et al, 2023).

Physiotherapy rehabilitation became important medical health profession concerns the Activity of Daily Living (ADL) and maintaining the maximum functional ability in different abnormalities that can affect body systems (Abdelnour et al, 2023). Patient with RA needs physiotherapy rehabilitation in all the stages of RA.

Paraffin Wax (PW) is one of the natural inexpensive methods of physical therapy that exist today to treat and relieve joint and muscle pain which make it a proper treatment for RA especially in chronic stage. It has no side effect and helps in reliving stiffness which one of RA symptoms (Yanet al, 2022).

In Sudan, recently several studies conducted to explore the physiotherapy rehabilitation. For example, the physiotherapy education was an area of interest due to the fact that physiotherapy programs were developing in the country (Abdelnour & Bolis, 2023; Abdelnour, 2020). On the other hands, several studies explored the physiotherapy management and injuries in Sudanese community (Abdelnour et al, 2023).

Worldwide, physiotherapy modalities such as Electrical Stimulation (ES) and Short Waves Diathermy (SWD) were in continues evaluation for different clinical complications (Almalty et al, 2024; Almalty et al, 2023). Studies concerns

PW worldwide showed that the thermal superficial effect of PW is a good medium hyperthermia conduction when in close contact with the bodymaking it among the most effective and worthy of promotion rehabilitation methods (Yan et al, 2022).

Finally, there were no previous studies exploring the use of PW in Sudan. The Knowledge of Sudanese physiotherapist toward the usage of physiotherapy modalities including PW in management of RA is an interested area to explore. It helps to determine the attitude and practice of Sudanese physiotherapist.

METHODOLOGY

The study was a quantitative study using cross sectional study design. Study conducted in Khartoum State in Sudan. The study included 49 physiotherapists working in different physiotherapy facilities in Khartoum State. A structured closed-ended questionnaire was used to collect the data. It includes 14 Questions designed to cover socio-demographic information and information's related to the physiotherapist's knowledge, attitude, and experience in using PW to treat RA. Data were analysed by using the Statistical Package for Social Science (SPSS) version (24). The results presented in frequency tables and charts. Chi-square test done for significance of association between independent and dependant variables. Ethical approval from institutional boards were obtains and each participant received a constant form explaining the study objective, confidentiality assurance, withdrawal right, and ethical concerns to sign before participating in the study.

RESULTS

Figure 1. Gender (n=49):

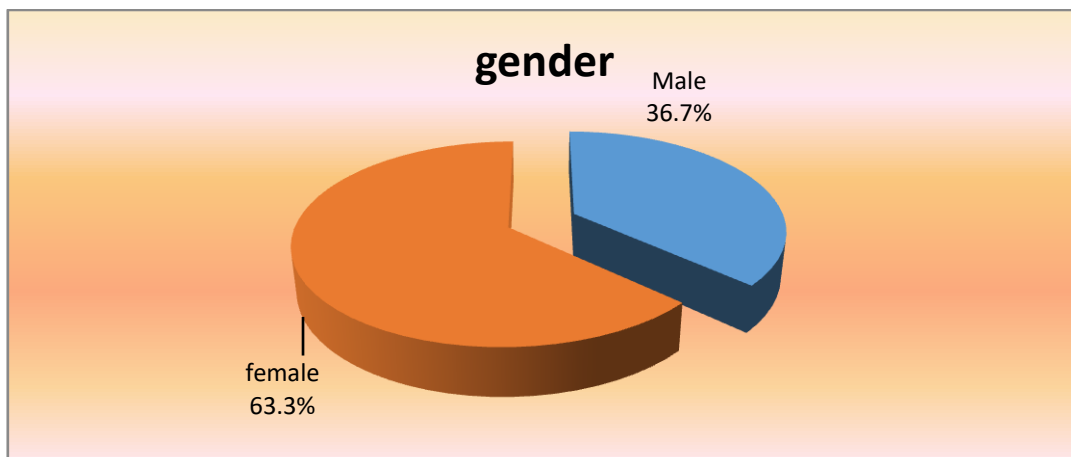


Figure 1 shows the the majority of the study sample 31(63.3%) were females, and the rest 18(36.7%) were males.

