Original Research

Psychosocial impact of scars following total hip arthroplasty: a comparative study of traumatic vs. non-traumatic etiologies

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Abstract

Background. This study aims to assess the psychosocial impact of the scars resulting from total hip arthroplasties (THA) in terms of internalization and adaptation related to the etiology of the joint damage (traumatic versus non-traumatic) and the specific surgical procedure, by using a modern approach.

Methods. A prospective study was carried out between October 2020 and September 2022, at the Orthopedics department, Bihor Emergency County Clinical Hospital in Oradea, located in North-west of Romania. Depending on diagnosis, the participants were divided into two relatively homogeneous groups: non-traumatic group with 113 subjects (55.66%) diagnosed with degenerative hip osteoarthritis and traumatic group with 90 (44.33%) patients who underwent total hip arthroplasty (THA) following a trauma.

Results. The highest internalization score was noted in uncemented THA cases performed as a consequence of traumatic coxarthrosis. The ANOVA coefficients of intergroup comparisons for the participants with traumatic coxarthrosis indicate that surgical procedures have a significant influence on scar internalization [F (2, 90) = 10.046; $p<0.001$; $\eta 2=0.188$]. Scheffe's post hoc test indicated that patients with non-traumatic coxarthrosis who underwent uncemented THA procedures presented a higher level of psychosocial internalization compared to those who underwent cemented (Mdf = 3.87; $p<0.02$) and revision THA (Mdf = 4.60; $p<0.004$), but without surprising differences compared to revision of the soft tissue (Mdf = 3.31; $p<0.08$).

Conclusions. The relevance of the coxarthrosis etiology for subsequent surgical interventions was emphasized in this study. Coxarthrosis has a strong impact on the psychosocial internalization of postoperative scars, which indicates a change in the perception of social support as well as the perception of the quality of life.

Keywords: total hip arthroplasty, post-operative scars, psychometric scale, internalization

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Introduction

Osteoarthritis (OA) is a common degenerative disease of the joints that is treated mainly symptomatically before the deciding on the curative treatment, which is joint arthroplasty [1-3]. Radiographic evidence of OA can be observed in most people by the age of 65 years and in about 80% of those over 75 years old causing the patient continuous suffering through pain and disability.

Total hip arthroplasty (THA) is a surgical intervention that replaces the damaged coxo-femoral joint with an artificial implant called a hip prosthesis. The irreversible damage of the joint may have a traumatic or non-traumatic etiology [4,5]. Documented in 1960, THA is one of the most successful surgical interventions. Moreover, shortly after the procedure the pain diminishes significantly, and the person can regain mobility in the hip,

resuming daily activities [5].

The number of THAs is gradually increasing. Currently, an estimated 400,000 THAs are performed annually worldwide [6]. Such a visible increase in the demand for THA highlighted the positive effect of this surgical intervention and certainly on the health-related quality of life (HRQoL) of the patients, a fact demonstrated by several studies conducted worldwide on patients with OA [7,8]. However, THA causes scar tissue sometimes aggravated by large internal cuts in the hip capsule, whilst excessive tightness or looseness might cause adhesions and persistent pain after surgery. Improper rehabilitation can also lead to build-up of scar tissue.

Scarring is a complex healing process following the trauma of the skin, being influenced by a series of genetic, local factors, comorbidities, or some medications that can negatively influence the healing process [9-11]. While in cases of THA for hip OA, the surgical procedure is accepted and expected, the post-traumatic THA (including hemi-arthroplasty) is frequently performed as emergency surgery following a traumatic event, usually an accident or subsequently, after a variable period of time, following complications (femoral head necrosis or secondary OA).

The surgical incision, especially following a trauma, frequently include aesthetic, psychological, or functional consequences [12-14]. Before post-traumatic or surgical scar revision surgeries, including cosmetic ones, the case management team must explain to the patient the advantages, disadvantages, and complications that may arise depending on the understanding of patient's needs, thus ensuring an informed consent and avoiding unnecessary or inappropriate surgery. Clinical assessment must be standardized to provide useful information and to anticipate therapeutic consequences [15].

