

Determinants of emotional status, mood, and well-being in patients undergoing laparoscopic surgical treatment

Determinanty stanu emocjonalnego, nastroju i samopoczucia pacjentów leczonych chirurgicznie z dostępu laparoskopowego

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Słowa kluczowe: lęk, okres pooperacyjny, samopoczucie, niepokój psychiczny.

Abstract

Introduction: Hospitalisation affects patients' well-being. Surgery intensifies negative feelings because of risk of postoperative complications, fear of anaesthesia, and pain associated with surgery.

Aim of the research: To analyse the impact of selected determinants (physical activity, self-dependence, and perceived pain) on the mood and well-being of patients treated with surgery.

Material and methods: The study included 121 patients who had undergone a laparoscopic surgical operation (80 cholecystectomies and 41 appendectomies). The State-Trait Anxiety Inventory (STAI) and the Functional Assessment of Chronic Illness Therapy (FACIT) were applied.

Results: Physically active patients presented with significantly better well-being ($p = 0.015$) and better emotional reaction to a disease ($p = 0.017$) than those who declared lack of physical activity. The ability to move independently significantly increased the patient's mood ($p = 0.030$) and the level of emotional reaction to a disease ($p < 0.0005$). The presence of pain negatively affected the patient's mood ($p = 0.032$). Patients presented reduced mood and increased level of anxiety.

Conclusions: The presence of symptoms associated with surgery, such as pain and decreased physical fitness, negatively affect mood, well-being, and emotional reaction to a disease in patients treated with surgery. A greater degree of self-dependence increases patients' mood, well-being, and emotional reaction to disease.

Streszczenie

Wprowadzenie: Pobyt w szpitalu zazwyczaj wpływa na samopoczucie pacjentów. Leczenie chirurgiczne nasila negatywne odczucia wynikające z ryzyka wystąpienia powikłań pooperacyjnych, lęku przed znieczuleniem i bólem pooperacyjnym.

Cel pracy: Analiza wpływu wybranych czynników (aktywność fizyczna, samodzielność i odczuwany ból) na nastrój oraz samopoczucie pacjentów leczonych chirurgicznie.

Materiał i metody: Do badania włączono 121 pacjentów poddanych leczeniu chirurgicznemu z dostępu laparoskopowego (80 cholecystektomii oraz 41 appendektomii) na Oddziale Chirurgii Ogólnej i Onkologicznej w Uniwersyteckim Szpitalu Klinicznym we Wrocławiu. Pacjenci udzielili odpowiedzi na pytania kwestionariusza autorskiego oraz na pytania standaryzowanych kwestionariuszy: *the State-Trait Anxiety Inventory* (STAI) oraz *the Functional Assessment of Chronic Illness Therapy* (FACIT). W celu porównania zmiennych zastosowano tablice kontyngencji oraz test χ^2 . Zależności oceniano za pomocą współczynnika korelacji rangowej Spearmana.

Wyniki: Pacjenci aktywni fizycznie mieli znamienne lepsze samopoczucie ($p = 0,015$) i lepsze reakcje emocjonalne na chorobę ($p = 0,017$). Zdolność samodzielnego poruszania się znamienne poprawia nastrój ($p = 0,030$) oraz reakcję emocjonalną na chorobę ($p < 0,0005$). Ból pooperacyjny obniża nastrój ($p = 0,032$). U chorych po leczeniu chirurgicznym stwierdzono obniżenie nastroju i zwiększenie natężenia lęku.

Wnioski: Objawy związane z leczeniem chirurgicznym (ból, pogorszenie aktywności fizycznej) negatywnie wpływają na nastrój, samopoczucie i emocjonalną reakcję na chorobę, natomiast zwiększenie samodzielności poprawia nastrój, samopoczucie i emocjonalną reakcję na chorobę.

Introduction

Every person who crosses the threshold of the hospital and becomes a patient changes his/her behaviour. Hospitalisation is associated with stress, anxiety, and loneliness. Long-term hospitalisation associated with isolation affects emotionally both the patients and his/her family [1–4]. Surgery intensifies these feelings because of additional risk of complications, fear of anaesthesia, and perioperative pain as well as worries about a new and potentially unfavourable diagnosis [5].