Figure 2. Education level (n=49):

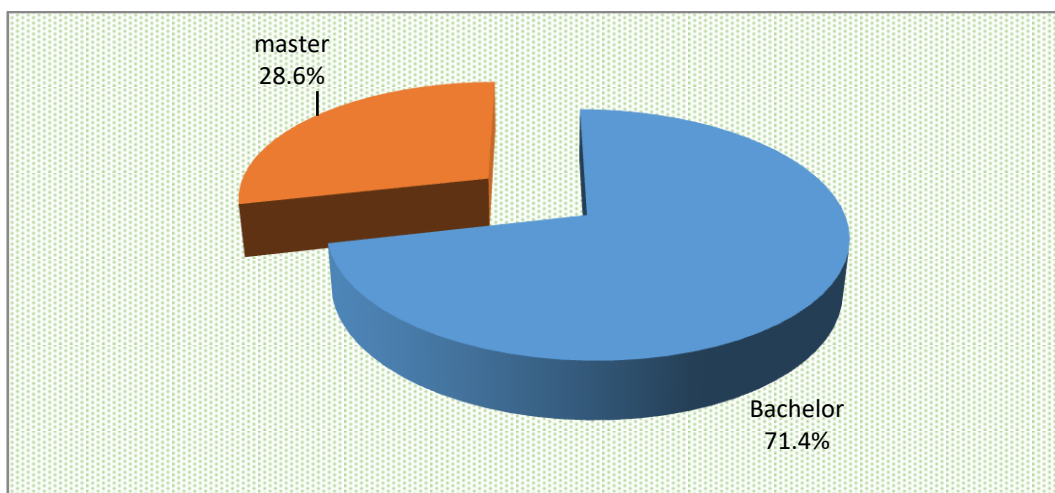


Figure 2 shows that the majority of physiotherapist 35 (71.4%) have bachelor degree, while the remains 14 (28.6%) have master degree.

Figure 3 Use of PW (n=49):

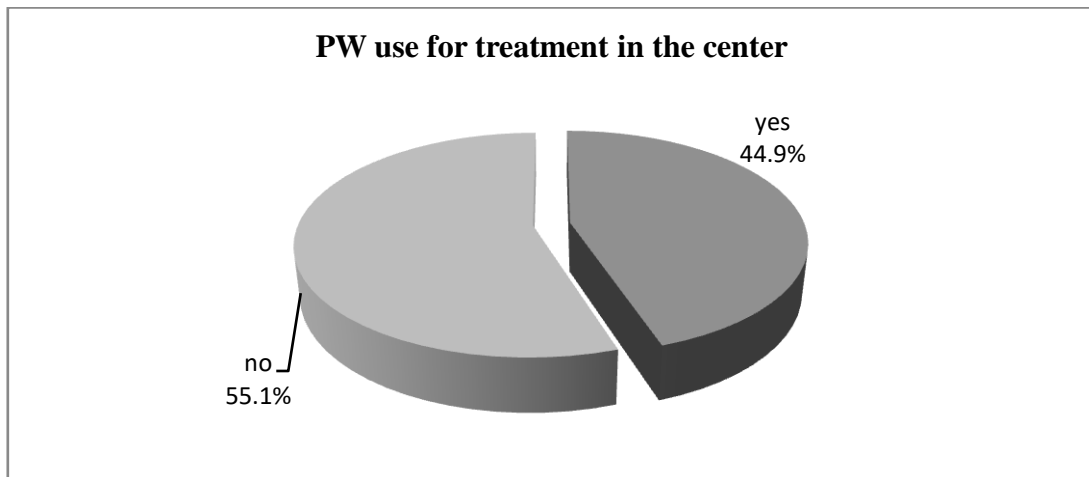


Figure 3 shows that 22 (44.9%) of participants said PW is used in the centre, while the majority 27 (55.1%) said not.