Scar management should be approached with consideration to five main areas of impact on patient needs: physical comfort and function; acceptability to self and others; social functioning; confidence in the nature and management of the condition; emotional well-being. Support services should be available along with the education of health care personnel to improve the management and to reduce patient's suffering [16,17].

However, scar evaluation is performed by using scales to quantify the effectiveness of new treatments and to monitor both the symptoms and the sensations given by the scar to the patients [18]. Among the symptoms that can develop after surgery or trauma are pain, itching, and intractable allodynia, which can affect the patient's quality of life and functionality [19]. Most scars monitoring rating scales have been developed for post-burn scar observation alongside with its psychosocial effects on well-being and remodeling of the scar aspect [20].

The internalization of post-traumatic scars was defined by Mekeres et al. in terms of habituation and integration as a part of the body after a certain adapting period, depending on the victim's social and familial support [21,22].

Aesthetic damage is a determining factor affecting the patient's well-being, but there are also other factors such as local itching and pain, functional losses if the scar passes over a joint, and psychosocial problems, all affecting the patient's quality of life [23,24]. Furthermore, aesthetic damage and slander can put the victim at a disadvantage due to the obvious and definitive post-traumatic scars by altering the harmonious appearance of the person, regardless of their anatomical location [25].

The research related to the impact of scars on people's perception and reaction in different life circumstances started from a clinical dichotomization that facilitated the causal understanding of the generation mechanism and finally, predictions about the uninvestigated or insufficiently investigated subsequent effects.

The aim of this study is to assess the psychosocial impact of scars following THA in terms of internalization and adaptation depending on the etiology of the joint damage (traumatic versus non-traumatic) and the specific surgical procedure (cemented/uncemented prosthesis, and revision surgery). In patients with degenerative osteoarthritis undergoing THA, the surgical intervention is expected to come as a relief after a long suffering, while in post-traumatic cases, the intervention is a consequence of an unforeseen event, each situation resulting in the social and psychological impact of the aesthetic damage.

Methods

Study design

A cross-sectional study was carried out between October 2020 and September 2022, in the Orthopedic department of the Emergency County Clinical Hospital, Oradea, Bihor County, Romania, to evaluate scars evolution and internalization, using the Mekeres' Psychosocial Internalization Scale (MPIS) as a measurement tool, on a cohort of patients who underwent hip arthroplasty. A total of 203 participants aged between 24 and 90 years (average age, m= 58.44; SD=17.41) were declared eligible for this study, of which 92 (45.3%) were women and 111 (54.7%) were men. Criteria for inclusion in the study: age> 18, patients with coxarthrosis undergoing hip arthroplasty with traumatic and non-traumatic etiology, having more than one surgical intervention. Exclusion criteria: patients with associated diseases (diabetes, mental illnesses), patients who did not understand or did not agree to sign the informed consent.

Participants

Depending on diagnosis, the participants were divided in two relatively homogeneous groups, namely non-traumatic group with 113 subjects (55.66%) diagnosed with degenerative hip OA and traumatic group with 90 (44.33%) patients who underwent total hip arthroplasty (THA) following a trauma.

Data collection and measurement

Mekeres' Psychosocial Internalization Scale (MPIS)

was applied on bothgroups (supplementary material), one year after surgery, the data being collected and interpreted by three independent professionals. The demographic data and clinical features of the subjects included age, gender, marital status, education level, clinical symptoms, associated diagnosis and post-operative evolution. The schematic experimental design is depicted in figure 1.

Statistical analysis

The differences between the two groups were investigated, taking into account the dependent variable (VD) represented by scares internalization defined according to the MPIS. The experimental design was a 1 x 2 type using unifactorial ANOVA. To analyze the impact of independent variables such as scars etiology (traumatic versus non-traumatic) and the number of surgical interventions (1, 2, or 3) on dependent variable (internalization), a bifactorial ANOVA 2 x 3 type was applied.

