JKKI: Jurnal Kedokteran dan Kesehatan Indonesia
Indonesian Journal of Medicine and Health
Journal homepage: https://journal.uii.ac.id/JKKI
P-ISSN 2085-4145 | E-ISSN 2527-2950

Exploring quality of life and psychological distress in conjunctival tumor patients: An Indonesia cross-sectional study

Joko Purnomo,[1,2]* Senyum Indrakila,[1,3] Widyanti Soewoto,[1,2] Erma Malindha,[1] Zulfan,[1] Reza Pahlevi Prastawa,[1] Yusuf Vindra Asmara[1]

[1]Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia
[2]Department of Surgery, Dr. Moewardi Hospital, Surakarta, Indonesia
[3]Department of Ophthalmology, Dr. Moewardi Hospital, Surakarta, Indonesia

Article Info:

Keywords: conjunctival tumors; quality of life; RAND SF-36; HADS; psychological distress

***Corresponding author:**
joko_purnomo@staff.uns.ac.id

Article History:

Received: October 13, 2024
Accepted: April 18, 2025
Online: April 25, 2025

DOI: 10.20885/JKKI.Vol16.Iss1.art10

Original Article

ABSTRACT

Background: Conjunctival tumor patients tend to exhibit a compromised health-related quality of life (HR-QoL) as a consequence of their condition.
Objectives: To explore the quality-of-life (QoL) of conjunctival tumor patients and its association with psychological distress in Indonesia.
Methods: A cross-sectional study with simple random sampling was used. Data collection occurred from May 9 to August 31, 2024. The health-related dimensions of quality of life were measured utilizing the reliable RAND SF-36, while psychological distress was assessed with the Hospital Anxiety and Depression Scale (HADS). We performed statistical analyses using version 26 of IBM SPSS, with normality assessed via skewness.
Results: A total of 260 conjunctival tumors completed health assessments, revealing significant psychological distress and the RAND SF 36 questionnaire. The mean age was 51, 52.3% male, and 86.2% married. Participants had an average HADS anxiety score of 9.52, with 60.8% exhibiting anxiety, notably higher in those with malignant tumors (mean score: 10.64) compared to benign tumors (mean score: 8.57, $p<0.001$). Depression scores averaged 6.97, with 37.7% showing potential mild disorders. Health-related quality of life (HRQoL) was appraised across various domains, alongside overall physical functioning, averaging 60.76; benign patients scored significantly higher (71.95) than malignant patients (47.50). Correlations indicated that higher psychological distress negatively impacted QoL, with anxiety showing a strong correlation coefficient of -0.433 and depression at -0.306 (both $p<0.001$).
Conclusion: Psychological distress is prevalent in conjunctival tumor patients, adversely affecting their QoL. These findings highlight the necessity of targeted interventions to enhance both physical fitness and mental wellness—challenges in this population. Further research is essential to develop effective support strategies tailored to their needs.

INTRODUCTION

Conjunctival tumors are abnormal growths that occur in the conjunctival area. The clinical identification of most conjunctival tumors was accurate, with benign and malignant lesions demonstrating the highest levels of precision.[1] The orbital structure that most often suffers from infection is the conjunctiva of the eyeball.[2] Among these tumors, conjunctival papillomas are benign with a low risk of cancer but exhibit a recurrence rate of 3% to 27%.[3] Conversely, conjunctival melanoma, though rare, is a malignant condition that poses significant risks, including recurrence and mortality.[4] These tumors are categorized into non-pigmented (generally harmless) and pigmented tumors (potentially malignant), indicating a spectrum of

risk.[5] Various conjunctiva and cornea lesions encompass melanocyte-origin tumors, blood vessels, and lymphoid cells alongside inflammatory and degenerative conditions.[6] For conjunctival squamous cell carcinoma, treatment strategies depend on lesion extent, involving techniques such as alcohol epithelium removal and cryotherapy.[7,8] Chemotherapy also plays a critical role in managing superficial eye tumors.[9] Benign tumors typically require monitoring, with excision advised when malignancy signs emerge.[10]

The concept of quality of life (QoL) is complex and consists of various dimensions. The well-being reflects of individuals. Understanding and treating mental health issues suitably is essential to improving the quality of life for those affected.[11] Aspects that affect the QoL in older people include biological health, mental well-being, personal satisfaction, cognitive ability, social status, income, ongoing work relationships, and the role played by family and friends.[12] People who experience sleep disturbances, fatigue, and limitations in daily activities typically report a lower quality of life -related to health (HRQoL)- when they are compared to most people.[13]

Conjunctival tumors, while relatively rare, may cause significant changes in the patient's HRQoL.[14] These tumors often lead to various physical and psychological challenges.[15] Previous studies have established a correlation between the presence of tumors and diminished HRQoL, with patients frequently reporting issues related to anxiety and depression.[16] Understanding these relationships is necessary for the effective development of supportive care techniques that deal with both physical and mental wellness requirements.

The RAND 36 -Item Short Form Survey among health surveys the SF-36 ranks as the most extensively utilized generic instrument for assessing quality of life. As a validated instrument, the results from the SF-36 are instrumental in guiding healthcare policy formulation and clinical intervention decision-making.[17] The SF-36 questionnaire contains eight health concepts, namely;physical function, body discomfort, restrictions in activities caused by physical or mental health issues, emotional state, social interactions, levels of energy or tiredness, and overall health perception.[18]

Despite existing knowledge, there remains a lack of comprehensive facts specifically addressing the well-being and emotional health distress experienced by conjunctival tumor patients in Indonesia. Most research has focused on populations in Western countries, leaving a gap in understanding how cultural, social, and healthcare differences may influence the experiences of Indonesian patients. This lack of localized data hinders the development of tailored interventions that can effectively support this demographic. We hypothesized that an increase in patient psychological distress this aspect may contribute to a diminished quality of life in conjunctival tumor patients.

Filling the gap in understanding the well-being and emotional health distress among conjunctival tumor patients in Indonesia is urgent, as psychological distress can worsen physiological indicators of overall health results. This study aims to explore these issues by examining conjunctival tumors, providing insights into how emotional distress affects clients in treatment quality of life. Validated assessment tools, such as the SF-36 or Short Form Health Survey, alongside the Hospital Anxiety and Depression Scale (HADS), are both used for assessing health-related quality of life and mental health. We will gather reliable facts reflecting the patient's lived experiences.

