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Social support, Self-esteem, Age, Gender and Psychological adjustment among young people diagnosed of cancer in Uganda: A mediation-moderation analysis

E.O., Oladunmoye (PhD)[1*], Methodius Tumuranzye[1], Mugisha Samuel[1] and Oluwatoyin, M., Sanusi[2]

[1]Department of Applied Psychology, Kampala International University, Uganda.

[2]Department of Community Public Health Nursing, Faculty of Nursing Sciences, Ladoke Akintola University of Technology Ogbomoso , Oyo State Nigeria.

***Corresponding Author**
E.O., Oladunmoye

Department of Applied Psychology, Kampala International University, Uganda.

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Abstract: Psychological adjustment significantly impacts the well-being of young individuals diagnosed with cancer. However, limited research examines the roles of self-esteem and social support, particularly with gender and age as potential moderators and mediators in low-resource settings like Uganda. This study investigated these relationships to inform gender-sensitive psychosocial interventions. Using a correlational research design, 98 participants aged 18–30 were recruited from cancer treatment centers in Uganda through multistage sampling. Data were collected using the Psychological Adjustment to Illness Scale, the Multidimensional Scale of Perceived Social Support, and Rosenberg's Self-Esteem Scale, all demonstrating strong reliability (Cronbach's $\alpha > 0.80$). Analysis involved path modeling and conditional process analysis with SPSS and JASP software.

The result showed that self-esteem ($\beta = 0.814$, $p < .001$) and social support ($\beta = 1.120$, $p < .001$) significantly predicted better psychological adjustment. Gender moderated these relationships, with males benefiting more from self-esteem and social support than females. Age did not mediate the effects of social support or self-esteem on psychological adjustment. These results emphasize the importance of self-esteem and social support in enhancing psychological adjustment while highlighting gender disparities in their impact.

The findings underscore the need for gender-sensitive psychosocial support programs. Interventions should bolster self-esteem and foster social support for males while addressing systemic barriers affecting females. Policymakers should allocate resources to ensure equitable access to mental health support for young cancer patients.

Keywords: Psychological adjustment, self-esteem, social support, gender moderation, age mediation, young cancer patients.

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Introduction

Cancer continues to represent a significant global public health challenge, with an estimated 19.3 million new cases and approximately 10 million cancer-related deaths in 2020 (Sung et al., 2021). High-income nations, including the United States, have achieved considerable progress in early detection and treatment, contributing to a decline in mortality rates (Rache et al., 2024). Nevertheless, disparities persist, as low- and middle-income countries (LMICs) bear a disproportionate share of the global cancer burden. Among others, in India, over 1.39 million new cancer cases were reported in 2020, and limited healthcare resources impede effective cancer management (Tripathy and Mishra, 2024). Similarly, sub-Saharan Africa faces rising cancer incidences, with late-stage diagnosis and inadequate treatment infrastructure exacerbating patient outcomes (Kokori et al, 2024).

Psychological maladjustment among cancer patients is a universal concern, as it significantly influences morbidity and mortality. Studies in China have highlighted the prevalence of anxiety and depression among cancer patients, with psychological distress negatively impacting treatment adherence and quality of life (Zhu et al., 2023). In Brazil, research underscores the role of

psychosocial support in mitigating the emotional burden of cancer, emphasizing the importance of mental health interventions (Praça et al., 2024). Despite these global efforts, the unique psychosocial needs of emerging youths with cancer often remain underexplored, particularly in LMICs where healthcare systems are overburdened.

On the other hand, cancer remains a substantial public health issue in Uganda, with a rising prevalence attributed to lifestyle changes, environmental factors, and inadequate early detection measures (WHO, 2023). According to the Uganda Cancer Institute, over 32,000 new cancer cases are diagnosed annually, with a survival rate of less than 50% due to late diagnosis and limited access to advanced treatment options (Lule, 2020). Among emerging youths, cancer is particularly devastating, as it disrupts critical developmental milestones and results in long-lasting physical and psychological impacts. Psychological maladjustment conceptualised as the inability to adapt to the realities of a cancer diagnosis has been recognized as a significant determinant of morbidity and mortality among cancer patients. It is often noted that psychological maladjustment can be more lethal than the disease itself, as it impedes treatment adherence and exacerbates mental health challenges.