The last step of the experimental design was devoted to the relationship between the internalization of scars resulting after traumatic or non-traumatic THA according to the etiology of coxarthrosis, by applying univariate ANOVA to analyze the influence of the independent variable (surgical procedures for traumatic and nontraumatic coxarthrosis) on the dependent variable (scar internalization). In this case, the experimental design was 1 x 3 type for surgical procedures related to traumatic coxarthrosis and 1 x 4 type for surgical procedures in nontraumatic coxarthrosis.

A statistical analysis was performed using the Statistical Package for the Social Sciences v.22 (SPSS, Chicago, IL, USA), while p-value lower than 0.05 was considered statistically significant.

Ethical statement

The study was approved by the Institutional Review Board and Ethical Council of the Emergency County Clinical Hospital, Oradea, Bihor - Romania (no. 1267/14.01.2022 and 1087/13.01.2022). The research was conducted in compliance with the Declaration of the World Medical Association of Helsinki. Participation in the study was voluntary and written informed consent was obtained from all participants for accurate collection of information and data processing.

Results

Socio-demographic and clinical indicators regarding the diagnosis

The demographic data and clinical features of the subjects included in both groups are presented in table I.

Our interest was directed towards the symptoms of coxarthrosis, associated risk factors, comorbidities, and postoperative evolution of the patients included in each group (Table I). The shortness of the limb indicated higher frequencies in right coxarthrosis interventions (5.5%), while the abolition of the range of mobility was highlighted in the case of unilateral operated bilateral coxarthrosis (8.8%); pain and helplessness are common in the case of coxarthrosis operated bilaterally.

Relation between the internalization of scars, etiology and the number of surgical interventions

The aim was to highlight the indication importance for the hip arthroplasty and the subsequent surgical interventions in relation to scar's evolution and internalization, dichotomizing OA in terms of traumatic or non-traumatic etiology.

In this study, 90 participants were identified with traumatic coxarthrosis and 113 participants with non-traumatic coxarthrosis, being evaluated according to their responses provided by the questionnaire and MPIS score. Independent t-test indicated that participants with traumatic coxarthrosis acquired greater scars internalization [t (201) = 12.461; p<.001] compared to participants with non-traumatic coxarthrosis.

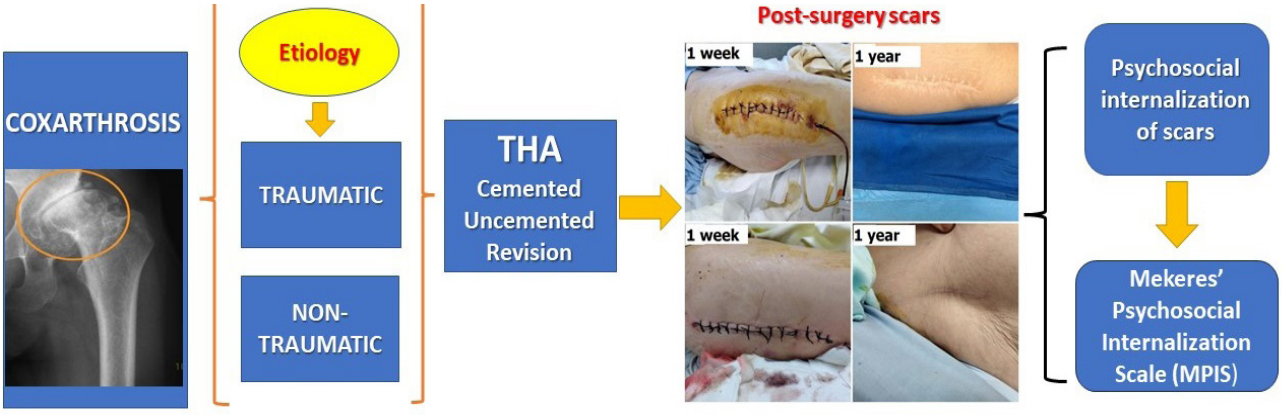

Figure 1. Schematic representation of experimental design.