Additionally, this research will identify potential factors contributing to psychological distress, including sociodemographic characteristics and treatment status, which have not been thoroughly investigated in the Indonesian healthcare context. By combining qualitative and quantitative methods, this study offers a comprehensive view of the psychological well-being of this underrepresented population. The findings will have important implications for healthcare policy and practice, promoting an integrated strategy for patient care that tackles the needs of both physical and mental well-being.

METHODS

Descriptive and analytical research employing a cross-sectional analysis. Participants in this assessment were patients at Moewardi Hospital who had been diagnosed with conjunctival

tumors International Disease Coding System (ICD-10). The sample was obtained from the patient registry and medical record data. Eligibility Requirements participants comprised the following: individuals aged a duration of eighteen years or older who were diagnosed in the period from January one, 2008, to August thirty-one, 2024, in addition to those who were classified into one of the following categories: (1) benign conjunctival tumors and (2) malignant conjunctival tumors.

The respondents were determined through simple random sampling, with no segmentation based on gender, age, time following diagnosis, or geographic area. Every individual in the population had an equal probability of being chosen. After visiting the hospital, patients who agreed to be respondents verbally and in writing proceeded to receive the survey instrument, participated in question-and-answer interviews, and had their responses recorded. Once the questionnaire was completed, respondents were requested to submit personal identification details. The survey was given to participants between May 9, 2024, and August 31, 2024. Demographic and health-related data of patients include age, gender, educational background, occupation, income, marital status, having children, and area of residence. Clinical indicator consist of tumor category (benign or malignant), comorbid, medical intervention phase, and duration since identification.

Data analysis

Health-related living standards (QoL) were assessed by applying the Short Form Health Survey (SF-36) (RAND SF Health Survey), which is a self-report Instrument comprising 36 components across octet domains to evaluate overall health status over earlier years, four fortnights. Totals can Range from 0 to 100, emphasizing greater values reflecting Superior life experience.[19] The SF-36 health survey is recognized as a dependable and accurate measure of health-related QoL, showing high validity (r-value of 0.361, having a Cronbach's alpha measurement of 0.938) within a breast cancer population in Indonesia.[20]

The measuring tool for the evaluation of anxiety and depression is The assessment method for anxiety and depression is the Hospital Anxiety and Depression Scale (HADS), which serves to assess psychological distress.[21] HADS contains 14 statements divided into two categories: HADS consists of 14 questions that are categorized into two components: HADS-A, which analyzes symptoms of anxiety, and HADS-D, which evaluates manifestations of depression.[22] Each subscale contains seven Components, with each component scored on a scale from 0 to 3, leading to a total score for each subscale from 0 to 21 that spans.[23] From the result, the suggested cut-off score is ≥ 8, signifying the potential presence of mood disorders.[24] HADS has been extensively utilized across different participants and in study analyses.[25] Studies examining the assessment of psychological attributes and characteristics of HADS in Indonesia demonstrate vital authenticity and satisfactory consistency among components (Cronbach's αs 0.706 for HADS-A and 0.681 for HADS-D).[26]

Statistical methods

The number of participants in the sample was determined to reach a detection capability of 80% 10- variation in total numerical outcomes between the two categories of conjunctival tumor diagnosis. With an assumed standard deviation measure of 20 for each group, a statistical test for comparing two sample means indicated that 64 participants were necessary per group. To mitigate the expected low response rates from healthcare recipients who either cease to have the health issue or are experiencing severe medical conditions, 260 patients were included in two groups. Outcomes showed little similarity in the overall example and individually for each assessment category.

All statistical evaluations were carried out using SPSS version 26. The skewness approach test was used to test data normality. The means and standard deviations (SD) were used to summarize numerical variables, while a different approach was taken for categorical variables reported as frequency quantities of consenting participants. For normally distributed data, skewness values are generally considered normal within the range of ±1.0. Additionally, for larger

samples, values of skewness less than 2.0 are also considered acceptable for normality.[27] The QoL category is based on the average score of normally distributed data, with good QoL indicated by a score of more than equal to the mean, and poor QoL is indicated by a score less than the mean.[20] The comparison was carried out using the Mann-Whitney U test, numerical outcomes across different diagnoses when the statistics were collected, not the distribution of the data in a bell shape.

In contrast, the independent sample T-test was conducted on data that exhibited a normal distribution.[28] To study the correlation between psychological distress and quality-of-life (QoL) scores, we conducted a bivariate analysis using Pearson's for distibuted data. Correlation methods are appropriate, whereas Spearman rank correlation should be utilized for data that lacks normality. Both univariate and bivariate analyses (Pearson's chi-square test) were done, while controlling for gender, age, diagnosis, treatment status, and conjunctival tumor outcomes. Results with p-values below 0.05 were included, highlighting the exploratory nature of the analysis.[29]

Ethics

This study received approval from the Health Research Ethics Commission (no. 1.157/V/HREC/2024). Participants were given both verbal and written details regarding the study, and they were informed that their involvement was entirely voluntary. They were assured that any details that could reveal a person's identity would be anonymized and kept secure. Participants were inspired to join in to reach out to the lead researcher if they had any inquiries or faced any technical issues.

RESULTS

In this analysis, an overall total of 300 individuals diagnosed with conjunctival tumors participated. Out of those, 260 completed health assessments using the RAND, and the study made use of the SF-36 and the HADS to assess participants. The people who took part in the research included conjunctival tumor patients, allowing for a comprehensive comparison of their well-being in health and mental aspects of distress. Population characteristics, geographic features, socioeconomic properties, and aspects are presented in Table 1 (Concerning the individuals involved).