Figure 4 Use of PW for RA (n=49):

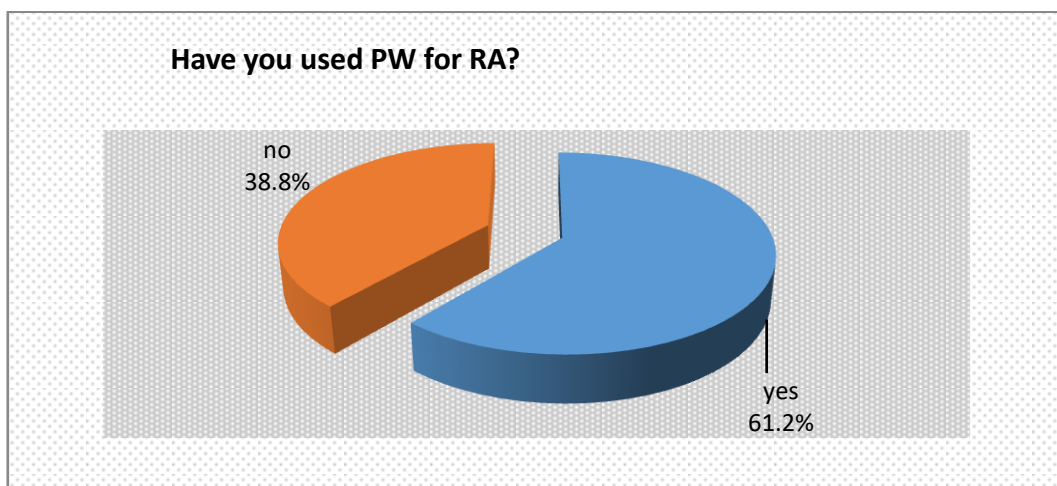


Figure 4 Shows that majority of physiotherapists 30(61.2%) said they have used paraffin wax for RA

Figure 5 Knowledge on PW benefits on RA (n=49):

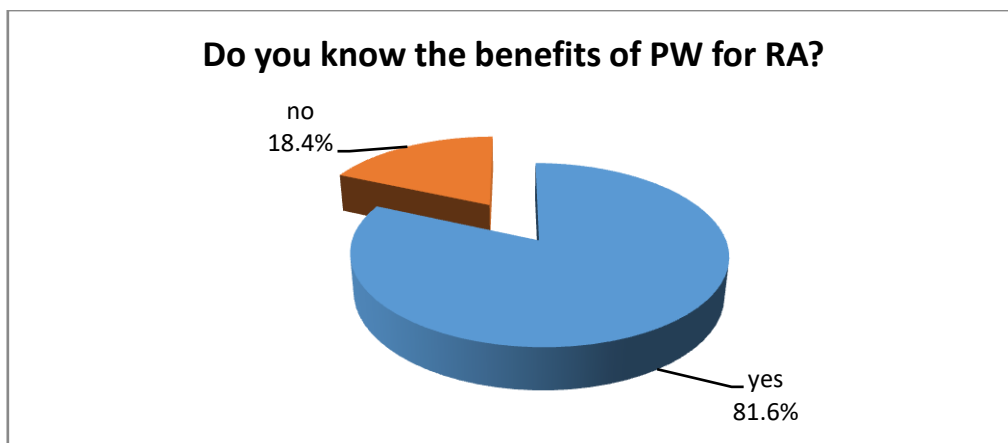


Figure 5 shows that majority of physiotherapists (81.4%) knows paraffin wax benefits to treat RA.

