

Autonomy as a basic determinant of the quality of life in disorders of the musculoskeletal system

Autonomia jako podstawowy wyznacznik jakości życia w chorobach narządu ruchu

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Medical Studies/Studia Medyczne 2023; 39 (2): 198–205

DOI: <https://doi.org/10.5114/ms.2023.129029>

Key words: autonomy, orthopaedic surgery, dignity.

Słowa kluczowe: autonomia, chirurgia ortopedyczna, godność.

Abstract

The purpose of this article is to draw attention to the basic factor determining a patient's dignity and quality of life, which is the ability to function autonomously, maintaining self-reliance and independence. In disorders of the locomotor system, and orthopaedic surgeries, such as total hip arthroplasty and total knee arthroplasty, allow the patient – after the rehabilitation period – to carry out life tasks without the help of others. The article discusses ways of understanding patient autonomy as well as quality of life and the determinants of both. Then, it formulates premises for the treatment of orthopaedic patients that allows us to optimize their well-being, satisfaction with surgery, and full use of the resulting improvement in health. The basic assumptions that make up the model of the work of a multidisciplinary team in orthopaedic surgery departments has also been formulated.

Streszczenie

Celem artykułu jest zwrócenie uwagi na istotny, podstawowy czynnik warunkujący godność chorego i jego jakość życia, jakim jest możliwość funkcjonowania przez niego w sposób autonomiczny, z zachowaniem samodzielności i niezależności. W chorobach narządów ruchu operacje ortopedyczne, takie jak wymiana stawów biodrowych i kolanowych, zapewniają po okresie rehabilitacji możliwość realizowania zadań życiowych bez konieczności korzystania z pomocy osób trzecich. W artykule omówiono sposoby rozumienia konstruktów „jakości życia” oraz „autonomii chorego” i ich uwarunkowania, a następnie sformułowano przesłanki psychologiczne i medyczne dotyczące postępowania wobec pacjentów ortopedycznych, pozwalającego na optymalizację ich samopoczucia, satysfakcji z operacji i pełnego wykorzystywania uzyskanej poprawy stanu zdrowia.

Patient autonomy and dignity

The in-depth understanding of the psychological situation of a sick person draws attention to basic issues such as the patient's sense of dignity and autonomy [1]. They cover both the patient's situation in the treatment process and in the conditions of everyday life. In recent years, understanding of the concept of autonomy has been expanded beyond the issue of merely making decisions about consent to the implementation of specific medical procedures. Arrieta Valero [2] proposed the adoption of a multi-dimensional concept of patient autonomy including decisional autonomy, executive autonomy, functional autonomy, informative autonomy, and narrative autonomy. The decisional autonomy concerns independent, rational decision-making by the patient. Executive autonomy means planning: activities aimed

at improving health, subsequent steps in treatment, implementation of a therapeutic plan, and consistent maintenance of the direction of pro-health activities. The functional dimension of autonomy is the ability of a sick person to meet their needs and carry out basic life tasks. The informational dimension of autonomy concerns the ability to control information about one's own health. The narrative autonomy is related to communicating a personal vision of the disease to others and the most important aspects that determine changes in the patient's identity. It is important for cooperation in treatment because it allows the patient to build a coherent and understandable concept of their own health situation. The dimensions of autonomy may be independent of each other, but most often a dysfunction in one area has consequences in other areas, especially those concerning the patient's sense

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Table 1. Classification of degenerative changes in joints

Due to the aetiological factor	
Primary (idiopathic) – no apparent cause	Secondary – with a known cause: – congenital abnormalities of the joints (e.g. hip dysplasia) – genetic, metabolic, endocrine, neuropathic defects, and gout – inflammatory systemic diseases, infectious diseases (rheumatic diseases, joint infections) – post-traumatic (fractures, dislocations) – joint overload (occupational diseases, sport)
Due to the number of joints involved	
Monoarthritis	Oligoarthritis and polyarthritis
Due to the distribution and frequency of occurrence	
<ul style="list-style-type: none"> – Spinal joints (intervertebral discs, zygapophyseal joints) – Hip joints – Knee joints – Ankle joints – Shoulder joints – Elbow joints – Peripheral joints (hands, feet) – Others 	

of identity and the way the environment perceives them in the disease.

