

ORIGINAL RESEARCH

Investigation of reflections of reformer Pilates exercises on the life quality of women with disc herniation

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Abstract

In this research, the reflections of reformer Pilates exercises on the life quality of women with herniated discs were investigated. The qualitative research technique was used in the research. The 'phenomenology' approach was used in the study conducted as qualitative research. In this research, the purpose sampling methods was chosen for the study group. The criterion includes participants who have been diagnosed with herniated discs by a doctor, have been actively practicing reformer plates for at least 3 months, and are female. In the research, face-to-face interviews were conducted with 31 women in 2023. During the data collection process, the "semi-structured interview" method was chosen, and the 'interview form technique' was used. The obtained data were analyzed using descriptive and content analysis methods. After analyzing the data obtained from the interviews with participants and coding the expressions of women with herniated discs, the data were gathered under four main themes. These themes are: 1) Situations that reduce quality of life, 2) The effect of reformer Pilates, 3) Leisure time activities, and 4) Sleep quality.

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Introduction

Low back pain is an important public health problem due to chronic pain and functional limitations that limit daily life and cause loss of work (Öksüz, 2006). Approximately half of the population experience back pain at some point in their lives. Although low back pain occurs most frequently in middle-aged and elderly patients, it can also occur in childhood (Karadakovan & Eti Aslan, 2010).

Lumbar disc herniation, also called lumbar disc herniation, which is one of the important causes of low back pain, is the extension of the nucleus pulposus into the spinal canal through tears in the annulus fibrosus. This may occur as a result of degenerative and/or traumatic events. Disc herniation is most commonly seen in the lumbar region and is one of the most common causes of low back pain (Çakır, 2009).

There are various reasons for the formation of intervertebral discs, including personal, occupational, sportive and psychological reasons, but among these, the possibility of a herniated disc increases due to the inability to maintain proper posture (Çelik, 2018). If a herniated disc is detected in a patient, it can reduce the need for surgery, reduce possible pain and

inflammation, and improve the quality of treatment, unless the patient experiences progressive neurological deterioration. Therefore, conservative treatment is initially recommended (Yılmaz et al., 2014).

Low back pain is a condition that affects many people at some point in their lives and severely limits their functions in their daily home and work lives. It is also a very common community disease in our country. Reformer Pilates exercises are recommended to improve daily functioning, to reduce pain and to improve their quality of life for these people.

Pilates equipment called reformer is the most useful, popular and well-equipped Pilates equipment. It allows working in all positions (lying, supine, sitting, kneeling, and standing). It can be used as a fixed or movable floor. Springs are used as resistance. There are usually yellow, blue, red, green and black springs. These springs have different resistances. Depending on the muscle strength and the purpose of the exercise, the resistance is adjusted by attaching and removing springs to the spring bar. Cardio and plyometric exercises can be performed with the trampoline apparatus (Aytar, 2019).

The main purpose of training with the reformer is to train all the muscles of the body in the same way. It is

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strengthened by working together. Reformer exercises give your body flexibility and help correct posture. Reformer exercises are different from other types of exercises. Various movements are performed continuously while maintaining rhythm and correct breathing techniques (Sekendiz et al., 2007).

In light of this information, the aim of this study was to examine the effect of reformer Pilates exercise on quality of life in women with herniated discs.

Method

Research Design

Qualitative research technique was used in the study. Qualitative research is defined as "research in which qualitative data collection techniques such as observation, interview and document analysis are used and a qualitative process is carried out to reveal perceptions and events in the natural environment in a realistic and holistic way" (Karataş, 2015). "Phenomenology" approach was used in the study conducted as qualitative research. The purpose of phenomenological analysis is to understand and explain the meaning, structure and nature of a person or people's experience of a phenomenon (Patton, 1990).

Study Group

In this study, the purposive sampling method was chosen for sample selection. The criteria were that the participants had been diagnosed with a herniated disc by a doctor, had been actively practicing reformer Pilates for at least 3 months, and were female. Face-to-face interviews were conducted with 31 women in 2023.

Information about the general profile of the participants is presented in Table 1.

Data Collection

In the data collection study, "semi-structured interview" method was selected and "interview form technique" was used. The interview method is a method for obtaining the same type of information from different people dealing with similar problems (Patton, 1990). In order to create the interview forms we have used for this research, we first examined the relevant literature. Then, open-ended questions were prepared by taking expert opinions on this subject. A "semi-structured interview form" was used in the study. Semi-structured interviews are a qualitative data collection method that allows researchers to explore specific themes or responses in more depth through a series of predetermined questions and in a more systematic way

than unstructured interviews (Yıldırım & Şimşek, 2008).