Table 1. Presents the demographic and clinical features of the participants

Variables	Patient's value (n =260)	Percentage (%)
Age, average (SD)	51.06 (15.217)	
Sex		
Female	124	47.7%
Male	136	52.3%
Level of education		
Non-university	213	81.9%
University	47	18.1%
Occupation		
Employed	113	43.5%
Un-employed	147	56.5%
Income		
IDR ≥ 1.500.000	121	46.5%
IDR < 1.500.000	139	53.5%
Marital status		
Married	224	86.2%
Unmarried	36	13.8%

Table 1. Presents the demographic and clinical features of the participants (continued)

Variables	Patient's value (n =260)	Percentage (%)
Children, n (%)		
Living at home	73	28.1%
Not living at home	140	53.8%
Without kids	47	18.1%
Regional residence, n (%)		
Rural	153	58.8%
Urban	107	41.2%
Tumor diagnosis, n (%)		
Malignant	119	45.8%
Benign	141	54.2%
Comorbid		
Absent	116	44.6%
Present	144	55.4%
Medical intervention phase		
Therapeutic on progress	120	46.2%
Follow-up care	92	35.3%
Completed treatment	48	18.5%
Duration since identification, n (%)		
< 1 year	176	67.7%
≥ 1 years	84	32.3%

In this research, the average Participant's age was about 51 years, with a slight majority being male compared to females. Most patients had a non-university education, and a significant portion were unemployed, which highlights potential socioeconomic challenges within this group. The marital status of the respondents showed that 86.2% were married, suggesting strong family support for many. Regarding children, 18.1% of patients reported having no children, which may influence their family dynamics and support systems.

In terms of tumor diagnosis, 54.2% of the participants had benign tumors, while 45.8% had malignant tumors, indicating a significant number of patients facing severe health challenges. Additionally, more than half of the respondents (55.4%) reported having comorbid conditions, which can complicate their treatment and overall health. Regarding treatment, 46.2% of patients were undergoing active medical treatment, 35% were in follow-up care, and 18.5% had completed treatment. This variation in treatment status reflects different stages of patient care and the ongoing need for support.

The time since diagnosis explains that the majority (67.7%) have been diagnosed in the past year. This result emphasizes the need for immediate psychological support, as recent diagnoses can lead to increased anxiety and distress. Overall, the diverse experiences of patients with conjunctival tumors underscore the necessity of tailored healthcare interventions focusing on the needs related to both physical and mental well-being. Understanding these demographics and health originality assessments is crucial for developing effective support strategies for this population. Conjunctival tumor outcomes are shown in Table 2.

Table 2. Conjunctival tumor outcomes

Variables	Total (n =260)		Tumor type of conjunctival tumor				
			Benign (n = 141)		Malignant (n = 119)		*p*-value
	n	Mean (SD) /%	n	Mean (SD) /%	n	Mean (SD)/%	
HADS							
[a]Anxiety (0–21)	260	9.52 (4.810)	141	8.57 (5.340)	119	10.64 (3.824)	<0.001*
Presence or absence of anxiety							<0.001‡
≤ 7	102	39.2%	69	26.5%	33	12.7%	
≥ 8	158	60.8%	72	27.7%	86	33.1%	
[a]Depression (0-21)	260	6.97 (3.772)	141	6.60 (4.332)	119	7.39 (2.935)	0.045¶
Presence or absence of depression							0.212‡
≤ 7	162	62.3%	83	31.9%	79	30.4%	
≥ 8	198	37.7%	58	22.3%	40	15.4%	
SF-36							
QoL score	260	57.59 (16.130)	141	74.60 (13.506)	119	47.56 (11.539)	<0.001*
Classification of QoL score							<0.001‡
High QoL	128	49.2 %	114	43.8 %	14	5.4 %	
Low QoL	132	50.8 %	27	10.4 %	105	40.4 %	

SD = standard deviation

[a]The score 0–7 represents = normal, 8–10 = mild, 11–14 = moderate, 15–21 = severe

*Independent t-test, ‡Pearson's chi-square test, ¶Mann-whitney *U* test

The outcomes of the analysis reveal significant psychological distress among patients with conjunctival tumors, as evidenced by a mean HADS anxiety score of 9.52 across all participants. They showed significantly lower measures of distinctiveness anxiety in people diagnosed with benign conjunctival tumors compared to individuals possessing malignant conjunctival tumors (p<0.001). Notably, 60.8% of all respondents showed signs of anxiety, with a significant portion of malignant tumor patients experiencing higher anxiety levels.

Depression scores also highlighted concern, with an average of 6.97 in all participants, indicating low rates of depression with significant differences between benign and malignant conjunctival tumor depression scores (p=0.045). Benign tumor patients averaged 6.60, while malignant patients averaged 7.39. Over one-third (37.7%) of participants reported potential mild disorders, emphasizing the mental implications for the well-being of patients.

Health-focused quality of life was assessed across several domains. On the overall domain, the average score was 57.59, with a higher score on benign patients (74.60) than on malignant. Physical functioning scores averaged 60.76 overall, with benign patients scoring higher at 71.95 compared to 47.50 for malignant patients. The functioning of emotional roles is closely tied to mental well-being scores, and perceptions of general well-being also reflected similar trends, with benign patients consistently reporting better outcomes. This result suggests that malignant tumor patients experience significant physical limitations. In terms of emotional role functioning, the average score for all patients was 68.62. Once again, benign tumor patients fared better, scoring 90.33, while malignant patients had a much lower score of 42.89. This result indicates that malignant tumor patients face more challenges in their emotional well-being. When looking at mental health specifically, scores averaged 45.52 overall, with benign patients scoring 50.35 and malignant patients at 39.80. This disparity is the most significant mental health struggle faced by those with malignant tumors. The role of physical health was also assessed, with an average score of 63.08 for all participants. Benign patients scored 88.48, while malignant patients had a significantly lower score of 32.98. The general health perceptions were concerning, with an average score of 59.90 overall. Benign patients perceived their health more positively at 66.03, whereas malignant patients scored lower at 52.64.

The findings from our study underscore the significant relationship between psychological

distress and the quality of life (QoL) among individuals diagnosed with conjunctival tumors. The detailed correlations between psychological distress and QoL scores are presented in Table 3, which highlights their relationship.