The concept of autonomy does not only mean independence or self-reliance. The autonomy concerns the sense of freedom of choice, while independence refers to independent functioning and efficiency in satisfying needs and carrying out basic life tasks [3]. For a psychological understanding of a sick person's situation, a subjective sense of autonomy is important, which allows them to experience personal freedom and manage their own life. It is a basic element of good quality of life and perceived life satisfaction [4].

Attention to the patient's decisional autonomy is particularly important in emergencies, where the speed of action determines the effect of treatment. However, in chronic diseases, it is important to care for all these areas of autonomy. This is especially important in diseases where objectively assessed independence or patient's self-reliance is very limited [2]. Respecting the multidimensional sense of autonomy of a sick person is also of fundamental importance for cooperation in the treatment of chronic diseases.

Disorders of the musculoskeletal system and orthopaedic surgeries

Disorders of the musculoskeletal system have many causes and many clinical forms. Their common feature is a varying degree of limitation of independence, which is accompanied by pain and discomfort. Musculoskeletal dysfunctions are often associated with the aging process, which further impairs the ability to self-care and move. One of the most common orthopaedic disorders is degenerative changes. The essence of these changes means disturbing joint function by destroying articular surfaces. Degenera-

tive and deforming changes are one of the most common causes of impairment of the physical capacity and efficiency of the musculoskeletal system due to pain (pain syndromes), limited mobility, and joint deformities, as well as mobility impairment (Table 1).

Degenerative changes are acquired disorders, the risk of which increases with age. Depending on the stage of advancement, their treatment starts with non-surgical procedures, pharmacotherapy (NSAIDs, viscosupplementation), or orthobiology (humoral or cellular growth factors). When a certain limit is exceeded, the disorder is no longer amenable to conservative treatment. Then, the use of preventive procedures (e.g. osteotomy, arthroscopy) is considered, which can provide relief and improve the patient's condition for a specified period of time. In advanced lesions, the only method of effective treatment is arthroplasty, i.e. the replacement of worn articular surfaces with elements of an artificial joint.

Gajda *et al.* [5] assessed and analysed Polish national datasets and registries for hip and knee arthroplasty to describe and understand the challenges healthcare is facing in an aging society. The study included national data on 83,525 hip or knee arthroplasty surgeries performed in 2017. Of these, 78,388 (93.8%, of whom 63.0% were women) were primary surgeries: 66.6% underwent total hip arthroplasty (THA, mean age: 68.43 years, SD: 11.9), and 5,137 were reoperations (women: 62.9%), of which 75.2% were THA (mean age: 69.0 years, SD: 12.0). In contrast, the mean age of patients undergoing total knee arthroplasty (TKA) was 68.50 years (SD: 8.2). Most (79.9%) of the operations were elective. The main reason for hospitalization was osteoarthritis (84.2% in total, THA – 76.5%, and TKA – 99.5%), followed by

trauma (15.1%; $p < 0.001$). In 5137 cases (6.2%, 62.9% of women) in the revision surgery group, 75.2% of patients underwent THA (mean age: 69.0; SD: 12.0), and 24.8% of them underwent TKA (mean age: 68.0 years; SD 10.5). Similarly, the percentage of elective surgeries was 71.1%. Complications were the main reason for hospitalization (total – 90.9%, THA – 91.4% and TKA – 89.4%) ($p < 0.001$). Comorbidities were present in over 80% of persons, and the increasing age of the patients implies an increase in comorbidities as well. The authors point out that Poland is an aging country where the group of people 60+ years old accounts for 25% of the population.

Orthopaedic operations that restore the mobility of the musculoskeletal system help patients regain not only independence and self-reliance, but also a broadly-understood sense of autonomy and dignity. Thanks to this, they improve the quality of life of patients by reducing pain, increasing physical capacity, and by expanding the range of everyday life activities. The patients regain the possibility of self-determination, making their own choices and making decisions about themselves. Miettinen *et al.* [6] showed that successful total hip arthroplasty and total knee arthroplasty improve health-related quality of life; based on a sample of 3558 patients (1364 THA, 2194 TKA), they showed that 12 months after THA surgery, the patients' quality of life was comparable to that of the control group; however, after TKA surgery only patients over 75 years of age and men aged 55–64 years achieved the level of the control group. At a statistically significant level ($p < 0.05$), the results in terms of mobility, sleep quality, regular activities, and vitality improved; the feeling of discomfort and anxiety symptoms decreased.