Figure 6. Improvement after sessions (n=49):

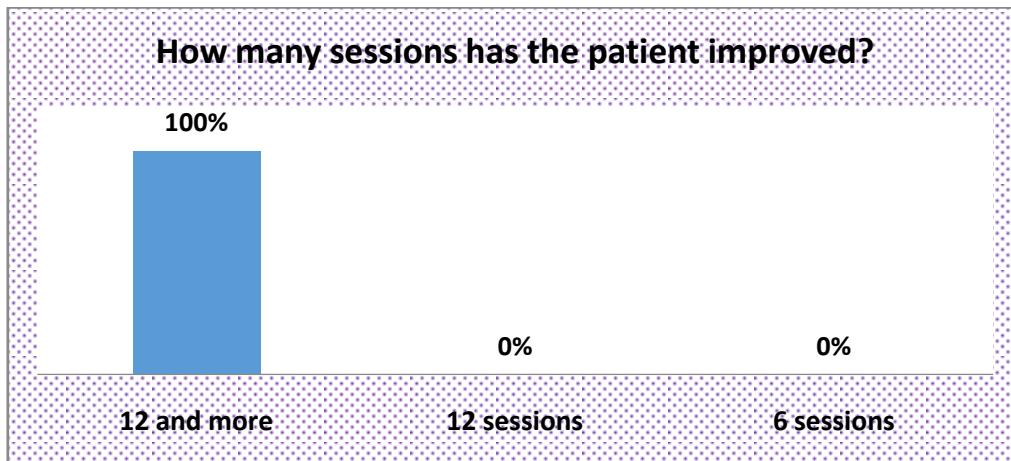


Figure 6 Shows that improvement appears after patient attend 12 physiotherapy sessions using PW.

Figure 7. PW as pain reliever for RA (n=49):

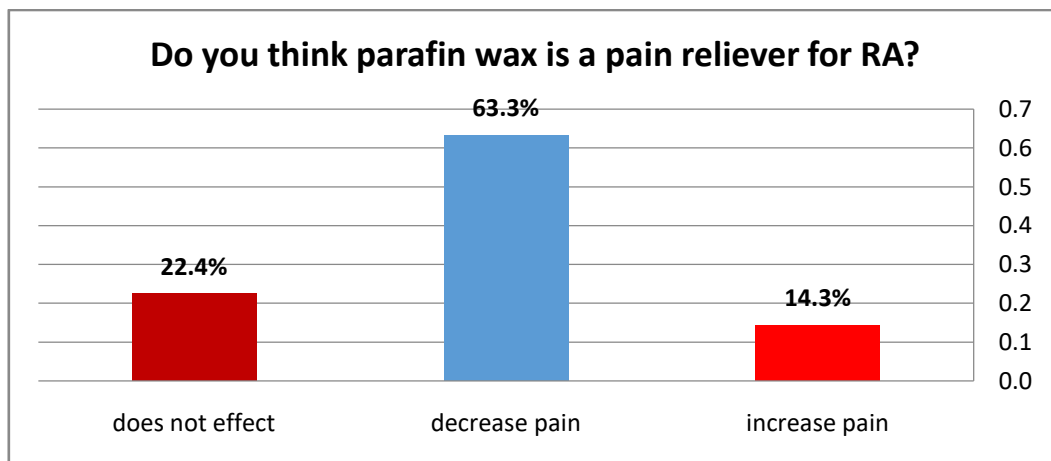


Figure 7 shows that most of participants (63.3%) witnessed that PW has a direct positive effect in relieving pain in RA.

