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BURN

THE ASSOCIATION BETWEEN PSYCHOPATHOLOGY AND QUALITY OF LIFE IN BURN PATIENTS AT DR. CIPTO MANGUNKUSUMO HOSPITAL, JAKARTA

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ABSTRACT

Background : Burns result in severe injuries that cause damage or loss of tissue due to contact with sources of heat resulting in injuries to all body systems. Injuries of the skin, which functions as a barrier to protect internal organs, may cause patients to experience damage to one's physical appearance and body image causing negative feelings that may lead to other problems such as psychopathology and symptoms of mental illness.
Method : A cross sectional study with consecutive sampling method of burn patients who were treated at the Plastic Surgery Outpatient Clinic and Burn Unit of RSCM was conducted between April-May 2017. Subjects were asked to fill in self-report questionnaires including patient identity form, SRQ-20 (cutoff point ≥6) for presence of psychopathology, and WHOQoL-BREF to obtain mean scores of quality of life that include four domains of physical, psychological, social, and environment assessment. Data collected was analyzed using correlation analysis.
Result : 56 burn patients were included in the study. 30.4% did not work and 48.2% had very low income per month. 67.9% patients experienced burns due to fire and 44.6% had burns 10-30% of the TBSA with a majority of patients (80.4%) experiencing a combination of second & third degree burns. Based on the analysis, 57.1% of patients had a form of psychopathology and low mean scores of quality life (physical domain 48.1, psychological domain 51.5). Significant negative correlations ($p \leq 0.05$) were obtained between the psychological domain and symptoms of depression, anxiety, low energy; physical domain and low energy; and social domain with anxiety.
Conclusion: This study obtained significant results to identify the correlation between psychopathology and various domains of quality of life affected.
Keywords: *burn injury, psychopathology, quality of life, SRQ-20, WHOQoL-BREF*

Latar Belakang: Luka bakar adalah cedera berat akibat kerusakan atau kehilangan jaringan yang disebabkan oleh kontak dengan sumber panas serta berpengaruh pada seluruh fungsi sistem tubuh. Pada luka bakar, cedera mengakibatkan kerusakan pada penampilan seseorang dan citra tubuhnya sehingga perasaan negatif yang dialami juga dapat diikuti masalah lainnya yang menyebabkan psikopatologi atau gejala masalah kejiwaan.
Metodologi: Studi potong lintang dengan metode pengambilan sampel secara konsekutif yang melibatkan pasien luka bakar di poliklinik Bedah Plastik serta Unit Luka Bakar RSCM, Jakarta dilakukan antara April-Mei 2017. Responden mengisi kuesioner *self-report* berupa Kuesioner Biodata untuk mendapat profil demografi, SRQ-20 (titik potong ≥6) untuk melihat gejala psikopatologi, Kuesioner WHOQoL-BREF untuk melihat skor kualitas yang meliputi domain fisik, psikologis, sosial, dan lingkungan. Data yang didapat diolah menggunakan analisis korelasi *Spearman*.
Hasil: 56 pasien luka bakar berpartisipasi dalam penelitian ini. 30.4% pasien tidak bekerja serta 48.2% memiliki penghasilan sangat rendah per bulannya. 67.9% pasien mengalami luka bakar akibat api dengan 44.6% mengalami luas luka bakar 10-30% TBSA dan mayoritas individu (80.4%) mengalami luka bakar kombinasi derajat 2 & 3. Berdasarkan analisis yang dilakukan, 57.1% pasien mengalami psikopatologi dan rerata penilaian kualitas hidup yang rendah (domain fisik 48.1, domain psikologis 51.5). Didapatkan korelasi negatif yang bermakna ($p \leq 0.05$) antara domain psikologis dengan gejala depresi, cemas, dan penurunan energi; domain fisik dengan gejala penurunan energi, serta domain sosial dengan gejala cemas.
Kesimpulan: Penelitian yang dilakukan mendapatkan berbagai hasil yang bermakna untuk membuktikan adanya korelasi antara psikopatologi dengan berbagai domain kualitas hidup yang terpengaruh.
Kata Kunci : B*urn injury, Psychopathology, Quality of life, SRQ-20, WHOQoL-BREF*