Identification of factors that have an effect on the mental status of patients treated with surgery creates the chance to provide comprehensive care in the perioperative period and may contribute to diminishing the occurrence and intensity of negative emotions. Ensuring the sense of security, enabling contact with relatives, and creating a proper relationship with a patient may contribute to better understanding the patient's perspective and may allow possible disorders to be diagnosed in the patient's behaviour during their entire hospitalisation.

Aim of the research

Aim of our study was to analyse the impact of selected determinants such as physical activity, self-dependence, and perceived pain on the mood and well-being of patients treated with surgery.

Material and methods

The study included 121 patients (60 women and 61 men) treated with laparoscopic surgery (80 cholecystectomies and 41 appendectomies) due to cholecystolithiasis and appendicitis at the General and Oncology Surgery Department at the University Hospital in Wrocław, Poland between January and May 2016. The comorbidities were as follows: glucose intolerance, arterial hypertension, benign enlargement of prostate, and cataract. Of this group, 43 (35.5%) patients were under 44 years old, 40 (33%) were between 45 and 62 years old, and the remaining 38 (31%) were over 63 years old. Seventy-nine (65%) patients were married. The majority of respondents ($n = 66$; 54.5%) were pensioners, while 51 of them (42%) were employed. All patients had undergone a surgical operation after filling out the questionnaires. The duration of the surgical procedure was rather short and took approximately 1–1.5 h. All patients gave their informed consent for inclusion into the study and for completing the questionnaires. The study was approved by the Local Ethics Committee of Wrocław Medical University (No. 23/2016).

The methods used in the study included a diagnostic survey with an original questionnaire constructed

by the authors and standardised questionnaires such as the State-Trait Anxiety Inventory (STAI) and the Functional Assessment of Chronic Illness Therapy (FACIT-G) [6–8]. In the STAI questionnaire, state (X1) and trait (X2) sub-scales were used. For each subscale possible score ranges from 20 to 80; the higher score indicating greater anxiety. FACIT-G is composed of modules evaluating physical well-being, social/family well-being, emotional well-being, and functional well-being, which are related to health-related quality of life. The total score is obtained by summing/subtracting individual subscale scores taking into account only answered items [9, 10]. The intensity of pain was measured by the 10-point Visual Analogue Scale for pain (VAS). The score ranges from 0 to 10 with higher score indicating greater intensity of pain. The cut-off value was 5 points.

Ethics

Ethical approval and consent to participate. This original paper was approved by the Local Ethics Committee of Wrocław Medical University (No. 23/2016). All participants consented to participate in the study, and written, informed consent was obtained from each subject.

Statistical analysis

Statistical calculations were conducted in SPSS Statistics v. 24.0. (IBM Corporation). To assess relationships between nominal variables or between nominal and ordinal variables contingency tables and χ^2 tests were used. For the assessment of relationships between quantitative variables that had a distribution other than normal, Spearman's rank correlation coefficient was used. P -value below 0.05 was considered statistically significant.

Results

The mean age of respondents was 51.69 ± 17.02 years. Most of them (75%) were physically active, had impaired mood (59%), and were independent in their daily physical activity (73%), but also suffered from pain (72%). The study groups revealed relatively high levels of anxiety of about 45 points. The characteristics of the study group are presented in Table 1.

The results show that physical activity had a statistically significant impact on well-being ($p = 0.015$); however, most of the respondents reported being physically active. People who declared sedentary lifestyle more often described their well-being as bad or impossible to assess. Also, physical activity had an impact of shaping emotional reaction to a disease in

Table 1. Characteristics of the study group

Variable	Mean (SD)	Median	Range	IQR
Age [years]	51.69 (17.02)	52.5	18–88	38.75–66.00
BMI	27.95 (8.95)	26.5	18.91–42.52	23.45–30.05
PWB	18.71 (5.51)	20	6–28	15.00–22.00
SWB	22.54 (6.32)	25	0–28	20.00–27.00
EWB	20.70 (6.42)	22.17	0–28	17.55–25.67
STAI X1	46.40 (8.66)	46	24–79	41–50
STAI X2	45.17 (8.04)	44	20–78	41–50

BMI – body mass index, PWB – physical well-being, SWB – social/family well-being, EWB – emotional well-being, STAI – State-Trait Anxiety Inventory, IQR – interquartile range.