Figure 8 PW ability to treat deformities that occur from RA (n=49):

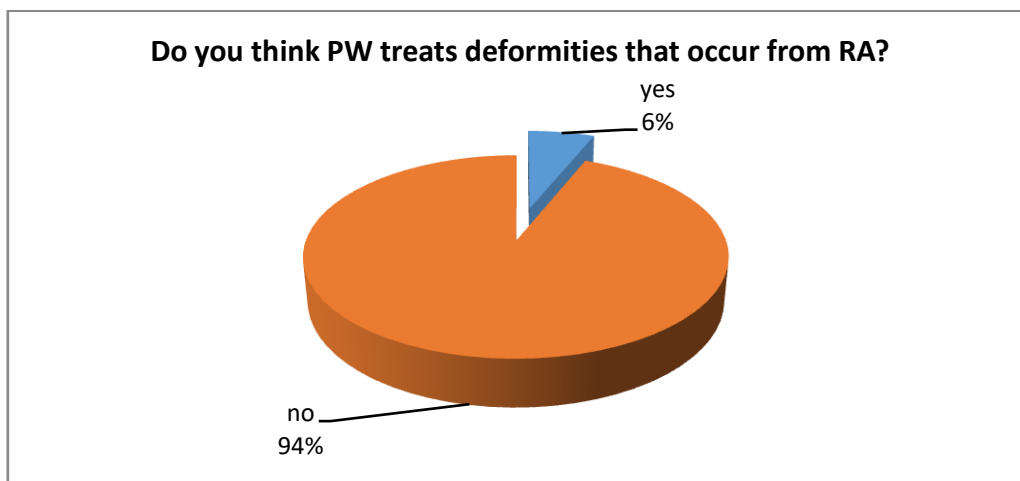


Figure 8 shows that majority of the physiotherapists 46 (94%) think that PW cannot treat deformities caused by RA.

Figure 9. importance of PW presence in the physiotherapy center (n=49):

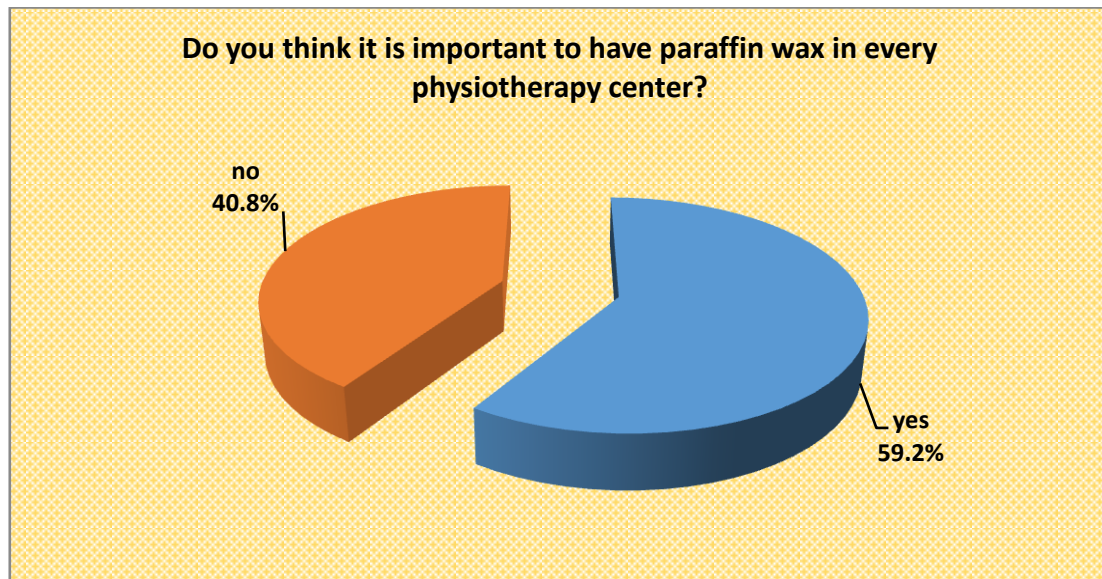


Figure 9 shows that majority of the respondents 29(59.2%) think that PW is a one of the most important types of physiotherapy modalities that it is important to have in every physiotherapy centre.