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INTRODUCTION

Burn wounds are severe injuries due to damage or loss of tissues caused by contact with heat sources such as fire, hot water, chemicals, electricity, and radiation. Burns can potentially affect the whole body system. [1] Injuries to the skin, which serves as a barrier to withhold and protect internal bodily functions, can cause physical disorders such as fluid loss, breathing difficulties, and a need for numerous invasive operations. Injuries to the skin may also affect one's appearance and body image causing negative feelings followed by identity issues.[2]

When burn injuries occur on parts of the body surface that are immediately visible such as the face and hands, the issues perceived may be more severe due to the individual's self-perception and self-confidence as a result of how one views themselves in a social environment. De Sousa et al. reported that nearly all burn patients in treatment as well as post admission experience a degree of anxiety, depression, a sense of helplessness, anger, guilt, low self-esteem, and lack of confidence.[2]

Apart from the negative feelings that arise, burn injuries often cause severe physical pain from the beginning of the injury, throughout treatment, especially during dressing changes and physiotherapy.[1,4] These factors accumulate to increase stress levels along with anxiety, sadness, anger, and will potentially lead to emotional burnout. The management of burn injuries involves a multidisciplinary team consisting of surgeons, psychiatrists, dieticians, social workers, physiotherapists, occupational therapists, and others; who are able to provide a holistic and comprehensive treatment plan.

The World Health Organization (WHO) defines quality of life (QoL) as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. This definition demonstrates that quality of life is a subjective evaluation based on culture, social, and environment surroundings. The individual's perception is not to be used as a measure or explanation of a symptom, condition, nor disorder, however to evaluate the impact of an illness, including mental problems, on the quality of life. Burn injuries may reduce one's quality of life due to its severe consequences. Problems with mobility may cause disability in performing daily activities such as self-care. In one study, it is reported that burn patients experience a lower quality of life up until ten years after the injury.[8]

Another study states that even though 70% of burn patients are able to return to work or school, 25% among them experience difficulties. This shows the importance of providing adequate care to prevent one's quality of life from worsening due to burn injuries.[9]

METHOD

This study is a descriptive-analytic study with a cross-sectional design. The cross-sectional study was conducted to analyze the correlation between psychopathology and quality of life of burn patients at a tertiary hospital in Indonesia. The inclusion criteria of the subjects were burn patients 18 years old and above, had experienced a burn injury in the past six months, had agreed to participate and sign and/or apply a finger print to the informed consent of this study, as well as be able to read and write/understand Bahasa Indonesia. Exclusion criteria were patients with inhalation trauma. The required sample size was 56 burn patients admittted to Dr. Cipto Mangunkusumo Hospital (RSCM). Ethical clearance was issued by the Faculty of Medicine Universitas Indonesia Ethics Committee under the approval letter number 204/UN2.F1/ETIK/2017.

Data obtained from the patient questionnaire, SRQ-20 and WHOQoL-BREF were tabulated descriptively. Data was then analyzed with *Statistical Package for the Social Sciences* (SPSS) version 20.0. Independent and dependent variables were then analyzed with Spearman correlation test for abnormal distribution data.

RESULT

This study was conducted on April to May 2017 at the Burn Unit and Outpatient Clinic of RSCM. Consecutive sampling was carried out to reach the required sample size (n=56). Statistical analysis was done to determine the p-value and correlation coefficient by associating the independent variables (psychopathology) with the patient's quality of life as a dependent variable.

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Based on the results obtained, 67.9% (n=38) respondents were male burn patients and 32.1% (n=18) were female burn patients. The majority of patients were high school graduates (33.9%, n=19). As many as 30.4% (n=17) respondents were unemployed, 48.2% (n=27) respondents had low income between Rp 0 to Rp 500,000 per month salary. This study found that 67.9% (n=38) of the burn injuries were caused by flame combustion, 44.6% (n=25) had burn injuries 10-30% of the total body surface area, and 80.4% patients had a combination of 2nd and 3rd degree burns.

The SRQ-20 was used in this study as a screening tool to identify the presence of psychological disturbances. Based on the results obtained, 57.1% (n=23) of burn patients had a form of psychopathology. Among them, 85.7% (n=48) experienced lack of energy and 69.6% (n=39%) experienced symptoms of depression. Anxiety symptoms were found among 57.1% (n=32) of burn patients. Data on psychopathology are summarized in Table 1.