Table 2. Distribution of the level of subjective well-being and emotional reaction to disease in relation to physical activity in patients undergoing surgical treatment

Parameter	Total	Physically active	No physical activity	P-value
Subjective well-being:				
Bad	5 (4.1%)	1 (1.1%)	4 (13.3%)	0.015
Impossible to assess	2 (1.7%)	1 (1.1%)	1 (3.3%)	
Quite good	43 (35.5%)	36 (39.6%)	7 (23.3%)	
Good	71 (58.7%)	53 (58.2%)	18 (60.0%)	
Total	121 (100%)	91 (100%)	30 (100%)	
Emotional reaction to a disease:				
Anger	15 (12.6%)	7 (7.8%)	8 (27.6%)	0.017
Anxiety	12 (10.1%)	10 (11.1%)	2 (6.9%)	
Impossible to assess	48 (40.3%)	42 (46.7%)	6 (20.7%)	
Activation/arousal	6 (5.0%)	3 (3.3%)	3 (10.3%)	
Melancholy	2 (1.7%)	1 (1.1%)	1 (3.4%)	
Fear	36 (30.3%)	27 (30.0%)	9 (31.0%)	
Total	119 (100%)	90 (100%)	29 (100%)	
Mood:				
Depression	3 (2.5%)	1 (1.1%)	2 (6.7%)	0.352
Compensated	99 (81.8%)	75 (82.4%)	24 (80.0%)	
Euphoria	3 (2.5%)	2 (2.2%)	1 (3.3%)	
Impaired	16 (13.2%)	13 (14.3%)	3 (10.0%)	
Total	121 (100%)	91 (100%)	30 (100%)	

patients undergoing surgical treatment ($p = 0.017$). People who declared no physical activity presented more often with anger, activation/arousal, depression, or fear. The influence of physical activity on patient well-being and emotional reaction to a disease is pre-

sented in Table 2. Interestingly, no statistically significant relationship was observed between mood and physical activity ($p = 0.352$).

Physical activity was strictly associated with activity of daily living and self-dependence. In our study,

73% of respondents were self-dependent and thus did not need help from others in activities of daily living; however, 6% of patients required help in basic activities, while 21% required a little help in everyday life. Our study revealed a statistically significant impact of the ability to move on patient well-being ($p = 0.030$). The highest percentage of subjects with good well-being was in the groups who could move without assistance. Also, a statistically significant relationship occurred between ability to move and mood ($p < 0.0005$). Patients who could move independently had compensated mood more often than patients who required help, while reciprocal relation

was observed for depression. The ability to move without assistance also had a significant impact on emotional reaction on the disease ($p < 0.0005$). It is worth noting that a great percentage of self-dependent patients experience anger, anxiety, or fear. Subjective well-being, mood, and emotional reaction to a disease in relation to help required in moving is presented in Table 3.

Another important factor significantly affecting patient mood is pain ($p = 0.032$). Nearly all subjects without pain described their mood as compensated, while patients who presented with pain reported impaired mood or depression (Table 4).

Table 3. Distribution of the level of subjective well-being, mood, and emotional reaction to a disease in relation to degree of self-dependence in patients undergoing surgical treatment