Table 3. Results of psychological and quality of life

Variables	Correlation coefficient	Sig (2-tailed)
HADS score vs. QoL score	- 0.313	<0.001*
Anxiety score vs. QoL score	- 0.433	< 0.001*
Depression vs. QoL score	- 0.306	<0.001 ‡

*Pearson correlation test, ‡Spearman's rank correlation test

As shown in Table 3, there is a negative correlation between the score on the HADS (levels of anxiety-depression) versus the QoL score; the value of -0.313 for the correlation coefficient reflects a negative correlation. This value indicates that higher amounts of psychological distress are correlated with lower QoL. Specifically, the anxiety score exhibits a stronger negative correlation of -0.433, suggesting that increased anxiety significantly impacts the overall quality of life. Additionally, the correlation between depression and QoL score is -0.306, further emphasizing the detrimental effects of psychological distress on the well-being of these patients. The p-values consistently below 0.001 highlight the robustness of these findings, suggesting that the observed relationships are statistically meaningful and improbable to have arisen by chance.

DISCUSSION

The results from this analysis contribute a meaningful understanding to the discussion of demographic and wellness characteristics of participants diagnosed with conjunctival tumors, highlighting several key areas that align with and differ from previous research. The average age of participants in our study was approximately 51 years, which aligns with previous research that has reported similar mean ages for patients with corneal ocular surface squamous neoplasia.[30] This consistency suggests that the demographic profile of affected individuals remains stable across different populations and study settings. The slight male predominance observed aligns with findings from other studies, which suggest that males are often more affected by these conditions.[31,32]

The educational status and employment rates in our cohort reveal significant socioeconomic challenges. With the predominance of non-university education and high unemployment rates, previous research results noted that lower educational attainment often correlates with increased health disparities.[33] This research emphasizes that it is crucial to implement focused strategies that respond to the identified needs, not just the health-related issues, but also the socioeconomic barriers faced by these patients.

The high percentage of married individuals (86.2%) in this study suggests a robust support system, which is critical for coping with health challenges. However, the fact that 58.3% of participants were living away from their children raises concerns about their emotional well-being. Previous research has indicated that living arrangements can significantly impact mental health outcomes.[34] The emotional and psychological challenges faced by cancer survivors, such as feelings of loneliness, which may be influenced by various factors, including social support and living situations.[35] The importance of friendships and social relationships for older adults, especially concerning loneliness, anxiety, and psychological well-being.[36] The need for psychosocial support for those living alone is evident, as these individuals may experience increased feelings of isolation and anxiety.

In terms of tumor diagnosis, our findings show that 54.2% of participants had benign tumors, while 45.8% had malignant tumors. This distribution is similar to that reported in the literature by Adamski et al.[37], indicating that a significant portion of patients experience serious

health challenges associated with malignant tumors. The high prevalence of comorbid conditions (55.4%) aligns with findings from B. Liu et al.[38], suggesting that patients with conjunctival tumors often present with multiple health issues that complicate treatment and necessitate comprehensive care strategies. The treatment status of participants reveals a diverse range of experiences, with 46.2% undergoing active medical treatment. This study highlights the ongoing need for tailored support at various stages of treatment, as emphasized by Riedl et al.[39] Patients with cancer who are adolescents and young adults have unfulfilled information and emotional support, particularly during critical phases of their illness. The support and psychosocial interventions address these needs and enhance coping mechanisms throughout the treatment process.[40] The fact that 67.7% of participants were diagnosed within the past year underscores the critical need for immediate psychological support, as recent diagnoses can lead to increased anxiety and distress.[41] This finding is particularly relevant in light of studies that have demonstrated the importance of timely psychological interventions in improving patient outcomes.[42]

This study explored the psychological distress and well-being of patients with conjunctival tumors in Indonesia, yielding several significant findings. The findings indicate that these patients exhibit considerable psychological distress, with an average HADS anxiety measurement of 9.52, indicating a considerable prevalence of anxiety symptoms, especially among patients with malignant conditions. Additionally, the well-being linked to health status was lower in those diagnosed with malignant tumors, highlighting the physical and emotional challenges they face.

The major findings are that a significant portion of participants (60.8%) displayed signs of anxiety, with malignant tumor patients experiencing severe symptoms. Depression scores averaged 6.97, with a higher prevalence of mood disorders among patients with malignant tumors. The overall QoL scores were lower for malignant tumor patients across various dimensions of health, comprising physical and emotional factors, low results, and general health perceptions. This result suggests that malignant tumors impose more significant limitations on patients' daily activities and emotional well-being. There is a significant inverse relationship between emotional suffering and QoL (correlation coefficient of -0.313). Increased anxiety and depression levels have been reported, correspond the living conditions that are less favorable.

These results align with previous studies indicating that the presence of tumors can significantly diminish the HRQoL.[43] Emotional components, particularly nervousness and despair, are a crucial contribution to this decline.[44] They highlighted similar trends in other tumor populations, emphasizing the emotional burden that accompanies cancer diagnoses.[14,45,46]

Research consistently shows that malignancy is related to heightened emotional stress and reduced well-being HRQoL. Breast cancer medical clients, especially those with more severe diagnoses, report higher rates of anxiety and depressive symptoms. This emotional burden may stem from the fear of recurrence, treatment-related side effects, and the overall impact of a cancer diagnosis on physical limitations and emotional wellness.[47]

The association between anxiety and depression levels between benign and malignant tumor patients further reflects established literature. Malignant conditions often lead to heightened psychological stress due to concerns about prognosis and treatment.[16,48,49] Depression is linked to both physical health and psychological well-being in relation to QoL.[50] Conversely, benign tumor patients generally experience lower distress levels, likely because they face less aggressive treatment regimens and have a more favorable outlook.[51]

The reported HRQoL scores further illustrate the outcome of conjunctival tumors in patients' lives. Patients with malignant tumors showed significantly lower scores across various areas, including physical functioning, psychological role functioning, and mental health, compared to those with benign tumors. This finding is consistent with literature suggesting that malignancy often correlates with more severe physical and psychological challenges.[15,52] The psychological outcomes evaluated in earlier research involving adult and elderly participants encompassed factors like personal control, competence, acceptance, spiritual influence, and trust.[53] The mechanisms behind these results may involve the biological stressors of malignant tumors, which could heighten physical symptoms and exacerbate psychological distress through

increased anxiety about prognosis and treatment outcomes.