Table 2 describes the correlation between burn injuries with a variety of psychopathologies including depression, anxiety, somatic complaints, cognitive disturbances, and lack of energy based on SRQ-20 results. We found that the most common psychopathology in burn patients based on the extent, location, and degree of burn injury is low levels of energy. Symptoms of depression, anxiety, somatic complaints, cognitive disturbances, and low energy worsened parallel to the increase of locations and degree of burn injury. Meanwhile the extent of burn surface area did not necessarily enhance psychopathology.

Table 1 . Individual Psychological Condition Profile

Variables	Frequency (n)	Percentage (%)
Psychopatology		
Yes	32	57.1
No	24	42.9
Psychopathologic Symptoms		
Depression	39	69.6
Anxiety	32	57.1
Somatic complaint	9	16.1
Congnitive disturbance	4	7.1
Low energy	48	85.7

Table 2 . Correlation between Burn Injury with Psychopathology Based on SRQ-20

	Depression Symptom	Anxiety Symptom	Somatic Symptom	Cognitive Symptom	Low Energy Symptom
Burn Surface Area					
≤ 10%	7	4	2	1	7
10 – 30%	19	18	2	0	20
31 – 50%	8	8	4	2	14
51 – 70 %	5	2	1	1	7
≥ 71%	0	0	0	0	0
Correlation	0.15	0.15	0.60	0.13	0.22
Coefficient (p-value)	(0.28)	(0.28)	(0.67)	(0.35)	(0.10)
Burn Surface Area					
Upper	13	12	2	0	11
Lower	1	0	0	0	1
Upper & Lower	25	20	7	4	36
Correlation	0.19	-0.18	0.08	0.18	0.30
Coefficient (p-value)	(0.17)	(0.18)	(0.56)	(0.18)	(0.02)
Degree of Burn Injury					
1st Degree					
2nd Degree	0	0	0	0	0
3rd Degree	16	11	1	1	9
2nd & 3rd Degree	0	0	0	0	0
Correlation	0.13	0.21	0.09	-0.04	0.05
Coefficient (p-value)	(0.34)	(0.13)	(0.49)	(0.78)	(0.69)

Based on the results of the WHOQoL-BREF assessment, burn patients experienced a lower quality of life in the physical domain (48.1) and the best quality in social domain (66.3). The correlation between presence of psychopathology with quality of life was measured in this study. Correlation tests were done between the independent variable, which is the total score of SRQ-20 and obtained psychopathology, with the dependent variable which is quality of life total score as well as quality of life domains assessment based on the WHOQoL-BREF. Several significant correlations were found in quality of life domains and psychopathology. This shows that the presence of psychopathology may be associated with some aspects of an individual's quality of life.

Table 3 . Correlation Analysis of SRQ-20 Total Score and WHOQoL-BREF Total Score SRQ-20

	Total Score WHOQoL-BREF	
	Correlation Coefficient	***p value***
SRQ-20 Total Score		
Psychopathology	-0.32	0.02
Absence of psychopathology	-0.26	0.05

Correlation tests were done to obtain an association between psychopathology assessed using SRQ-20 with quality of life domain assessed using WHOQoL-BREF. In this study, we found a strong negative correlation between the presence of psychopathology symptoms of depression, anxiety, somatic, cognitive, and low energy with poor quality of life in physical and psychological domains. This explains that the presence of psychopathology may worsen physical and psychological conditions. Our investigation shows that there is significant statistical correlation ($p \leq 0.05$) between symptoms of low energy with physical and psychological domains. In this study, we found a strong negative correlation ($p \leq 0.05$) between increased anxiety with the psychological and social quality of life domain. Data are shown in Table 4.