Table I. Demographic and clinical data of study patients with traumatic and non-traumatic OA.

Demographic characteristics					
Variable	**Category**	**Traumatic (N=90)**	**Non-traumatic (N=113)**	**χ2**	**p**
Age	under 65 years	64 (71.1%)	63 (55.8%)	3.182	0.074
	over 65 years	26 (28.9%)	50 (44.2%)	1.662	0.197
Gender	Male	47 (52.2%)	64 (56.6)	0.210	0.646
	Female	43 (47.8%)	49 (43.4)	0.185	0.667
Marital status	Single	11 (12.22%)	14 (12.38%)	0.001	0.990
	Married	65 (72.22%)	73 (64.6%)	0.914	0.339
	Divorced	9 (10.00%)	14 (12.38%)	0.029	0.864
	Widowed	5 (5.55%)	12 (10.62%)	0.103	0.748
Education level	Middle school and Professional school	32 (35.55%)	49 (43.36%)	0.770	0.380
	High school	42 (46.67%)	33 (29.2%)	2.340	0.126
	College	16 (17.78%)	31 (27.43%)	0.525	0.468
Clinical characteristics					
Variable	**Clinical aspects**	**Traumatic**	**Non-traumatic**	**χ2**	**p**
Symptoms	Pain	7 (14.6%)	6 (10.9%)	0.126	0.722
	Functional Impotence	12 (25%)	14 (25.5%)	0.639	0.424
	Lower limb shortness	1 (2.1%)	3 (5.5%)	0.639	0.424
	Abolition of mobility range	1 (2.1%)	3 (5.5%)	0.032	0.859
	Pain and functional impotence	25 (52.1%)	25 (45.5%)	8.188	0.004*
	All the symptoms	2 (4.2%)	4 (7.3%)	2.052	0.152
Associated diagnosis	Smoking	19 (39.6%)	18 (32.7%)	0.957	0.323
	High blood pressure	9 (18.8%)	14 (25.5%)	0.038	0.844
	Obesity	9 (18.8%)	7 (12.7%)	0.089	0.765
	Tumors	4 (8.3%)	3 (5.5%)	0.695	0.405
	Scoliosis	3 (6.3)	4 (7.3%)	0.001	0.977
	Type 2 diabetes mellitus	3 (6.3)	7 (12.7)	0.209	0.647
	Other	1 (2.1)	2 (3.6%)	0.001	0.980
Postoperative evolution	Favorable	42 (87.5)	46 (83.6%)	20.351	0.0001*
	Unfavorable	6 (12.5%)	9 (16.4)	4.980	0.025

Legend: χ2 - Chi-squared test; statistical significance *p < 0.05.

Our results are in line with other studies related to scar internalization [9,22,24] and in this context, a further investigation was performed focused on the relationship between the etiology of coxarthrosis and the number of surgical interventions. For this purpose, univariate ANOVA was applied, considering the internalization of scars as a dependent variable, while the independent variables were considered the coxarthrosis etiology (traumatic versus non-traumatic) and the number of surgical interventions (1, 2 or 3 interventions).

The magnitude of the comparison between the traumatic versus non-traumatic group was significantly elevated (d=1.72) indicating the accuracy of the data at statistical and practical level and moreover, reducing the risk of a type II error. The results presented in table II indicate descriptive statistical data (means and SD) of the number of surgical interventions concerning the way of coxarthrosis occurrence, along with the ANOVA model indicating the statistical influence of the number of surgical interventions on the interparticipant comparison [F (2, 203) = 6.612; p<0.002] with average effect size η^2 =0.063. This result suggests that 6.3% of the psychosocial internalization of scars is due to the number of surgical interventions.

Table II. Descriptive statistical data on the independent variables (etiology and number of surgical interventions) along with the ANOVA model presenting the relationship between the number of interventions, etiology and the internalization of scars.