Interviews were conducted voluntarily. The purpose of the research was explained after contacting 31 female volunteers who participated in the research and explaining research ethics after research volunteer participation form and necessary permissions. The setting for the interviews was realized on a day predetermined by the researchers and the participants. The interviews were recorded by the researcher at the time of the application and the interviews were digitally recorded using a voice recorder.

Research Ethics

The ethical approval of this study was obtained at the meeting of Batman University Ethics Committee dated 13.06.2023 and with the decision numbered 2023/04-27.

Data Analysis

In the research, the method of 'descriptive analysis', which is a qualitative analysis method, was used for interpreting the findings by analyzing the data in an understandable manner and examining cause-effect relationships to reach certain conclusions. The method of 'content analysis' was utilized for describing the data, grouping similar data under specific concepts and themes, and uncovering potential truths hidden within the data. Care was taken to ensure that the findings are internally consistent and meaningful. In addition, the findings were ensured to form a meaningful whole. Data coding was independently coded by three qualitative research experts and duplicate data were examined and organized. The participants interviewed in qualitative data analysis were coded as "P1, P2, ..., P20".

Validity and Reliability: Care was taken to ensure that the findings were consistent and meaningful within themselves. In addition, the findings were ensured to form a meaningful whole. The researcher explained the research methods and stages clearly and in detail. More than one researcher coded the data and these codes were compared.

Results

As a result of the analysis of the data obtained from the interviews with the participants, after coding what was expressed by women with herniated discs, they were grouped under 4 main themes as shown in Figure 1 below. These themes are: 1) Situations that reduce quality of life, 2) The effect of reformer Pilates, 3) Leisure time evaluation, 4) Sleep quality.

Table 1
Personal information of the participants.

Participants	Age	Marital Status		Duration of Diagnosis by a Physician	Reformer Pilates Experience
		Married	Single		
P.1	50	1	0	10 Year	2 Year
P.2	32	0	1	3 Year	3 Year
P.3	32	0	1	12 Year	4 Month
P.4	35	1	0	1 Year	1 Year
P.5	40	1	0	10 Year	10 Month
P.6	46	1	0	5 Year	4 Month
P.7	30	0	1	3 Month	3 Month
P.8	30	0	1	2 Year	5 Year
P.9	39	1	0	10 Month	9 Month
P.10	32	1	0	2 Year	1 Year
P.11	33	1	0	5 Year	8 Month
P.12	36	0	1	1 Year	3 Year
P.13	30	0	1	1 Year	1 Year
P.14	30	1	0	4 Year	4 Year
P.15	30	0	1	2 Year	6 Month
P.16	44	0	1	23 Year	6 Month
P.17	39	0	1	2 Year	2 Year
P.18	33	1	0	15 Year	2 Year
P.19	30	1	0	2 Year	3 Month
P.20	32	1	0	1 Year	5 Month
P.21	41	1	0	10 Year	6 Month
P.22	32	0	1	8 Year	4 Year
P.23	36	0	1	4 Month	3 Month
P.24	41	1	0	9 Month	9 Month
P.25	38	1	0	5 Year	4 Month
P.26	32	1	0	7 Year	3 Year
P.27	34	1	0	4 Year	4 Year
P.28	43	1	0	20 Year	3 Year
P.29	38	1	0	6 Year	2 Year
P.30	30	0	1	6 Month	4 Month
P.31	31	0	1	5 Month	4 Month

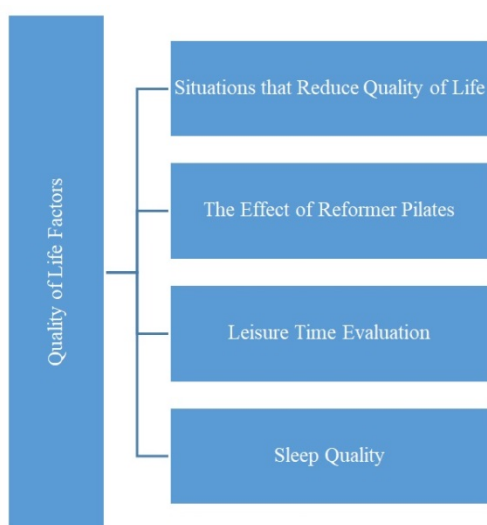
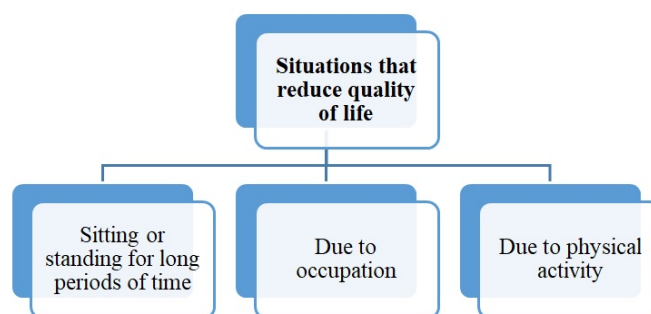