Psychological adjustment refers to the process through which individuals manage and adapt to significant life changes, maintaining emotional and functional stability (Overchuk et al., 2023). It can also be defined as an individual's ability to effectively cope with internal and external demands while maintaining psychological well-being (Mayordomo et al, 2021). Psychological maladjustment is more common among cancer patients, especially younger individuals, who are at a developmental stage characterized by high emotional vulnerability and reliance on social validation. Manifestations include anxiety, depression, emotional distress, withdrawal, and difficulty in accepting the reality of their condition. These symptoms often lead to poor treatment adherence, impaired social relationships, and decreased quality of life (Plaza-González et al., 2022). Studies have shown that poor psychological adjustment among cancer patients can result in prolonged hospital stays, increased healthcare costs, and even higher mortality rates (Satheeshkumar et al., 2024). Efforts to address psychological adjustment among cancer patients have included interventions such as cognitive-behavioural therapy, mindfulness practices, and group counselling. However, existing studies have primarily focused on adult and elderly populations, neglecting the unique needs of emerging youths diagnosed with cancer. In Uganda, there is a glaring gap in research addressing the psychological adjustment of young cancer patients. This gap underscores the urgent need to explore the interplay of social support, self-esteem, age, and gender in promoting psychological adjustment among this demographic.

Social support means the sum of all the relationships that make a person feel as if he or she matters to the people who matter to him or her (Akintayo and Osundiran, 2024). It is also described as an emotional, instrumental, informational, and appraisal support provided by an individuals' social network (Jolly et al., 2021). Among young people, social support manifests through family involvement, peer interactions, and community engagement. It is essential for cancer patients as it provides emotional stability, reduces stress, and enhances coping mechanisms (Seiler & Jenewein, 2019). Strong social support promotes psychological adjustment by fostering a sense of belonging and hope, thus mitigating feelings of isolation and despair. Conversely, weak social support can lead to severe psychological maladjustment, characterized by withdrawal, heightened emotional distress, and suicidal ideation (Stea et al., 2024). Empirical studies affirm that social support significantly improves treatment outcomes and overall well-being among cancer patients (Leow et al., 2021). However, critical gaps remain, particularly regarding how social support interacts with individual characteristics like age and gender to influence psychological adjustment in emerging youths.

Self-esteem refers to an individual's overall sense of self-worth and personal value" (Lee et al., 2021). Another definition highlights self-esteem as a person's evaluation of their competence and worthiness in various aspects of life (Abdel-Khalek, 2016). Individuals diagnosed with cancer, self-esteem are often compromised due to physical changes, social stigma, and disrupted life trajectories (Missmer, 2021). Such include self-doubt, feelings of inadequacy, and a diminished sense of purpose. High self-esteem is essential for fostering resilience and promoting psychological adjustment, as it encourages proactive coping strategies and a positive outlook on life (Jouali et al., 2024). On the other hand, low self-esteem exacerbates psychological distress, leading to depression, anxiety, and disengagement from treatment (Rippon et al., 2024). Empirical evidence suggests that interventions aimed at boosting self-esteem can significantly enhance psychological adjustment and improve quality of life among cancer patients (McAteer and Gillanders, 2019). However, little attention has been given to the self-esteem challenges faced by young Ugandan cancer patients, highlighting a critical research gap.

Age often considered as the length of time an individual has lived, it also holds the potential to influencing psychological processes and coping mechanisms (Kite et al., 2022). Another perspective conceptualizes age as a demographic variable that reflects developmental stages and associated psychosocial challenges (Cohen et al., 2021). Among young people, age-related manifestations include evolving identity, reliance on peer validation, and increased sensitivity to life disruptions. While among cancer patients, age tend to mediates psychological adjustment by shaping their coping strategies and resilience. Younger patients often struggle with developmental disruptions, whereas older youths may demonstrate better adaptive capacities due to matured cognitive and emotional resources (Young et al., 2020). However, certain age ranges among emerging adults are associated with heightened vulnerability to maladjustment, necessitating targeted interventions. Empirical studies have established age as a critical mediator in health-related quality of life and psychological outcomes (Leonti et al., 2024). That notwithstanding, the mediating role of age in psychological adjustment among young Ugandan cancer patients remains underexplored.