Descriptive data				
Number of surgical interventions	**Etiology**	**Mean**	**SD**	**N**
1	Traumatic	47.43	7.52	71
	Non-traumatic	36.95	5.21	49
	Total	43.15	8.42	120
2	Traumatic	41.33	6.83	15
	Non-traumatic	35.07	3.68	28
	Total	37.25	5.77	43
3	Traumatic	46.75	5.50	4
	Non-traumatic	32.91	5.16	36
	Total	34.30	6.62	40

ANOVA model				
Source	**Df**	**F**	**p**	**Ŋ²**
Number of interventions	2	6.612	0.002	0.063
Etiology	1	60.731	0.001	0.236
Number of interventions * Etiology	2	2.615	0.07	0.026

Legend: SD=standard deviation; N= number of patients; Df - degrees of freedom; F – ANOVA coefficient; η^2 - effect size.

The etiology of coxarthrosis in the intergroup comparison [F (1, 203) = 60.731; p<0.001] indicates a strong influence on psychosocial internalization (as indicated in table III) with a high effect magnitude (η^2=0.236) which indicates 23.6% of the total impact. The one-way ANOVA test did not show the mediation relationship between the two analyzed variables (number of interventions*etiology) concerning the psychosocial internalization [F (2, 203) = 2.615; p<0.07].

Intragroup comparisons (Bonferroni post hoc test) regarding the number of surgeries (Table IV) indicate the internalization of scars to be higher in individuals who underwent one single surgery compared to those with two (M_{df}=5.90; p<0.001) or three surgical interventions (M_{df} =8.85; p<0.001).

Table III. Multiple comparisons between the number of surgical interventions by post hoc Bonferroni test.

Number of interventions (A)	Number of interventions (B)	Mean differences (A-B)	SD	p
1	2	5.90*	1.08	0.001*
	3	8.85*	1.11	0.001*
2	1	-5.90*	1.08	0.001*
	3	2.95	1.33	0.08*
3	1	-8.85*	1.11	0.001*
	2	-2.95	1.33	0.08*

Legend: SD – standard deviation, * p value <0.05 - statistically significant

Figure 2 presents the impact of the scar etiology and the number of surgical interventions on the psychosocial internalization of scars, also indicating the independence of the two variables in influencing the internalization.

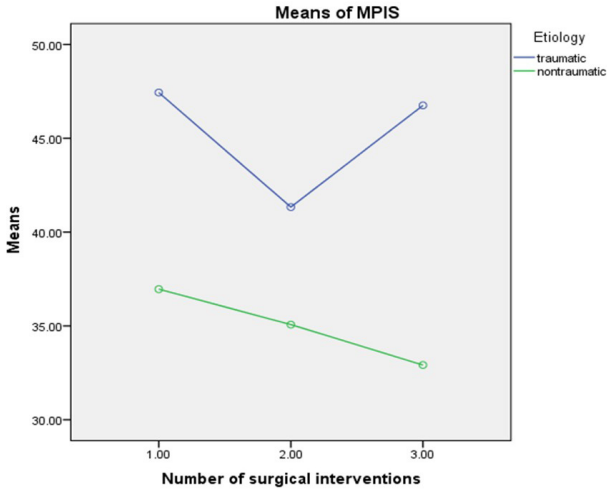

Figure 2. The impact of the coxarthrosis etiology and the number of surgical interventions on the internalization of scars. Relations between scar internalization, etiology and specific surgical procedures.

Table IV. Descriptive data regarding the scar internalization and independent variables (etiology and specific surgical procedures) along with the ANOVA model presenting the relationship between surgical procedures and internalization of scars according to the etiology of coxarthrosis.