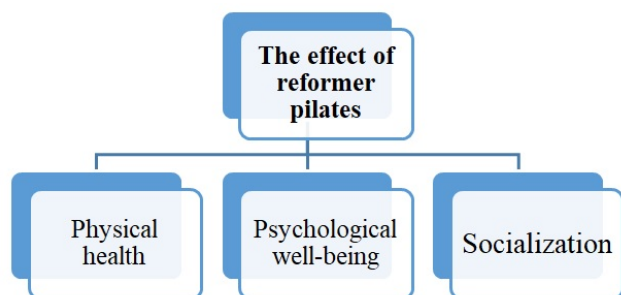
Figure 1. Quality of life factors.

Situations that reduce quality of life: The situations that reduce the quality of life of women with herniated disc before coming to reformer Pilates 4 sub-themes emerged as a result of the data obtained from the participants in the interviews (Model 1).



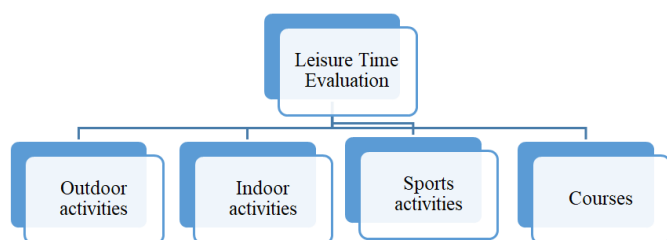
Model 1. Situations that reduce quality of life.

The effect of reformer pilates: The 3 sub- themes of the effect of reformer plates emerged as a result of data obtained from the participants in the interviews (Model 2).



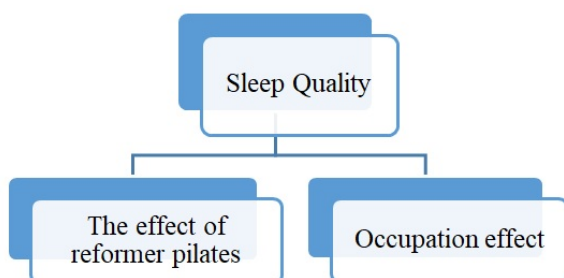
Model 2. The effect of reformer Pilates.

Leisure time evaluation: Six sub-themes emerged as a result of the data obtained from the participants in the interviews about the leisure time evaluation of women with herniated disc during reformer Pilates (Model 3).



Model 3. Free time evaluation.

Sleep quality: As a result of the data obtained from the participants during the interviews about the sleep quality of women with herniated disc during reformer pilates, 3 sub-themes emerged (Model 4).



Model 4. Sleep quality during reformer Pilates exercise.

Discussion & Conclusion

Results Related to Conditions Reducing Quality of Life

Participants expressed their opinions about the situations that triggered pain and prevented them from

doing work before reformer Pilates. A number of themes emerged in the analysis results of the answers they gave to the questions in the interviews. It is seen that female participants with herniated discs stated that sitting for a long time and standing for a long time prevented them from doing work due to pain. Women with herniated discs emphasized that driving or traveling for a long time causes low back pain. In his study, Hıdır (2019) stated that activities such as heavy lifting, standing for a long time, and driving for a long time are among the risk factors for the development of herniated disc. The results of our study and Hıdır's study support each other.

In our study, it is determined that the working participants experienced occupation-related low back pain and experienced obstacles in their activities. Although various reasons such as individual, occupational, sportive and psychological factors are effective in the formation of lumbar disc herniation, studies have shown that among these reasons, the probability of lumbar disc herniation due to occupational and inability to maintain proper posture is higher (Çelik, 2018). Keefe et al. (2004) concluded that fear of low back pain can lead to limitations in activity because it causes a decrease in professional work-related activities and other physical activities. In the study of Dönmez et al. (2010), the causes of disease of patients with herniated disc were stated as heavy lifting, falling, and inappropriate bending at the waist and traffic accidents. In a study conducted by Aydoğan (2005), it was found that more than half of the patients with herniated disc worked in jobs requiring prolonged standing and heavy lifting. It can be stated that the results of the study are supported by the literature.