Table 4 . Correlation Analysis of SRQ-20 Psychopathology and WHOQoL-BREF Quality of Life Domains

	WHOQoL-BREF Domains							
	Physical		Psychological		Social		Environment	
	Correlation Coefficient	*p value*	Correlation Coefficient	*p value*	Correlation Coefficient	*p value*	Correlation Coefficient	*p value*
Psychopathology								
Depression	-0.25	0.06	-0.28	0.04	-0.22	0.87	-0.15	0.27
Anxiety	-0.23	0.09	-0.42	0.01	-0.37	0.01	-0.24	0.08
Somatic	-0.01	0.93	-0.03	0.98	0.21	0.12	0.17	0.21
Cognitive	0.32	0.02	0.54	0.69	0.17	0.34	0.34	0.01
Low Energy	-0.31	0.02	-0.35	0.01	-0.06	0.65	-0.22	0.10

DISCUSSION

The results of this study are in accordance with previous studies that have reported more male burn patients compared to female patients.[35] Based on data obtained, burn patients in this study had relatively low socioeconomic status. Most patients were unemployed with a monthly income of under Rp 500,000. This may be due to the fact that subjects were patients who had already suffered from burn injuries and it has affected their working ability compared to their ability to work prior to the injury. Goei et al assessed the ability of burn patients to return to work within two years after treatment. It is reported that 14% of burn patients still could not return to work despite long-term counseling and rehabilitation.[48] In their study, 30% of patients could not work for six months to one year post treatment. This may be due to factors such as unavailability of counseling services and rehabilitation therapy to support and retrain a patient's working skill. De Sousa et al stated that patients lacking education have a predisposition to experience burn injuries. In contrast with their study, our study reveals that most burn patients were high school graduates.[2]

Most of our patients had burns over 10-30% of the total body surface area, ranging from the head, torso, arm, and hand. Most patients had 2nd and 3rd degree burn injury, which is consistent with studies from other countries.[35,36] Palmu et al. and Billowits et a.l, reported in their studes that most burn injuries were caused by fire. Patients were admitted to hospital admission after suffering large burn wounds that may have affected many parts of the body.[22,27] Based on our results, 32 patients (57,1%) had a form of psychopathology. This result is consistent with previous studies that have shown burn patients to possibly suffer from a mental disorder.[37] Individual psychopathology in this study include low energy, anxiety, and depression—when combined together, fulfill the diagnostic criteria of a major depressive episode or disorder.[37,45] Ahrari et al reported around 60% of burn injury patients would suffer mild, moderate or severe depression.[12,13]

Another study reported that approximately 55% of burn patients will experience at least one emotional problem within six months post treatment.[41] This number increases with the extent, location, and depth of burn injury.[8] Based on our WHOQoL-BREF results, a patient's quality of life assessment in terms of physical and psychological domains are lower compared to quality of life assessments in other countries.[8,9,21,39] This may be due to the differences of socioeconomic status and different management guidelines for burn patients.

Many studies report a decrease in a burn patient's quality of life that were directly associated to the presence of psychopathology due to the experienced trauma.[34,36,40,4-44,48,51,52] These studies found significant correlations between psychopathology with quality of life in burn patients. Some of our significant results include low energy, anxiety, and depression associated with physical, psychological, social and environmental domains from the quality of burn patient's life. Based on our results, burn patients experience difficulty in daily activity, working, socializing, low self-esteem, and have low monthly income. This study can serve as a guide to initiate multidisciplinary guidelines that involve psychiatric services and holistic management accordingly, targeted to prevent psychopathology and the decrease in quality of life of burn patients.

There are several limitations of this study such as biases that may have occurred due to the use of self-rating questionnaires. Even though questionnaire-filling processes were accompanied by the researcher, patients can still inaccurately assess or misinterpret their selves. The small number of subjects cannot be used to represent the general population. The patient's physical condition in the Burn Unit could also contribute in questionnaire-answering bias had the patient been in pain or distress.

CONCLUSION

Based on psychopathology assessment using SRQ-20, we found a significant association with quality of life based on WHOQoL-BREF aseessments. We also found negative correlations between the presence of psychopathology with poor quality of life in burn patients. These findings can be used as a basis in developing burn patient management guidelines involving the Psychiatric Department towards a better holistic approach.

We suggest a longitudinal study with larger samples and proper study design be done to investigate the association between psychopathology with a burn patient's quality of life, preferably an intervention study with an experimental design. We also suggest to establish a multidisciplinary collaboration between departments for further detailed studies regarding factors affecting psychopathology and quality of life in burn patients including individual coping mechanism, individual

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