DISCUSSION

This study aimed to explore knowledge, attitude, and practice of Sudanese physiotherapist toward the usage of PW in management of RA in Khartoum state in Sudan. There were 49 respondents participated in the study. Regarding gender, female were higher percentage than males. Gender prevalence in the physiotherapy field showed that females are higher than males. In additional, level in education were higher among females as well as in Polish study concerns about physiotherapy education and other health education (Lewandowski et al, 2023). This is not the common situation in the whole region. For example, in South Sudan studies showed that females had lowest enrollment level into education. Only 44.4% were females at both primary and secondary schools in 2017 (Ajak, 2019). In additional, 60% of the South Sudan population were females and 93% of them were illiterate.

In education level, more participants got Bachelor degree in physiotherapy. Some studies investigate the physiotherapy level of education and it is clear that physiotherapists with master and PhD degrees got more knowledge in Evidence Based Practice (EBP). Continue with Post-Graduation degree in physiotherapy is strongly recommended and shows positive impact on the professional practice (Fernández-Domínguez et al, 2022). From personal experience in the academic physiotherapy education in Sudan, different undergraduate programs been establishes and only one post-graduation program is implemented at Al Neelain University in Khartoum, Sudan. The program give Master of Sciences (MSc) degree in Physiotherapy. Therefore, more physiotherapists with MSc degree are expected to graduate in Sudan.

The study found that not all physiotherapy centers are using PW. On the other hand, there are no enough studies investigating the effect of PW as a modality in Sudan. This is related to the medical and social condition in each society (Karlbelet et al, 2021). The need and use of PW expected to be low in physiotherapy center due to medical factors as well as other socioeconomic factors in the Sudanese community. Abdelnour et al (2023), discussed the limitation of resources and facilities and how it can limit the access of health services in Sudan. Having all physiotherapy modalities at health services settings might be a quite challenging with the socioeconomic barriers in African communities.

Most respondents are using PW in treating RA and aware about the positive role of PW in treating RA. As known, one of the important benefit of PW in RA is that PW is decreasing pain in RA. According to clinical Randomize Control Trails (RCT) study done by Karlbelet et al, (2021) found that there are a clinical evidence that PW can reduce signs and symptoms of pain associated with RA additional to reduction of morning stiffness. Therefore, improvement of Quality of Life (QoL) is expected. In this study, the awareness about PW positive impact on Sudanese physiotherapists seems to be in acceptable level.

Respondents experienced that the RA patients can show improvement after 12 physiotherapy sessions using PW. Data on number of physiotherapy sessions are not the same. On other words, numbers of sessions required is different and depends on different medical and socioeconomically conditions at both individual and community levels. For example,

the study of Bakker et al, (2023), showed that range of 10 to 21 sessions per year showed some answers on investigations done to RA patients in Netherland. In University Hospital Limerick (UHL) in Ireland, 4 sessions per week were applied in order to test the promotion of physical activity into RA patients (Larkin, et al, 2024). The study showed no evidence that PW can play a positive role in treating deformities in RA. The study of Preeti et al (2021), showed a significant positive effect of isometric strengthening along with paraffin wax on hand function but there were no such positive evidence on deformity.

Finally, respondents recommends PW to be one of the modalities in each physiotherapy center. Literature showed evidence that applying PW to RA patient gave a significant positive improvement reducing RA complications (Wang et al, 2023). This positive impact can be extended and towards social, physiological, and mental functions. In Jingzhou City, China, Wang et al (2023), conducted a 6 months RTC study investigating the effect of PW on patient with RA.

The study of Wang et al (2023), recommended PW as one of the modalities included in therapy nursing intervention for patients with RA.

CONCLUSION

Physiotherapy centers in Sudan facing limitations regarding resources but it clear that Sudanese physiotherapist are aware of the importance of physiotherapy tools and the effect of PW on RA patients. This is a positive indicator for more improvement in physiotherapy services access and outcomes.

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