Patients are not always satisfied with the results of the performed surgery. According to the research of de Beer *et al.* [7], satisfaction with orthopaedic procedures varies depending on their type. The analysis of the perception and level of satisfaction of THA patients compared to TKA showed that despite a longer stay in the hospital, patients from the THA group were more satisfied – the surgery met expectations to a greater extent regarding the improvement of functioning and quality of life. However, no differences were found between THA and TKA in the level of pain relief. Most of the patients in the TKA group (70.9%) reported the need for longer physical therapy. After 1 year, despite the comparable level of pain relief, greater satisfaction with the performed procedure, and a significant improvement in the subjective evaluation of the level of functioning were observed in the group of patients with THA. The research indicates that recovery from TKA requires more effort in physical therapy and a longer time to achieve a satisfactory recovery state compared to THA [6, 7]. It should therefore be taken into account that knee surgeries may pose a greater psychological and emotional

burden for patients and may therefore require greater and longer support from medical personnel. Other studies [8] indicate that there is a clear trend of an increase in the number of knee joint procedures. The researchers analysed data from 18 countries with a total of 755 million respondents and found an estimated 1,324,000 TKAs per year. These indicators clearly show an increasing number of patients requiring long-term specialist care and support in the recovery process.

Quality of life of patients with musculoskeletal dysfunctions

Quality of life (QoL) refers to many aspects of human functioning. The World Health Organization [9] defines quality of life as the individual's perception of their life situation, taking into account cultural and social conditions as well as personal values, goals, and expectations. The quality of life is thus defined as a very broad concept that is determined in a complex way by factors related to the psychophysical state of an individual and a sense of their autonomy and independence.

The sense of quality of life refers to life satisfaction, and more broadly – to a subjective sense of well-being in relation to physical, emotional, social, and material factors. Post [10] introduces various concepts of quality of life, showing many definitional dilemmas regarding this concept. The quality of life concerns the assessment of how good and satisfying life is in the subjective evaluation of an individual [11]; general joy of life and the possibility of undertaking daily activities [12]. It also includes satisfaction with the realization of life values, goals, needs, and opportunities [13]. It is also possible to define the quality of life directly related to an individual's health (health-related quality of life – HRQoL). Gotay and Moore [14] define HRQoL as a sense of well-being, which includes two components: 1) an ability to undertake daily activities that affect physical, mental, and social well-being; 2) satisfaction with the level of functioning, disease control, and/or symptoms associated with the treatment. A broad approach to health-related quality of life was proposed by Schipper, Clinch, and Olwey [15]. HRQoL is a multidimensional construct that takes into account somatic experiences, physical and professional functioning, mental state, and social interactions. McCormick [16] goes even further, arguing that the concept of quality of life has a highly individual, personal dimension and requires exceptional understanding of providing appropriate care to people with various health problems. It is especially important when a disability or a disease may have a long-lasting effect on the functionality of an individual and their participation in social life. McCormick points out that although the quality of life is a highly individual matter, it is the experience of pain that clearly reduces the quality of life, being a universal predictor of its deterioration.

Research on patients with musculoskeletal disorders has shown interesting relationships. Busija *et al.* [17] observed that after successful orthopaedic surgery, despite an obvious improvement in physical health (i.e. improvement in functionality, reduction of pain), much smaller changes were visible in the scales measuring psychological and social aspects. Despite the significant improvement in the physical aspects of functioning of orthopaedic patients, in the follow-up study, they still showed significantly lower results in general health condition compared to the reference group of the same age and sex. In turn, their results in mental and social functioning gradually approached the norm. The researchers emphasize that the results may be the consequence of the specificity of the research tool used (Medical Outcomes General Health Survey – SF-36) and its low sensitivity to the effects of changes.

In long-term, health-related quality of life studies in orthopaedic patients, Jansson and Granath [18] analysed the effects of orthopaedic surgery using a standardized general health measurement tool (EQ-5D). The mean scores in general health condition of orthopaedic patients improved from 0.54 to 0.72, but the differences were diverse for various medical conditions and operations. In most patients, EQ-5D improved but did not reach the levels seen in the control group of matched age and gender. The researchers suggest that the use of such measurements before surgery can be used to increase the level of patients' awareness, improve their cooperation with medical staff, and improve the rehabilitation process.