Participants with herniated discs stated in interviews that they usually experience pain due to physical activity while doing housework. Due to the division of labor between men and women in patriarchal societies, women are responsible for domestic work (housework and childcare) and men are responsible for work outside the home. It is thought that women experience low back pain because they are constantly bending over while doing housework. Baybaşın and Saka (2021) found that the lifetime risk of low back pain in women who regularly do housework is 1.7 times higher than in women who do not do housework. In another study, Yağcı et al. (2020) concluded that women suffer from low back pain more often than men. When back pain severity was evaluated separately in male and female subjects categorized according to the risk of low back pain, it was observed that pain severity was significantly

higher in male subjects in the potential risk group and in female subjects in the significant risk group. The reason for this difference is the differences in the working and life styles of men and women in the society and these results support our study.

Results Related to the Effect of Reformer Pilates Exercise on Quality of Life

Women with herniated discs stated that they experienced positive effects on their quality of life during reformer Pilates exercise. A number of themes emerged from the analysis of their answers to the questions in the interviews.

The participants stated that during the reformer Pilates exercises, they were able to do everything, their sleep became regularized, and with the reduction of their pain, the pain no longer affected their normal life. It is seen that women with herniated disc were able to do physical activity, increased flexibility, climb stairs, and do daily housework, sports walking, running, dancing, and yoga due to the improvement of their physical functions during reformer exercises.

In a study conducted by Beija et al. (2005), it was concluded that exercise and regular sports reduced and prevented the frequency of low back pain. Kılınç (2018), in her study, observed that physical activity increased the quality of life and that all dimensions of quality of life of individuals with increased physical activity level were positively affected. İrez et al. (2009) examined the subjects perform Pilates exercises 3 days a week for 12 weeks, and as a result of the measurements taken, it was observed that those who practiced pilates improved positively in terms of balance, flexibility, body reaction time and muscle strength compared to those who did not. Rogers et al. (2009), in an 8-week study on 9 subjects and 13 controls, adult athletes who were new to Pilates, observed that at the end of the 8th week, the experimental group had a decrease in body fat percentage, an increase in sit-lying flexibility value, an increase in sit-up repetitions, a positive decrease in body composition in general, and a positive increase in muscular endurance and flexibility compared to the control group. Handrigan et al. (2010), in their study, show that Pilates exercises have significant effects on improving flexibility values. Çağlav (2005) found significant differences in flexibility measurements after Pilates exercise performed on women aged 40-45 years. Our research result is in parallel with these studies in the literature.

It suggests that reformer Pilates may have an effect on the mental health of an individual's physical health. It

can be said that as physical capacity increases in women with herniated disc, independence may increase and in parallel, it may have a positive effect on the psychological well-being of individuals. The concept of psychological well-being is defined as feeling good about one's mental health. Feeling good and being happy is basically based on accepting yourself as you are. People who know, love and accept themselves as they are are more positive, happy and have a positive attitude towards life.

Exercise and increased physical activity also have positive effects on mental health; they prevent and reduce depression and its causes. People who do sports are happier due to the hormones released. It also reduces drug and narcotic addiction and the age of starting smoking (except doping), increases self-confidence, respect, math skills and success in academic studies. Increasing exercise and physical activity has a positive effect on risk-taking, defending one's rights, strategic and quick thinking, leadership skills, teamwork, social relations, reduces the risk of unwanted pregnancy, and makes working life more enjoyable and energetic (Bulut, 2019). In the study conducted by Eruzun (2017), it is seen that women who are active in sports have a higher quality of life.

For this reason, it is seen that directing women with herniated disc to sportive activities is important because it can contribute to the physical, social and psychological development of individuals. According to these explanations, it is thought that sports have a positive effect on the personal areas of women with herniated disc and this situation may have positive reflections on their quality of life.

In the study, the participants emphasized the sub-theme of socialization as "increasing social activity and spending time with friends". Şahan (2007), in his study with university students, stated that women had higher levels of sports and socialization than men. Öztürk Karataş et al. (2021) stated in their study that while sports provide positive effects on the person, it is also a good option for socializing. Başar and Sarı (2018) highlighted the importance of exercise in increasing levels of psychological well-being and happiness, which supports our study. Our findings indicate that women with fibromyalgia syndrome who regularly practice reformer Pilates gradually feel better psychologically over time. In his research on the effect of sports on social integration, Duman (2020) states that sports activities are taken into consideration by the participants and it is assumed that sports have a positive

effect on social integration. We observed that the majority of the women in our study were able to communicate faster with their environment while exercising.