In explaining the differences observed between benign and malignant cases, one can consider the psychological impact of the uncertainty associated with malignant conditions. Patients with malignant tumors often face more complex treatment regimens and the potential for recurrence, which can amplify feelings relating to anxiety and depression.[16,54,55] Conversely, benign tumors, while still impactful, may not carry the same level of existential threat, leading to comparatively better QoL outcomes.[56] Additionally, the socioeconomic factors highlighted in our demographic data, such as high unemployment rates and low-income levels among participants, may influence psychological well-being, as financial strain can exacerbate stress and limit access to supportive care.

However, our study highlights a gap in localized research, as most existing studies focus on populations in Western countries. This result suggests that cultural and healthcare differences may influence patients' experiences in Indonesia. The unique stressors faced by Indonesian patients, such as socioeconomic challenges and healthcare access, could further exacerbate their psychological distress.

The educational status and employment rates significantly affect the quality of life (QoL) of conjunctival tumor patients in Indonesia, where a high unemployment rate of 56.5% among these patients likely increases psychological distress and worsens their QoL. This is consistent with findings that employment status significantly influences mental health and QoL. The lack of university education among most participants further compounds these issues, as lower educational attainment is associated with higher psychological distress and lower QoL. Individuals with limited education may struggle to access health information and resources, affecting their coping mechanisms. Additionally, high unemployment rates indicate socioeconomic challenges that contribute to psychological distress. Job loss or an inability to work can lead to financial strain, exacerbating anxiety and depression.[57]

The study shows that a significant portion of participants experienced anxiety, particularly among those with malignant tumors, consistent with global findings of psychological distress in ocular cancer patients.[58] An average depression score indicated potential mood disorders among many participants, reflecting trends in international research on this issue.[59] Socioeconomic challenges were evident, with many participants lacking university education and facing unemployment, contrasting with Western studies that typically involve more advantaged populations.[60] Most participants were married, suggesting strong family support, but a notable minority lived away from home, indicating a lack of sufficient support during treatment. Nearly half were undergoing active treatment, and many had comorbid conditions. Social support systems in Indonesia are often less formalized, potentially leading to different coping strategies and outcomes.[61] Cultural stigma surrounding mental health may result in underreporting or varied expressions of symptoms compared to Western countries.[62] While anxiety rates are similar to those observed in German populations, the cultural context in Indonesia may influence how distress is expressed and managed.[63]

The relationship between psychological distress and low QoL can be attributed to several factors. Firstly, the physical symptoms associated with conjunctival tumors, such as pain and visual impairment, can contribute to increased indicators of anxiety and depression. Additionally, the anxiety about cancer returning and the uncertainty about treatment outcomes may heighten psychological distress. Moreover, the social support systems in Indonesia may differ from those in Western contexts, potentially affecting patients' emotional well-being. Limited access to mental health resources may also mean that psychological issues remain unaddressed, further impacting their quality of life.

Considering the significant findings presented in this research, several constraints need to be addressed. The cross-sectional approach restricts causal conclusions about the relationships between psychological distress and HRQoL. Longitudinal research is essential for gaining a deeper insight into the dynamics between those variables over time. Moreover, the sample we used was taken from a single hospital, which could restrict the applicability of the findings to the broader Indonesian population. Self-reported measures for anxiety, depression, and HRQoL may

introduce bias, as individuals might underreport symptoms due to stigma or social desirability.

The findings of this study are essential for healthcare providers. Our findings emphasize the importance of combined care approaches that focus on both physical and mental health for patients with conjunctival tumors. Implementing routine psychological assessments could help identify patients in need of support, enabling healthcare providers to offer timely interventions.

CONCLUSION

The study conclusively demonstrates that patients with conjunctival tumors in Indonesia experience significant psychological distress, as evidenced by elevated anxiety and depression scores, particularly among those with malignant tumors. This distress adversely impacts their health-related living standards across various domains, highlighting this urgent requirement for holistic care strategies that encompass physical and mental health needs. The result suggests that healthcare professionals integrate mental health support in the treatment standards for conjunctival tumor clients to enhance patient outcomes, promoting a comprehensive approach to care that targets the physical aspects of the disease and supports psychological well-being.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGMENTS

We would like to thank all the participants and caregivers who willingly took part in this research. We express our gratitude to the Center for Research and Community at Universitas Sebelas Maret for their financial support in conducting this research in 2024. Our sincere thanks go to the Faculty of Medicine at Sebelas Maret University, along with the Department of Ophthalmology and the Department of Surgery at Dr. Moewardi Hospital in Surakarta, Indonesia, for hosting this research.

DATA AVALABILITY

The data supporting the findings of this study are available upon reasonable request from the corresponding author. Due to privacy and ethical considerations, the raw data cannot be made publicly accessible.

SUPPLEMENTAL DATA

Supplemental materials associated with this study include tables that provide further context and support for the findings presented in the main text. These materials are intended to enhance the reader's understanding.

AUTHOR CONTRIBUTIONS

All authors collaborated in the creation of the study and manuscript. JP, SI, ZU, and YV contributed to the conceptualization, design, intellectual content definition, literature review, survey study, and data collection. Meanwhile, JP, WS, EM, and RP handled data acquisition, analysis, statistical evaluation, preparation, editing, and manuscript review. All authors reviewed and approved the final version of the manuscript.

DECLARATION OF USING AI IN THE WRITING PROCESS

In preparing this manuscript, the authors affirm that no artificial intelligence (AI) or AI-assisted technologies were utilized in the writing process. The integrity and originality of the work have been maintained through the exclusive use of human intellect and effort.

LIST OF ABBREVIATIONS

QoL: quality of life; RAND: research and development; SF: short form; HADS: hospital anxiety and depression scale; SPSS: statistical package for the social sciences; HRQoL: health-related quality of life;

HADS-A: hospital anxiety and depression scale-anxiety; HADS-D: hospital anxiety and depression scale-depression; ICD: International Disease Coding System; SD: standard deviation; IDR: Indonesian Rupiah; VS: versus.