Descriptive data				
Etiology	**Surgical procedure**	**Average score**	**SD**	**N**
Traumatic	Uncemented total arthroplasty	48.36	7.37	66
	Cemented total arthroplasty	40.50	6.20	12
	Revision total hip arthroplasty	41.41	4.66	12
	Total	46.38	7.62	90
Non-traumatic	Uncemented total arthroplasty	37.79	5.70	39
	Cemented total arthroplasty	33.92	4.35	25
	Revision total hip arthroplasty	33.19	4.87	26
	Soft tissue repair in revision	34.47	3.25	23
	Total	35.20	5.12	113

ANOVA model					
Etiology	**Source**	**Df**	**F**	**P**	**η^2**
Traumatic	Surgical procedures	2	10.046	0.001*	0.188
Nontraumatic	Surgical procedures	3	6.056	0.001*	0.143

Legend: SD – standard deviation; N=number of patients; Df - degrees of freedom; F- ANOVA coefficient; η^2 - effect size.

Relation between scar internalization, etiology and specific surgical procedures

Based on the etiology of coxarthrosis (traumatic versus nontraumatic) we aimed to further evaluate the influence of specific surgical procedures (such as cemented, uncemented and revised hip arthroplasty) on the psychosocial internalization of scars, the descriptive statistical data being displayed in table IV, along with the ANOVA model applied in order to find correlations between surgical procedures and internalization of scars according to the coxarthrosis etiology.

The highest internalization score was observed in cases of uncemented total arthroplasty performed as a result of traumatic coxarthrosis, while the ANOVA coefficients of intergroup comparisons for the participants with traumatic coxarthrosis indicated that surgical procedures have a significant influence on scar internalization [F (2, 90) = 10.046; $p<0.001$; $\eta=0.188$] with a medium effect level, indicating a percentage of 18.8% from the total effect.

Participants from the non-traumatic coxarthrosis group who underwent surgical procedures showed statistically significant ANOVA coefficients [F(3, 113)= 6.056; $p<0.001$; $\eta^2=0.143$], which indicates a direct correlation with the psychosocial internalization of the scar, but with low size effect (14.3%).

Intragroup comparisons by Scheffe's post hoc test (which allows for comparisons between unequal groups) in surgical procedures cases, involved in traumatic coxarthrosis (Table V), indicates scar internalization to be higher in patients who underwent uncemented total arthroplasty compared to the cemented total arthroplasty (M_{df}=7.86; $p<0.002$), or with total revision arthroplasty (M_{df}=6.94; $p<.008$). Scheffe's post hoc test indicated no differences between cemented total arthroplasty and revision total arthroplasty (M_{df}=-0.91; $p<0.94$) where the influence may be relatively similar on psychosocial internalization of scars.

Also, the comparisons presented in table V indicate that patients with non-traumatic coxarthrosis who underwent non-cemented total arthroplasty procedures presented a higher level of psychosocial internalization compared to those who underwent cemented total arthroplasty (M_{df} =3.87; $p<0.02$) and revision total arthroplasty (M_{df}= 4.60; $p<0.004$), but without surprising differences compared to revision of the soft tissue (M_{df}= 3.31; $p<0.08$).

Figure 3 shows the influence of specific surgical procedures on the psychosocial internalization of scars within the group of traumatic (a) respectively non-traumatic coxarthrosis (b).

Table V. Multiple comparisons between surgical procedures in relation to the etiology of coxarthrosis- post hoc Scheffe test.

Demographic characteristics					
Etiology	**Surgical procedure (A)**	**Surgical procedure (B)**	**Mean differences (A-B)**	**Error**	**P**
Traumatic	Uncemented THA	Cemented THA	7.86*	2.18	0.002*
		Revision THA	6.94*	2.18	0.008*
	Cemented THA	Uncemented THA	-7.86*	2.18	0.002*
		Revision THA	-0.91	2.83	0.94
	Revision THA	Uncemented THA	-6.94*	2.18	0.008*
		Cemented THA	0.91	2.83	0.94
Non-traumatic	Uncemented THA	Cemented THA	3.87*	1.23	0.02*
		Revision THA	4.60*	1.21	0.004*
		Soft tissue repair in revision	3.31	1.26	0.08
	Cemented THA	Uncemented THA	-3.87*	1.23	0.02*
		Revision THA	0.72	1.34	0.96
		Soft tissue repair in revision	-0.55	1.38	0.98
	Revision THA	Uncemented THA	-4.60*	1.21	0.004*
		Cemented THA	-0.72	1.34	0.96
		Soft tissue repair in revision	-1.28	1.37	0.83
	Soft tissue repair in revision	Uncemented THA	-3.31	1.26	0.08
		Cemented THA	0.55	1.38	0.98
		Revision THA	1.28	1.37	0.83