Results Related to Leisure Time Utilization

The interviews revealed that the participants spent their free time doing various sports activities (swimming, yoga and walking) in addition to Pilates reformer. It was concluded that the participants also practiced other sports activities besides reformer Pilates to reduce their pain from herniated discs. Ongoing pain can cause various problems not only physically but also mentally. Muraki et al. (2000) emphasized in their study that patients who exercise are less likely to suffer from depression. Tavazar et al. (2014), based on a study conducted on groups participating and not participating in sports activities, concluded that the physical functionality and general health of the group participating in sports activities were better, which is in line with the result of our study. In another study supporting our research, Karaküçük and Başaran (1996) stated that people, who are constantly confronted with sources of stress, in order to cope with stress, turn to recreational sports activities that will not create a new source of stress or health problems, but will eliminate their inactivity and have fun and enjoyable time. The results of the studies in the literature are in parallel with our results.

In the interviews, participants mentioned "spending time with friends, traveling, walking pets, and working in the village" as outdoor activities. Stress is one of the known causes of herniated disc pain. Stress causes pain in people and activities to keep people away from stress are the most important priority for women. For this reason, it has an important place in outdoor recreation.

Activities carried out in open spaces have physical, mental, social and social effects. It also has a positive psychological effect. Activity in a green area or forest increases the physical activity of the individual; it is done because it provides socialization and has a positive effect on human health (Tütüncü et al., 2014). It is an indication that this study supports our research.

In the study, participants mentioned "reading books, shopping, spending time with family and friends" as indoor activities. Indoor activities include leisure time activities that participants do indoors or at home. It is thought that participants can relieve stress by doing these activities and relax by having fun.

In the interviews, participants stated that they attended different courses such as "personal

development courses (foreign language courses, diction courses), educational support courses (work-related courses), music courses (playing guitar, piano courses), dance courses and handicraft courses (making ceramics)". Few participants reported attending courses in their free time. It is thought that female participants who can attend courses have more opportunities in their free time than other participants. Supporting our findings, Altunbay (2020) concluded in his study that taking courses while evaluating leisure time can help individuals develop life skills and be more active.

Eruzun (2017) found that there is a relationship between leisure time satisfaction and active sportsmanship status, and the scale scores of women who are active in sports are higher than those who are not. Accordingly, it can be said that women who are active in sports make better use of their leisure time.

Results Related to Sleep Quality during Reformer Pilates Exercise

As a result of the research, "the effect of reformer Pilates and occupational effect" were determined as sub-dimensions under the main theme of "sleep quality". It was found in our research that reformer pilates, which is a drug-free treatment, effectively affects sleep and eliminates sleep disorders seen in participants with low back pain, and that they sleep well. These participants stated that the reformer Pilates exercises applied in the sessions they attended were specially designed by their instructors and that they applied exercises to strengthen their waist and abdomen. Participants expressed their views on the theme of "sleep irregularity". Seven of the participants emphasized that the reason for having sleep problems was working in shifts due to their profession. When a woman with a herniated disc works, disrupted sleep rhythms cause pain. O'Donoghue et al. (2009) found that chronic low back pain affects women's overall sleep quality. Balcı (2017), as a result of a survey conducted with night shift workers, found that 84.3% of people experienced sleep disturbance due to staying up late, and 64.7% experienced psychological effects due to sleep disturbance. It shows that this study supports our research.

Our research suggests that the causes of sleep disturbances may be occupational and work-related. This has been shown to increase pain and cause other symptoms. It can be argued that women with herniated discs should continue various reformer Pilates to improve their quality of life. In addition, it is thought that the results of the study will guide the practitioners working in the field since it examines the effects of

reformer Pilates on the physical, psychological, social development and thus quality of life of the participating individuals in depth.

Authors' Contribution

Study Design: ZK, NÜ; Data Collection: ZK, NÜ; Statistical Analysis: ZK, NÜ; Manuscript Preparation: ZK, NÜ.

Ethical Approval

The study was approved by Batman University Ethics Committee (Date: 13.06.2023, Decision number: 2023/04-27.

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Conflicts of Interest

The authors declare no conflict of interest.

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