Parameter	Total	Limited moving	Independent moving	Moving with help from others	P-value
Subjective well-being:					
Bad	5 (4.1%)	2 (8.0%)	2 (2.3%)	1 (12.5%)	0.030
Impossible to assess	2 (1.7%)	1 (4.0%)	1 (1.1%)	0 (0.0%)	
Quite good	43 (35.5%)	13 (52.0%)	25 (28.4%)	5 (62.5%)	
Good	71 (58.7%)	9 (36.0%)	60 (68.2%)	2 (25.0%)	
Total	121 (100%)	25 (100%)	88 (100%)	8 (100%)	
Mood:					
Depression	3 (2.5%)	3 (12.0%)	0 (0.0%)	0 (0.0%)	< 0.001
Compensated	99 (81.8%)	12 (48.0%)	80 (90.9%)	7 (87.5%)	
Euphoria	3 (2.5%)	0 (0.0%)	3 (3.4%)	0 (0.0%)	
Impaired	10 (40.0%)	5 (5.7%)	1 (12.5%)	16 (13.2%)	
Total	121 (100%)	25 (100%)	88 (100%)	8 (100%)	
Emotional reaction to a disease:					
Anger	15 (12.6%)	5 (20.0%)	7 (8.1%)	3 (37.5%)	< 0.001
Anxiety	12 (10.1%)	0 (0.0%)	12 (14.0%)	0 (0.0%)	
Impossible to assess	48 (40.3%)	3 (12.0%)	45 (52.3%)	0 (0.0%)	
Activation/arousal	6 (5.0%)	1 (4.0%)	3 (3.5%)	2 (25.0%)	
Melancholy	2 (1.7%)	0 (0.0%)	1 (1.2%)	1 (12.5%)	
Fear	36 (30.3%)	16 (64.0%)	18 (20.9%)	2 (25.0%)	
Total	119 (100%)	25 (100%)	86 (100%)	8 (100%)	

Table 4. Distribution of the level of mood in relation to the presence of pain in patients undergoing surgical treatment

Mood	Total	Lack of pain	Pain	P-value
Depression	3 (2.5%)	0 (0.0%)	3 (3.4%)	0.032
Compensated	99 (81.8%)	33 (97.1%)	66 (75.9%)	
Euphoria	3 (2.5%)	1 (2.9%)	2 (2.3%)	
Impaired	16 (13.2%)	0 (0.0%)	16 (18.4%)	
Total	121 (100%)	34 (100%)	87 (100%)	

Patient mood and well-being were not affected by factors such as age, gender, and marital status ($p > 0.05$).

Physical well-being (PWB) was positively correlated with trait anxiety score (STAI) ($\rho = 0.21$; $p = 0.026$). Social well-being (SWB) was significantly negatively correlated with trait anxiety score (STAI) ($\rho = -0.197$; $p = 0.031$) and age of the respondents ($\rho = -0.202$; $p = 0.030$). Emotional well-being (EWB) did not reveal any significant correlations with anxiety components.

Discussion

Our study showed that there are a number of determinants that significantly affect mood, subjective well-being, and emotional reaction to a disease in patients undergoing surgical treatment. Physical activity and self-dependence were associated with higher level of mood, while the need for help from others and pain increased negative emotions.

The impact of unfavourable events on well-being and mental health is well documented in the literature. Faleńczyk *et al.* showed that psychological and social factors such as the death of a loved one, retirement, or deterioration of material status play an important role in the development of depressive states. In the present study, the relationship between demographic and socio-economic factors was checked but it did not reach the level of statistical significance ($p > 0.05$). [11] Studzińska *et al.* reported that women after surgery are a group of patients requiring specific psychological intervention in the perioperative period. According to those authors, also the place of living and the level of education affects the level of perceived anxiety and depression [12].

In the present study, patients undergoing surgery revealed relatively high levels of anxiety of about 45 points. The clinically significant cut-off level for anxiety may differ for patients suffering from various diseases. Some authors suggest that 39–40, while others suggest higher scores for adults [13–15]. However, the reports from the literature suggest that seriously ill patients undergoing surgery may experience greater intensity of psychological distress than patients from our study [16]. Conversely, patients well-being remained on an average level. Physical well-being was lower when compared with the General U.S. Adult Population Norms (18.2 vs. 22.7), but social and emotional well-being were higher (22.5 vs. 19.1 and 20.1 vs. 19.9, respectively) [9]. Reduced physical well-being can be explained by symptoms associated with surgical treatment such as pain and oedema as well as problems with transfer and daily activities after operation.