REFERENCES

1. García-Onrubia L, Pacheco-Callirgos GE, García-Álvarez C, Muñoz-Moreno MF, García-Lagarto E, Almaraz-Gómez A, et al. Clinic-pathological agreement in the diagnosis of conjunctival tumours: Analysis of 195 cases. Arch Soc Esp Oftalmol. 2023;98(8):440-447. DOI:10.1016/j.oftale.2023.06.012
2. Gąsiorowski K, Gontarz M, Marecik T, Szczurowski P, Bargiel J, Zapała J, et al. Risk factors for orbital invasion in malignant eyelid tumors, is orbital exenteration still necessary? Journal of Clinical Medicine. 2024;13(3). DOI:10.3390/jcm13030726
3. Bansal Y, Bandhu SD, Sharma U, Sandhu HK, and Kaur S. Recurrent conjunctival papilloma: Case report. Indian Journal of Clinical and Experimental Ophthalmology. 2024;10(1):196-199. DOI:10.18231/j.ijceo.2024.035
4. Kase S, Suimon Y, Mitamura M, Kanno-Okada H, and Ishida S. Giant conjunctival melanoma with rich vascularization causing persistent bleeding. Molecular and Clinical Oncology. 2024;21(2):1-4. DOI:10.3892/mco.2024.2751
5. Furdova A, Czanner G, Koller J, Vesely P, Furda R, and Pridavkova Z. Amniotic membrane application in surgical treatment of conjunctival tumors. Sci Rep. 2023;13(1):1-8. DOI:10.1038/s41598-023-30050-y
6. Magalhães AM, Vieira RP, Fernandes TJ de M, Rocha C da S, Higino T, Ventura C V., et al. Analysis of ocular surface and quality of life in patients with corneal and conjunctival tumors. Arq Bras Oftalmol. 2022;86(2):131-136. DOI:10.5935/0004-2749.20230036
7. Balasopoulou A, Kokkinos P, Pagoulatos D, Plotas P, Makri OE, Georgakopoulos CD, et al. Symposium recent advances and challenges in the management of retinoblastoma globe - saving treatments. BMC Ophthalmology. 2017;17(1):1930-1948.
8. Wang Z wen, Yin X fang, Wang C xiao, Wang H zhen, and Zhou S you. Anterior segment optical coherence tomography for superficial keratectomy. Photodiagnosis and Photodynamic Therapy. 2024;48(5):1-5. DOI:10.1016/j.pdpdt.2024.104237
9. Röck T, Bartz-Schmidt KU, Bramkamp M, Milla J, Bösmüller HC, and Röck D. Clinical management of squamous cell carcinoma of the conjunctiva. American Journal of Case Reports. 2020;21(2):8-11. DOI: 10.12659/AJCR.919751
10. Kato K, Takeuchi M, Yonekawa Y, Kashima Y, Hirano K, and Kondo M. Management of inflamed conjunctival nevus with topical antiallergic medications: Case series. Clinical Ophthalmology. 2021;15:559-564. DOI:10.2147/OPTH.S299288
11. Knight MJ, Lyrtzis E, and Baune BT. The association of cognitive deficits with mental and physical quality of life in major depressive disorder. Comprehensive Psychiatry. 2020;97(2):1-7. DOI: 10.1016/j.comppsych.2019.152147
12. da Rocha Martins NP, de Fátima Silqueira SM, Souza LME, de Paula Martins Souza C, Soares SM, and Matos SS. Quality of life of older adults admitted to a medical clinic unit of a public hospital in Brazil. Revista da Escola de Enfermagem. 2020;54(7):1-7. DOI:10.1590/s1980-220x2018032903573
13. Lan Y, Luo Y, Zhang M, Jin Z, Xiao J, Yan L, et al. Quality of life in papillary thyroid microcarcinoma patients undergoing radiofrequency ablation or surgery: A comparative study. Frontiers in Endocrinology. 2020;11(5):1-12. DOI:10.3389/fendo.2020.00249
14. Hoffmann C, Rating P, Bechrakis N, Eckstein A, Sokolenko E, Jabbarli L, et al. Long-term follow-up and health-related quality of life among cancer survivors with stage IEA orbital-type lymphoma after external photon-beam radiotherapy: Results from a longitudinal study. Hematological Oncology. 2022;40(5):922-929. DOI:10.1002/hon.3053
15. Teixeira-Pinto T, Lima de Souza R, Grossi Marconi D, and Lando L. Ophthalmic rehabilitation in oncology care. Canadian Journal of Ophthalmology. 2024;(8):1-10. DOI:10.1016/j.jcjo.2024.07.004