Both methods used in the above studies – SF-36 and EQ-5D – were used together in the study by Lips and van Schoor [19], who emphasized the diagnostic usefulness of these tools in the analysis of the quality of life of orthopaedic patients. In their study, they compared the results among different groups of patients with osteoporosis and with groups of healthy elderly people. Interestingly, in the assessment of “how a hip fracture can affect the quality of life”, healthy people from the control sample indicated a worse quality of life than patients suffering from such ailments. On the one hand, this may indicate getting used to the problem and implementing remedial strategies in sick people, and on the other hand – a more negative anticipation of the problem than its real assessment. The research shows that the greatest decrease in the quality of life evaluation occurs in the first year after orthopaedic injuries; improvement was observed also in the second year, but the results did not reach the baseline values.

McCormick [16] pointed out that with aging, the relationship between independence and quality of life increases. This is a particularly interesting aspect in the context of orthopaedic patients – the sense of dependence can be experienced completely differently by younger people than by older people, which,

to a varying degree, will reduce the sense of their quality of life. The perspective of long-term care in disorders of the musculoskeletal system, related to age and comorbidities, undertaken in the work of Lijoi *et al.* [20], shows the need for a multidimensional assessment of the patient's condition, its rehabilitation possibilities, and the search for optimal solutions taking into account both benefits for the patient and costs of the surgery – it is important to consider the possibility of postoperative complications. When deciding to operate, it is necessary to plan early activation and rehabilitation of the patients, and to prevent secondary injuries and fractures. The analysis of all these conditions and challenges allows us to draw another context – the context of medical personnel, which, focusing on the basic goal of improving the quality of life of patients, is often heavily burdened with the complexity of the problem.

Another group are patients with acute orthopaedic injuries, in whom the trauma arose in sudden, unexpected circumstances and rapidly changed their life situation. These injuries are often associated with numerous fractures, sometimes with amputations. In a review, Vincent *et al.* [21] presented the impact of this type of experience on severe stress, mental suffering, post-traumatic stress disorder, depression, and anxiety. These symptoms have a significant influence on the length of recovery and may affect the level of involvement in the treatment and rehabilitation process. According to the authors, about 50% of patients in this group are people whose mental suffering may last for many years. Apart from direct surgical assistance, these people require special support, a holistic approach, psychoeducation, and the development of competences to cope with their situation. In the long term, it is important to build a support network, often involving people who have had similar experiences. The authors of the study emphasize that improving the quality of life of these patients is a long, complex process that requires the involvement of various specialists. Understanding this problem seems vital both for patients and doctors who carry out the first, often crucial intervention – their work is the beginning of changes aimed at improving the quality of life of patients.

McCormick [16] emphasizes that the quality of life is determined by positive feelings about the current life situation and hope for the future. The factors that, in the most general sense, improve the quality of life are physical well-being, a sense of social belonging, and an optimal sense of independence. If all of them are somehow considered, the quality of life becomes better. In the context of patients with musculoskeletal disorders, the initial, reduced level of the quality of life, as well as the length and complexity of the process of its rebuilding in the event of rapid changes or widely understood sense of loss, should be taken into account. Regardless of the discussed groups of or-

thopaedic patients, it is also worth bearing in mind strictly psychological factors, such as reducing stress, anxiety, and depression symptoms, and increasing self-esteem and autonomy, which remarkably affect the sense of life satisfaction and raise the level of the quality of life [22, 23].

Trajectories of psychological adaptation after orthopaedic surgery

The incidence of musculoskeletal disorders, orthopaedic surgery, and the rehabilitation process constitute a situation of serious psychological stress for a sick person. The way of coping depends on the resources of a patient and their environment [24, 25]: permanent personal dispositions, mental resilience, the range of coping strategies, as well as the attitude towards the disease and treatment, and the nature of the relationship with a doctor [26]. Each person is a unique individual, but clinical observation allows us to distinguish several characteristic ways of adaptation.

The first way concerns patients who actively try to deal with the musculoskeletal disorders, because they want to continue to live actively and work, do not want to be a burden to the environment, and also want to function independently in everyday life. The patients then decide to undergo orthopaedic surgery usually at the right time, do not delay it, and actively rehabilitate after the surgery. During the period of treatment and rehabilitation, they require moderate support.