The present study emphasises the importance of physical activity in determining the patient's mood and approach to their disease. Subjects who were able to move without assistance had better well-being and

better conditioning of emotional reaction to a disease, while subjects who required help from others presented with impairment of both mood and well-being. Naumann and Byrne reported that lower physical activity is associated with worse quality of life as well [17]. Studies by Rosenbaum *et al.* revealed that physical activity has an impact on reduction of depression or even mental illness symptoms [18]. Our study shows that subjects who are physically active present with better well-being than those who are physically inactive. Also, researchers from Japan claim that physical activity reduces the risk of depressive conditions. Parallel to that, muscle weakness on conducting certain activities may indicate the appearance of disorders [19]. Authors from Belgium concluded that reduced level of physical activity and lower physical fitness may be associated with increased symptoms of fatigue [20].

Our study confirmed a high impact of pain on mood in surgically treated patients. Both chronic and acute pain appearing in teenagers and the elderly is strictly associated with impairment of mood and depression. Even the risk of suicide is higher in patients with chronic pain than in those who do not present with pain [21]. Muraczyńska and Cieslak found that in patients after amputation of lower limbs, there is a significant association between phantom limb pain and emotional disorders and stress [22]. Pain affects general functioning, and, according to Ide *et al.*, patients with severe pain are less satisfied with their professional career than those who do not experience pain [23]. Also, Kuffler claims that chronic pain may lead to depression and feelings of hopelessness. According to this author, chronic pain is physically and mentally debilitating and as such, it affects the individual's potential for self-care and the performance of daily living activities necessary for personal and economic independence [24]. Cepuch *et al.* identified some factors that determine the emotional disorders (anxiety, depression, or aggression) in patients with cystic fibrosis: pain, female gender, quality of sleep, and body weight [25].

Nazarinasab *et al.* suggested a muscle relaxation therapy technique in patients with elective caesarean section as a method to decrease anxiety [26].

Conclusions

A patient's mood depends on the presence of pain and their physical fitness. Physical activity affects mood and well-being in patients treated with surgery as well as conditioning their emotional reactions to a disease. A degree of self-dependence is associated with mood, well-being, and emotional reaction to a disease.

Conflict of interest

The authors declare no conflict of interest.