Gender can be referred to as the roles, behaviours, and identities that society attributes to individuals based on their sex (Lindqvist et al., 2021). Similarly, it is considered as a sociocultural construct influencing individuals' experiences and interactions (Brandi et al., 2021). Among young cancer patients, gender manifestations include differing emotional expressions, coping mechanisms, and social expectations. Gender plays a moderating role in psychological adjustment by influencing how individuals perceive and respond to their condition. For example, females may exhibit higher levels of emotional distress but also greater willingness to seek social support, while males may demonstrate stoicism but

experience internalized stress (Eggenberger et al., 2021). These gendered differences significantly affect treatment outcomes and psychological well-being. Empirical evidence highlights the moderating effect of gender on various psychosocial outcomes, including coping and resilience (Ahmed et al, 2022). However, the role of gender in the psychological adjustment of young Ugandan cancer patients has yet to be adequately addressed, underscoring the necessity of this study. From the foregoing this study seeks to address critical gaps in the literature by examining the roles of social support, self-esteem, age, and gender in the psychological adjustment of young Ugandans diagnosed with cancer. Unlike previous studies that have largely focused on adult populations, this research prioritizes the unique challenges faced by emerging youths in Uganda. By integrating mediating and moderating variables, the study aims to provide a nuanced understanding of the factors that promote psychological adjustment, offering evidence-based insights for targeted interventions.

Purpose of the Study

This study is aimed at investigate the relationships among social support, self-esteem, age, gender, and psychological adjustment in young individuals diagnosed with cancer in Uganda. Specifically, the study aimed to examine the direct effects of social support and self-esteem on psychological adjustment, explore the mediating role of age in these relationships, and assess the moderating influence of gender.

Research Questions

1. How do social support, self-esteem, and age influence psychological adjustment, and to what extent does age mediate the relationships between social support, self-esteem, and psychological adjustment?
2. To what extent does gender moderate the relationship between social support and psychological adjustment?
3. To what extent does gender moderate the relationship between self-esteem and psychological adjustment?

Methodology

Research Design

This study employed a correlational design within a cross-sectional survey framework. The choice of design is informed by its effectiveness in capturing relationships among variables at a single point in time, making it suitable for understanding the interplay of social support, self-esteem, age, gender, and psychological adjustment among young cancer patients in Uganda.

Sampling Technique

The study employed a multistage sampling technique to recruit a total sample of 98 participants. Initially, purposive sampling was used to select hospitals and cancer treatment centers in Uganda that specialize in treating young cancer patients. From the patient registries within these facilities, systematic random sampling was subsequently applied to ensure that every eligible individual had an equal chance of inclusion in the study.

Inclusion Criteria

- Participants must be aged 18-30 years.
- Participants must have been diagnosed with any form of cancer and undergoing treatment or follow-up.
- Participants must provide informed consent to participate in the study.
- Participants must be Ugandan residents.

Measures

1. *Psychological Adjustment*: Psychological adjustment was assessed using the *Psychological Adjustment to Illness Scale* (PAIS; Derogatis, 1986). The PAIS evaluates the psychological impact of illness on individuals across several domains, including emotional well-being, social functioning, and coping strategies, offering insights into how individuals adapt psychologically to their illness. The scale has demonstrated strong internal consistency, with a Cronbach's alpha ranging from .84 to .94 across various populations, and test-retest reliability coefficients ranging from .70 to .85 (Derogatis, 1986).
2. *Social Support*: Social support was measured using the *Multidimensional Scale of Perceived Social Support* (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). This scale assesses the perceived availability of support from three sources: family, friends, and significant others. The MSPSS has shown high internal consistency, with Cronbach's alphas ranging from .85 to .91, and good construct validity, supported by its correlations with measures of emotional well-being and mental health (Zimet et al., 1988).
3. *Self-Esteem*: Self-esteem was measured using *Rosenberg's Self-Esteem Scale* (RSES; Rosenberg, 1965). The RSES evaluates an individual's overall self-worth, based on feelings of self-respect and general self-confidence. The scale has demonstrated excellent internal consistency, with Cronbach's alpha values typically ranging from .77 to .88, and strong test-retest reliability, with coefficients ranging from .82 to .88 over a period of weeks (Rosenberg, 1965). It has also shown good convergent validity, correlating positively with other self-esteem measures.

Method of Data Analysis

Data were analyzed using SPSS and JASP software. Descriptive statistics summarized participant demographics and key variables. Classical process analysis tested the mediation and moderation effects of age and gender, respectively. Multiple regression analysis was used to examine the predictive relationships among social support, self-esteem, and psychological adjustment. Significance was set at $p < .05$ for all statistical tests.