Another adaptation trajectory concerns people for whom the musculoskeletal dysfunction has become a reason for gaining care and attention from relatives, constant presence of loved ones, and limiting participation in previously undertaken duties. Due to the psychological benefits, the patient may not decide to undergo surgery because, as the pain and disability worsen, they gain more and more sympathy and help. This may postpone the decision about the procedure, and consequently result in surgery at the time of such significant damage that restoring full mobility becomes extremely difficult.

The described possible ways of psychological adaptation may remarkably determine the patient's satisfaction with the surgery and the level of improvement in the quality of life.

Model of multidisciplinary conduct in the orthopaedic surgery department

To better understand the patients' emotions that accompany the entire treatment process, it is worth following their path from the moment of making the decision about the surgery to the return to physical capacity. This process can be divided into several stages. The first is visits to an orthopaedic clinic, during which the patient is qualified for surgery. At

the same time, the visits provide an opportunity to explain the entire treatment process. The patients often expect that the surgery itself will turn out to be a remedy for their pain, which will disappear immediately in the first postoperative day. During this period, it is important to provide the patient with necessary information about their health condition and the operating procedure as well as to make the expectations regarding the effect of the treatment more realistic. At the same time, motivating the patient to participate in the recovery process favours their active participation in the process of postoperative rehabilitation.

The second stage is hospitalization. THA and TKA procedures involve the removal of degenerative articular surfaces and their replacement with an endoprosthesis. Implants are made of metal, polyethylene, and ceramic elements. The metal parts of the endoprosthesis are assembled onto the bone with the use of either a press-fit mechanism or "bone cement". The duration of the surgical procedure is approx. 1–2 h depending on the method of endoprosthesis assembly and local conditions. The procedure requires special aseptic conditions to be maintained, specialized instruments to be used, and an appropriate type of endoprosthesis to be selected. The operator's experience and the patient's qualification for surgery are also of paramount importance. Because patients are characterized by different psychological dispositions – they experience unequal levels of anxiety, use various coping strategies and activate different defence mechanisms – it is worth adopting an individualized way of preoperatively informing and preparing patients for surgery. Some people need more explanation and need to feel more cared for, while others are independent and prepared. The surgeon – the future operator, with whom contact before the procedure allows the patient to feel the care and interest of the doctor – plays a leading role in preparing the patient for surgery. However, it is worthwhile for a psychologist to talk to each patient, recognizing their attitude towards the procedure, reducing fears and anxieties, and shaping co-responsibility for the rehabilitation process. Contact with a physiotherapist who explains the need for cooperation and discusses the next stages of rehabilitation allows the patient to have a more complete idea of the further process. Therefore, in the process of the patient's individual preparation for surgery, the participation of all team members and the exchange of information between them is important. During hospitalization, the patient changes their environment from home to an unfamiliar hospital environment, and they undergo surgery, which is associated with pain, mobility impairment, and the struggle to return to independence in performing the simplest activities.

The duration of patient's hospitalization for arthroplasty is approx. 6–8 days. It is especially important to

pay attention to the patient's comfort in the hospital room, so as not to generate fear and other negative feelings from the very first moment. The overriding issue at this time is appropriate analgesic pharmacotherapy undertaken immediately after the surgery. The following days are the time of postoperative rehabilitation, further analgesic treatment, and self-care training. During this time, it is vital to contact a physiotherapist as soon as possible and support the doctor. It is also very important to educate the patient's caregivers, who help in the patient's self-care activities in the first days after hospitalization. Full recovery takes about 4–6 weeks. At that time, the greatest emphasis is placed on improving the support function of the limb and gait training (including stairs).

In the third stage, after returning home, the person after the procedure must learn to function in new conditions and verify their expectations that accompanied them at the stage of qualifying for the procedure. The return to the home environment should be preceded by continued psychoeducation of people close to the patient in order to obtain a proper approach to the patient. Both the lack of help and excessive demands on a person after surgery may be difficult for them, and over-care, not allowing them to perform even the simplest activities out of fear for the patient, are unfavourable. A prepared family will know what to expect from the person after surgery, how to motivate and rehabilitate them, and when they really need support and help.