References

- Mindru DE, Stanescu RS, Mioara CM, Duceac LD, Rugina A, Temneanu OR, Ungureanu M, Florescu L. Stress in pediatric patients – the effect of prolonged hospitalization. *Rev Med Chir Soc Med Nat Iasi* 2016; 120: 417-423.
- Fernandez-Castillo A, Vilchez-Lara MJ, Lopez-Naranjo I. Parental stress and satisfaction during children's hospitalization: differences between immigrant and autochthonous population. *Stress Health* 2013; 29: 22-30.
- Koenig HG, George LK, Stangl D, Tweed DL. Hospital stressors experienced by elderly medical inpatients: developing a Hospital Stress Index. *Int J Psychiatry Med* 1995; 25: 103-122.
- Rabie Siahkali S, Avazeh A, Eskandari F, Khaleghdoost Mohammadi T, Mazloom S, Paryad E. A Survey on Psychological and Environmental Factors on Family Anxiety of the hospitalized patients in intensive care units. *Iran J Crit Care Nurs* 2011; 4: 175-180.
- Fink C, Diener MK, Bruckner T, Muller G, Paulsen L, Keller M, Buchler MW, Knebel P. Impact of preoperative patient education on prevention of postoperative complications after major visceral surgery: study protocol for a randomized controlled trial (PEDUCAT trial). *Trials* 2013; 14: 271.
- Kendall PC, Finch AJ Jr, Auerbach SM, Hooke JF, Mikulka PJ. The State-Trait Anxiety Inventory: a systematic evaluation. *J Consult Clin Psychol* 1976; 44: 406-412.
- Spielberger C, Gorsuch R, Lushene R, Vagg P, Jacobs G. *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA, Consulting Psychologists Press, 1983.
- Cella D. *Manual of the Functional Assessment of Chronic Illness Therapy (FACIT) Measurement System*. ed Version 4, Evanston IL, Center on Outcomes, Research and Education (CORE), Evanston Northwestern Healthcare and Northwestern University 1997.
- Brucker PS, Yost K, Cashy J, Webster K, Cella D. General population and cancer patient norms for the Functional Assessment of Cancer Therapy-General (FACT-G). *Eval Health Prof* 2005; 28: 192-211.
- Webster K, Cella D, Yost K. The Functional Assessment of Chronic Illness Therapy (FACIT) Measurement System: properties, applications, and interpretation. *Health Qual Life Outcomes* 2003; 1: 79.
- Faleńczyk K, Cegła B, Ślusarz R, Kędziora-Kornatowska K. Wpływ wybranych czynników socjodemograficznych na występowanie depresji u osób w wieku podeszłym. In: *Leczenie, pielęgnowanie, zarządzanie – wybrane elementy opieki nad pacjentem*. Konieczny J, Bartuzi Z (eds). UMK CM, Bydgoszcz 2006; 494-499.
- Studzińska K, Nowobilski R, Furgał M, Czyż P, Fielek D, Kolczyński G, Smoleński O. Assessment of anxiety and depression in patients after aortic-coronary artery bypass graft. *Ann Acad Med Gdan* 2006; 36: 183-189.
- Kvaal K, Ulstein I, Nordhus IH, Engedal K. The Spielberger State-Trait Anxiety Inventory (STAI): the state scale in detecting mental disorders in geriatric patients. *Int J Geriatr Psychiatry* 2005; 20: 629-634.
- Addolorato G, Ancona C, Capristo E, Graziosetto R, Di Rienzo L, Maurizi M, Gasbarrini G. State and trait anxiety in women affected by allergic and vasomotor rhinitis. *J Psychosom Res* 1999; 46: 283-289.
- Knight RG, Waal-Manning HJ, Spears GF. Some norms and reliability data for the State-Trait Anxiety Inventory and the Zung Self-Rating Depression scale. *Br J Clin Psychol* 1983; 22: 245-249.
- Pastore AL, Mir A, Maruccia S, Palleschi G, Carbone A, Lopez C, Camps N, Palou J. Psychological distress in patients undergoing surgery for urological cancer: a single centre cross-sectional study. *Urol Oncol* 2017; 35: 673.e1-673.e7.
- Naumann VJ, Byrne GJ. WHOQOL-Bref as a measure of quality of life in older patients with depression. *Int Psychogeriatr* 2004; 16: 159-173.
- Rosenbaum S, Tiedemann A, Sherrington C, Curtis J, Ward PB. Physical activity interventions for people with mental illness: a systematic review and meta-analysis. *J Clin Psychiatry* 2014; 75: 964-974.
- Yamagata E, Yamada Y, Sugihara Y, Komatsu M, Kimura M, Okayama Y. Physical fitness and depression symptoms in community-dwelling elderly women. *Japan J Public Health* 2013; 60: 231-240.
- Vermaete N, Wolter P, Verhoef G, Gosselink R. Physical activity, physical fitness and the effect of exercise training interventions in lymphoma patients: a systematic review. *Ann Hematol* 2013; 92: 1007-1021.
- Breivik H. Depressive symptoms associated with poor outcome after lumbar spine surgery: pain and depression impact on each other and aggravate the burden of the sufferer. *Scand J Pain* 2016; 12: 57.
- Muraczyńska B, Cieslak T. Functional and social activity of patients after deduction of limb as measures of quality of life. *Ann Univ Mariae Curie-Skłodowska Lublin* 2003; 58: 338-343.
- Ide M, Obayashi T, Toyonaga T. Association of pain with employment status and satisfaction among amputees in Japan. *Arch Phys Med Rehabil* 2002; 83: 1394-1398.
- Kuffler DP. Origins of phantom limb pain. *Mol Neurobiol* 2018; 55: 60-69.
- Cepuch G, Tomaszek L, Pawlik L. Identification of factors determining anxiety, depression and aggression, with particular emphasis on pain in Polish adolescents and young adults with cystic fibrosis. *Fam Med Prim Care Rev* 2018; 20: 112-116.
- Nazarinasab M, Motamedfar A, Najafian M, Tabibi H. Investigating the effects of relaxation therapy on decreasing anxiety in patients with elective caesarean section in Imam Khomeini Hospital, Ahvaz, Iran during 2016. *Med Stud* 2018; 34: 107-111.

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