Legend: THA-total hip arthroplasty; statistical significance *$p<0.05$

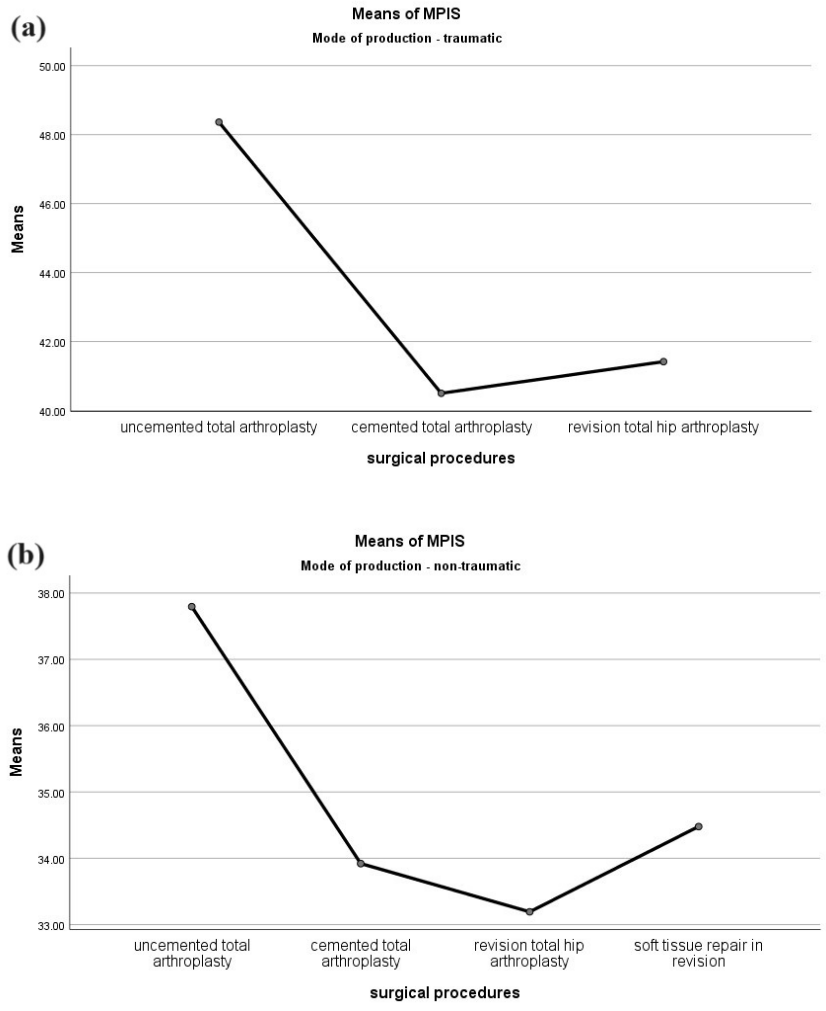

Figure 3. Psychosocial internalization of scars within the group with post-traumatic (a) and non-traumatic scars (b).

Discussion

The aim of our study was to assess the psychosocial impact of the scars produced as a result of post-traumatic versus non-traumatic coxarthrosis, an aspect often ignored in the specialized literature [26]. In line with previous research, our attention mainly focused on the symptoms of coxarthrosis, associated diagnosis, and postoperative evolution.

Our study intends to fill the gap in medical literature exploring patients' perceptions of surgical scars resulting after total hip arthroplasty. Coxarthrosis has a strong impact on the psychosocial internalization of postoperative scars, which indicates a change in the perception of social support and quality of life. Applying a modern approach that takes into account the social and psychological dimension of the aesthetic damage upon surgery, the impact of diagnosis and surgical procedure on the psychosocial internalization of scars was therefore investigated, which could be an important factor in the social reintegration of the patient [9,21,24].