Regardless of the type of disorder and the age of the patients, regaining physical capacity after orthopaedic surgery always requires the patient's close cooperation in the treatment and rehabilitation process. To achieve success, the interdisciplinary cooperation of the medical team is also important, in which, in addition to the surgeon-orthopaedist and nursing staff, the participation of rehabilitators, occupational therapists who facilitate the improvement of the patient's daily activities, and psychologists who motivate the patients to cooperate and provide them with emotional and informational support, is beneficial. Comprehensive treatment allows for the maximum recovery of physical capacity in a given health condition and at a given age of the patient. This requires close cooperation between orthopaedic doctors and other specialists who may take into account a wider context of patient disorders, and psychosocial and existential factors.

Discussion and conclusions

Disorders of the musculoskeletal system that significantly limit the possibilities of a sick person require a clear emphasis on the patient's right to multidimensional autonomy in treatment and care. This means not only respect of this right by the medical staff and caregivers of the patient, but also taking up

psychological work with the sick person. Recognizing the factors that patients consider essential to preserving their autonomy and dignity will help professionals to develop practical methods to consider patients' needs and provide better care. Some research has explored these aspects, giving the opportunity to develop and introduce practical implications. For example, Ferri *et al.* [27] analysed how hospital patients perceived their dignity in the treatment process. According to patients, privacy and respect during medical procedures were satisfactory but they complained about insufficient information and verbal communication. Rogmark and Lynøe [28] emphasize the autonomy principle and refer it to proper information procedures and patients' right to take part in decision-making concerning their treatment. They refer to possible worries, expectations, and prejudices that may influence patients' attitude to treatment, which should be considered by physicians. In this context, it seems that psychological interventions may be beneficial both for patients and physicians who have to struggle at first with complex medical issues and need to cooperate with other specialists [29, 30].

Bearing in mind the limitations and difficulties in patients with musculoskeletal disorders, their autonomy and dignity should be considered similarly as other important clinical goals. Seaman, and Erlen [31], showing different aspects of healthcare at an orthopaedic unit, emphasize the need to preserve patient dignity and self-determination. According to Seaman and Erlen, it is important to evaluate patients' psychological state, supported by geriatric or psychiatric consultations. The significance of considering the mental condition of orthopaedic patients seems important due to results indicating that presurgical depression or poor emotional health were linked to worse functionality, lower quality of life, and reduced patient satisfaction after the operation [32]. Fehon and Swanson [33] describe specific psychological interventions that are found to be relevant to peri-surgical healthcare. Addressing the concern of the challenge to autonomy/dignity in peri-surgical patients following psychological intervention has been identified as particularly beneficial: stress management skills, behavioural techniques, acceptance and commitment therapy, and family systems intervention [33]. Thus, existing studies accentuate the meaning of patients' autonomy and dignity and their psychological state in the whole process of treatment but do not indicate the complex perspective of the multidisciplinary team in orthopaedic surgery departments supported by psychologists.

The aim of psychological support and interventions in orthopaedic patients would be to raise awareness of the connections among the needs for freedom and self-determination, the context of limitations resulting from the disorder, and psychological conse-

quences, such as fear, uncertainty, sadness, or anger. It is important to work on developing a sense of influence and responsibility for the choices made – including rational health assessment, decision-making based on the professional information of doctors, cooperation in treatment and rehabilitation, persistence in consistent adherence to recommendations, and implementation of the therapeutic plan. Psychological support after orthopaedic procedures may be beneficial for the reintegration of patients' sense of identity and regaining their sense of autonomy. The entire course of treatment of a patient who undergoes arthroplasty is based on their proper cooperation with medical personnel. The patient's positive attitude to treatment and obtaining a good result largely depend on the patient's psychological profile. Too much patient criticism, excessive expectations, and failure to comply with the guidelines are not conducive to the progress and successful outcome of the treatment. The surgical procedure must be performed under very strict conditions, and the patient should feel comfortable and safe during hospitalization. During treatment, it is necessary to normalize and rationalize the patient's approach to the course of treatment and expectations regarding result. The standard of conduct related to the individualized treatment of patients' psychological issues and providing them with the opportunity to cooperate with a psychologist significantly facilitates the patient-medical staff relationship and may indirectly affect the outcome of treatment. In turn, patients' satisfaction is an important factor in protecting orthopaedic surgeons from the risk of burnout [34].

Conflict of interest

The authors declare no conflict of interest.

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