16. Shalata W, Gothelf I, Bernstine T, Michlin R, Tourkey L, Shalata S, et al. Mental health challenges in cancer patients: A cross-sectional analysis of depression and anxiety. Cancers. 2024;16(8):1-14. DOI:10.3390/cancers16162827
17. van Reijn-Baggen DA, Elzevier HW, Braak JPBM, Putter H, Pelger RCM, and Han-Geurts IJM. Pelvic floor physical therapy in the treatment of chronic anal fissure (PAF trial): Quality of life outcome. Techniques in Coloproctology. 2023;27(2):125-133. DOI:10.1007/s10151-022-02741-7
18. Armitage NH, Kramer MK, Nelson MS, Hopkins DK, Langeslay R, and Thornton JA. Effectiveness of lifestyle interventions in an active duty air force population. American Journal of Health Promotion. 2021;35(6):784-793. DOI: 10.1177/0890117121997308
19. Arkell TR, Downey LA, Hayley AC, and Roth S. Assessment of medical cannabis and health-related quality of life. JAMA network open. 2023;6(5):1-13. DOI:10.1001/jamanetworkopen.2023.12522
20. Dewi IP, Gartika N, Sanusi S, and Suryatiningsih D. Determinants of spiritual well-being that impact breast cancer patients' quality of life. Journal of Holistic Nursing. 2024;42(6):S40-S46. DOI: 10.1177/08980101231181272
21. de Filippis R, Mercurio M, Segura-Garcia C, De Fazio P, Gasparini G, and Galasso O. Defining the minimum clinically important difference (MCID) in the hospital anxiety and depression scale (HADS) in patients undergoing total hip and knee arthroplasty. Orthopaedics and Traumatology: Surgery and Research. 2024;110(2):1-5. DOI: 10.1016/j.otsr.2023.103689
22. Tang M, Su Z, He Y, Pang Y, Zhou Y, Wang Y, et al. Physical symptoms and anxiety and depression in older patients with advanced cancer in China: A network analysis. BMC Geriatrics. 2024;24(1):1-9. DOI:10.1186/s12877-024-04788-7
23. Kotewicz M, Krajewski PK, Jaworek AK, and Szepietowski JC. Psychological aspects of cutaneous pain in psoriasis. Journal of Clinical Medicine. 2024;13(16):1-12. DOI:10.3390/jcm13164890
24. Madsen C, Reinholt N, Arendt M, Eskildsen A, Bryde A, Hvenegaard M, et al. Validation of the danish version of the overall depression severity and impairment scale (ODSIS): A reliable instrument for assessing depression symptoms and functional impairment. Clinical Psychology and Psychotherapy. 2024;31(5):1-9. DOI:10.1002/cpp.3049
25. Longo UG, Papalia R, De Salvatore S, Marinozzi A, Piergentili I, Lalli A, et al. Establishing the minimum clinically significant difference (MCID) and the patient acceptable symptom score (PASS) for the hospital anxiety and depression scale (HADS) in patients with rotator cuff disease and shoulder prosthesis. Journal of Clinical Medicine. 2023;12(4):1-9. DOI:10.3390/jcm12041540
26. Tiksnadi BB, Triani N, Fihaya FY, Turu'Allo IJ, Iskandar S, and Putri DAE. Validation of hospital anxiety and depression scale in an Indonesian population: A scale adaptation study. Family Medicine and Community Health. 2023;11(2):1-8. DOI:10.1136/fmch-2022-001775
27. Mokhtar SF, Yusof ZM, and Sapiri H. Confidence interval estimating the mean of normal distribution and skewed distribution. Malaysian Journal of Fundamental and Applied Sciences. 2024;20(5):1124-1135. DOI: 10.11113/mjfas.v20n5.3435
28. Pérez-Guerrero EE, Guillén-Medina MR, Márquez-Sandoval F, Vera-Cruz JM, Gallegos-Arreola MP, Rico-Méndez MA, et al. Methodological and statistical considerations for cross-sectional, case–control, and cohort studies. Journal of Clinical Medicine. 2024;13(14):1-14. DOI:10.3390/jcm13144005
29. Verschoor YL, van de Haar J, van den Berg JG, van Sandick JW, Kodach LL, van Dieren JM, et al. Neoadjuvant atezolizumab plus chemotherapy in gastric and gastroesophageal junction adenocarcinoma: The phase 2 PANDA trial. Nature Medicine. 2024;30(2):519-530. DOI:10.1038/s41591-023-02758-x
30. Agarwal A, Farhan MH, Mishra DK, and Kaliki S. Corneal ocular surface squamous neoplasia: Case series and review of literature. Oman Journal of Ophthalmology. 2024;17(2):249-253. DOI:10.4103/ojo.ojo_111_23
31. McGrath LA, Ryan DA, Warrier SK, Coupland SE, and Glasson WJ. Conjunctival lymphoma. Eye

(Basingstoke). 2023;37(5):837-848. DOI:10.1038/s41433-022-02176-2
32. Kaliki S and Das A. Ocular and periocular tumors in India: An eye smart electronic medical record analysis of 9633 cases from a referral center. Middle East African Journal of Ophthalmology. 2020;27(4):199-203. DOI:10.4103/meajo.MEAJO_275_19
33. He S, Li H, Cao M, Sun D, Yang F, Yan X, et al. Geographic, demographic, and socioeconomic disparities and factors associated with cancer literacy in China: National cross-sectional study. JMIR Public Health and Surveillance. 2023;9(2):1-15. DOI:10.2196/43541
34. Zhao X, Zhang Q, Ji Y, Liu H, and Lou VWQ. Influence of spousal caregiving and living arrangement on depression among husband caregivers in rural China. Aging and Mental Health. 2023;27(7):1266-1273. DOI:10.1080/13607863.2022.2089630
35. Papini C, Fayad AA, Wang M, Schulte FSM, Huang IC, Chang YP, et al. Emotional, behavioral, and physical health consequences of loneliness in young adult survivors of childhood cancer: Results from the childhood cancer survivor study. Cancer. 2023;129(7):1117-1128. DOI:10.1002/cncr.34633
36. Thompson A, Smith MA, McNeill A, and Pollet T V. Friendships, loneliness and psychological wellbeing in older adults: A limit to the benefit of the number of friends. Ageing and Society. 2024;44(5):1090-1115. DOI:10.1017/S0144686X22000666
37. Adamski WZ, Maciejewski J, Adamska K, Marszałek A, and Rospond-Kubiak I. The prevalence of various eyelid skin lesions in a single-centre observation study. Postepy Dermatologii i Alergologii. 2021;38(5):804-807. DOI:10.5114/ada.2020.95652
38. Liu B, Zhou H, Tan L, Siu KTH, and Guan XY. Exploring treatment options in cancer: Tumor treatment strategies. Signal Transduction and Targeted Therapy. 2024;9(1):1-44. DOI:10.1038/s41392-024-01856-7
39. Riedl JM, Moik F, Esterl T, Kostmann SM, Gerger A, and Jost PJ. Molecular diagnostics tailoring personalized cancer therapy—an oncologist's view. Virchows Archiv. 2024;484(2):169-179. DOI:10.1007/s00428-023-03702-7
40. Brock H, Dwinger S, Bergelt C, Sender A, Geue K, Mehnert-Theuerkauf A, et al. Peer2Me – evaluation of a peer supported program for adolescent and young adult (AYA) cancer patients: Study protocol of a randomised trial using a comprehensive cohort design. BMC Cancer. 2024;24(1):1-10. DOI:10.1186/s12885-024-12547-5
41. Stanovskiy B. Psychological help for patients with cancer. Journal of Education, Health and Sport. 2024;52(1):242-253. DOI:10.12775/JEHS.2024.52.110
42. Hui D, Heung Y, and Bruera E. Timely palliative care: Personalizing the process of referral. Cancers. 2022;14(4):1-14. DOI:10.3390/cancers14041047
43. Chung KC, Muthutantri A, Goldsmith GG, Watts MR, Brown AE, and Patrick DL. Symptom impact and health-related quality of life (HRQoL) assessment by cancer stage: A narrative literature review. BMC Cancer. 2024;24(1):1-23. DOI:10.1186/s12885-024-12612-z
44. Tug E, Fidan I, Bozdayi G, Yildirim F, Tunccan OG, Lale Z, et al. The relationship between the clinical course of SARS-CoV-2 infections and ACE2 and TMPRSS2 expression and polymorphisms. Advances in Clinical and Experimental Medicine. 2024;33(1):39-51. DOI:10.17219/acem/163409
45. Liu Q, Qu Z, Dong H, Qi Y, Wu J, Zhang W, et al. Trends in cancer-related suicide in the United States: A population-based epidemiology study spanning 40 years of data. Translational Psychiatry. 2024;14(1):1-9. DOI:10.1038/s41398-024-02917-9
46. Leonard S, Helstrom E, Correa A, Sindhani M, Uzzo N, Jia AY, et al. Financial distress in genitourinary cancer: Insights from CDC national health interview survey. JCO Oncology Practice. 2024;(7):1-11. DOI:10.1200/OP.23.00733
47. Lu Q, Liu Q, Fang S, Ma Y, Zhang B, Li H, et al. Relationship between fear of progression and symptom burden, disease factors and social/family factors in patients with stage-IV breast cancer in Shandong, China. Cancer Medicine. 2024;13(4):1-12. DOI:10.1002/cam4.6749
48. Low CE, Loke S, Pang GE, Sim B, and Yang VS. Psychological outcomes in patients with rare cancers: A systematic review and meta-analysis. eClinicalMedicine. 2024;72(6):1-12. DOI:10.1016/j.eclinm.2024.102631