During the study, it was noted that the etiology of the hip injury has a strong impact on the psychosocial internalization of postoperative scars (33.4%) which indicates a change in the perception of social and family support, and also the perception in terms of quality of life [27].

Furthermore, the relevance of the coxarthrosis etiology for subsequent surgical interventions was emphasized. Based upon the comparison of samples, it was observed that traumatic coxarthrosis had the highest rate of psychosocial internalization of scars (23.6%). Moreover, the results suggested that 6.3% of the psychosocial internalization of scars was due to the number of surgical interventions. As expected, the internalization of scars was

noticed to be superior in patients who underwent only one surgery compared to those with two (M_{df}=5.90; p<0.001) or three interventions (M_{df}=8.85; p<0.001) [28].

The internalization of scars, measured by the MPIS, reflects how patients adapt to and perceive their scars over time. High internalization scores suggest that patients view their scars as a significant and persistent part of their identity, potentially leading to negative psychosocial outcomes such as reduced self-esteem and increased anxiety.

The study found that patients with traumatic coxarthrosis had higher internalization scores compared to those with non-traumatic coxarthrosis. This indicates that the sudden and unexpected nature of traumatic injuries might lead to a more profound psychological impact, as these patients are less likely to have anticipated the need for surgery and its consequences. In contrast, patients with non-traumatic coxarthrosis, who often endure long-term degeneration and gradual worsening of symptoms, might be more psychologically prepared for the surgery and its aftermath.

Higher internalization scores in traumatic cases suggest greater psychosocial challenges. These patients might experience more significant body image issues, social withdrawal, and anxiety related to their scars. The study suggests that tailored psychological support and counseling could be beneficial for these patients, helping them to better integrate their scars into their self-concept and improve their quality of life.

However, the mediation relationship between the number of interventions and coxarthrosis etiology in relation to psychosocial internalization was difficult to observe, which rather suggests the independent influence of the analyzed variables. In addition, post hoc statistical analysis (Bonferroni) on the number of surgeries maximizes psychosocial internalization of scars as relevant in individuals with a single surgery compared to those with multiple surgeries. Closure of the surgical skin incision can influence patient satisfaction as the memory of their recovery fades and the scar remains the most visible reminder of their experience [29,30].

Van Dijk et al. [31] emphasized the coexistence of coxarthrosis with a set of comorbidities, among which they highlighted systemic hypertension, coronary artery disease, heart failure, or diabetes mellitus. Associated diseases may alter pain perception while others increase disability, and on the other hand, may interfere with the healing process. Finally, we performed an analysis of the relationship between the internalization of scars and specific surgical procedures performed (cemented, uncemented, revision surgery) concerning the coxarthrosis etiology. Statistical results highlighted the best psychosocial internalization of scars in patients who underwent uncemented total arthroplasty, within the group of traumatic etiology. The results might have importance in the context of continuous debates in the literature in terms of the advantages and disadvantages of cementation in hip arthroplasty. However, individual patient characteristics should be considered thoroughly when deciding which hip fixation mode is best suited for a given patient, taking into account the complex network of factors and associated diseases. Any wound closure would also be susceptible to variations in the quality of closure that could result in irregularities. According to Bolton et al. [30] the concept of body image must be differentiated from "self-esteem" and "quality of life," as these two concepts include not only superficial appearance but also individual relationships, career, spiritual and cultural values.

The main limitation of the present study is the cross-sectional character of the research, being developed in a single institution, with only two surgeons performing the procedures.

Conclusions

Traumatic coxarthrosis had the highest rate of psychosocial internalization of scars. Implementing MPIS, the differences concerning the psychosocial internalization of scars following hip arthroplasty could be explored. Moreover, the differences between patients with non-traumatic OA versus those with post-traumatic etiology were analyzed and considered an important factor for the social reintegration of the patient.

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