49. Wang HQ, Lin H, and Liu B. Research progress on the psychological burden and intervention measures in cancer patients. Frontiers in Psychiatry. 2024;15(6):1-11. DOI:10.3389/fpsyt.2024.1408762
50. Utami AM, Elfiah U, and Wisudanti DD. Assessments of quality of life in burn patients after hospital treatment in Jember. Jurnal Kedokteran dan Kesehatan Indonesia. 2020;11(2):157-164. DOI:10.20885/JKKI.Vol11.Iss2.art8
51. Maier AD, Nordentoft S, Mathiesen T, and Guldager R. The experience of living with malignant meningioma. Palliative and Supportive Care. 2023;21(3):338-346. DOI:10.1017/S1478951523000585
52. Calderon C, Gustems M, Galán-Moral R, Muñoz-Sánchez MM, Ostios-García L, and Jiménez-Fonseca P. Fear of recurrence in advanced cancer patients: Sociodemographic, clinical, and psychological correlates. Cancers. 2024;16(5):1-11. DOI:10.3390/cancers16050909
53. Lailiah N, Nursalam, and Indarwati R. Age group-based interventions to improve psychological outcomes in people living with HIV: A systematic review. Jurnal Kedokteran dan Kesehatan Indonesia. 2023;14(3):331-343. DOI:10.20885/JKKI.Vol14.Iss3.art14
54. Perna G, Pinto E, Spiti A, Torti T, Cucchi M, and Caldirola D. Foundations for a personalized psycho-oncology: The state of the art. Journal of Personalized Medicine. 2024;14(9):1-20. DOI:10.3390/jpm14090892
55. El-Jawahri A, Webb JA, Breffni H, and Zimmermann C. Integrating palliative care and hematologic malignancies: Bridging the gaps for our patients and their caregivers. American Society of Clinical Oncology Educational Book. 2024;44(3):1-11. DOI:10.1200/EDBK_432196
56. Nicol C, Pinkham MB, Lion K, Foote M, McBean A, Higgins M, et al. Individuals' perceptions of health and well-being in the context of stereotactic radiosurgery for benign brain tumour: A longitudinal qualitative investigation. Neuropsychological Rehabilitation. 2024;34(2):244-267. DOI:10.1080/09602011.2023.2181190
57. Koul S and Nayar B. Combating the COVID-19 disruption: Gauging job loss grief and psychological well-being of hospitality employees. Journal of Human Resources in Hospitality and Tourism. 2022;21(1):82-104. DOI:10.1080/15332845.2022.2015240
58. Kim JH. Update on distress management for cancer patients. Journal of the Korean Medical Association. 2019;62(3):167-173. DOI:10.5124/jkma.2019.62.3.167
59. Zheng Y, Wu X, Lin X, and Lin H. The prevalence of depression and depressive symptoms among eye disease patients: A systematic review and meta-analysis. Scientific Reports. 2017;7:1-9. DOI:10.1038/srep46453
60. Pilon B, Crutcher TD, Leming-Lee S, Watters R, Wolgast KA, and Arnow D. The value proposition for graduate education of emerging nurse leaders: Immediate benefit to organizations. Nurse Leader. 2014;12(3):81-85. DOI:10.1016/j.mnl.2013.11.004
61. Zheng S, Masuda T, Matsunaga M, Noguchi Y, Ohtsubo Y, Yamasue H, et al. Cultural differences in social support seeking: The mediating role of empathic concern. PLoS ONE. 2021;16(12): e0262001. DOI:10.1371/journal.pone.0262001
62. Putranto R, Shatri H, Irawan C, Gondhowiardjo S, Finkelstein E, Malhotra C, et al. The association of prognostic awareness with quality of life, spiritual well-being, psychological distress, and pain severity in patients with advanced cancer: Results from the APPROACH Study in Indonesia. Palliative and Supportive Care. 2024;22(6):1778–1784. DOI:10.1017/S1478951524000269
63. Borrego J, Ortiz-González E, and Gissandaner TD. Ethnic and cultural considerations. In S. N. Compton, M. A. Villabø, & H. Kristensen (Eds.). Pediatric anxiety disorders. Elsevier Academic Press;2019. p461-497.DOI: 10.1016/B978-0-12-813004-9.00021-9