Results

Research Question 1: How do social support, self-esteem, and age influence psychological adjustment, and to what extent does age mediate the relationships between social support, self-esteem, and psychological adjustment?

Table 1: Path model showing effect of social support, self-esteem, and age influence psychological adjustment

			Label	Estimate (β)	Std. Error	z-value	p
Social Support	→	Psychological Adjustment	c1	1.265	0.053	23.853	< .001
Age	→	Psychological Adjustment	b1	0.956	0.045	21.325	< .001
Self Esteem	→	Psychological Adjustment	c2	0.345	0.051	6.760	< .001
Social Support	→	age	a1	-0.125	0.071	-1.770	0.077
Self Esteem	→	age	a2	-0.086	0.068	-1.260	0.208

Table 2: Path model showing the mediating effect of age in the relationship between social support, self-esteem, and psychological adjustment

Direct and indirect effect					Label	Estimate (β)	Std. Error	z-value	p
Social Support	→	Psychological Adjustment			c1	1.265	0.053	23.853	< .001
Self Esteem	→	Psychological Adjustment			c2	0.345	0.051	6.760	< .001
Social Support	→	age	→	Psychological Adjustment	a1 ✻ b1	-0.120	0.068	-1.764	0.078
Self Esteem	→	age	→	Psychological Adjustment	a2 ✻ b1	-0.082	0.065	-1.258	0.209

Table 1 reveals that ssocial support had a significant positive direct effect on psychological adjustment (β =1.265, z= 23.853, p <.001). This finding indicates that individuals who perceive higher levels of social support tend to experience better psychological adjustment. Similarly, self-esteem was found to have a significant positive direct effect on psychological adjustment (β = 0.345, z= 6.760 p<.001). This suggests that individuals with greater self-esteem also report better psychological adjustment.

Table 1 also showed that age also demonstrated a significant positive direct effect on psychological adjustment (β =0.956, z= 21.325, p < .001), indicating that older individuals tend to report higher levels of psychological adjustment among young people diagnosed of cancer. However, the relationships between social support and age (β = −0.125, z = −1.770, p < 0.05) and between self-esteem and age (β = −0.086, z= −1.260, p > 0.05) were not significant. While the association between social support and age approached significance, it did not reach the threshold for statistical significance.

Table 2 reveals the indirect effects of social support and self-esteem on psychological adjustment through age were also examined. The indirect effect of social support on psychological adjustment via age (a1×b1= −0.120, z = −1.764, p > 0.05) was not significant, although it was close to significance. Similarly, the indirect effect of self-esteem on psychological adjustment through age (a2×b1= −0.082, z= −1.258, p> 0.05) was non-significant. These results indicate that age does not mediate the relationships between social support or self-esteem and psychological adjustment among young people diagnosed of cancer.

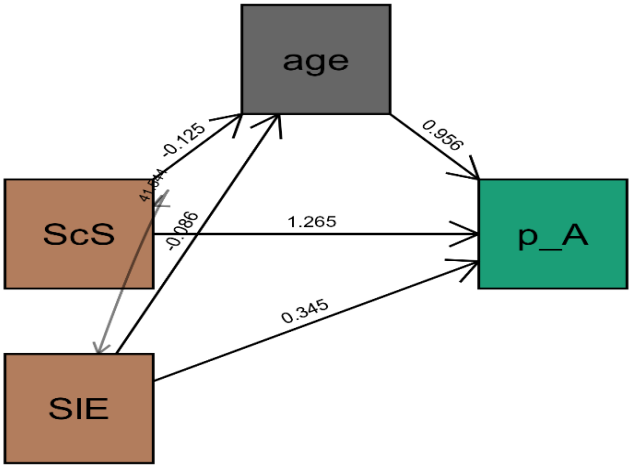

Fig 1: Mediation path model showing effect of social support, self-esteem, and age influence psychological adjustment.

Table 3: Model summary showing effect of social support, self-esteem, and age influence psychological adjustment

	AIC	AIC weight	BIC	BIC weight	Log-likelihood	n	df
Model 1	6877.615	1.000	6913.855	1.000	-3428.807	277	0

R-squared (R^2): 0.880 (Psychological adjustment), 0.065 (Age)

Table 3 showed an excellent fit, as indicated by the Akaike Information Criterion (AIC = 6877.615) and the Bayesian Information Criterion (BIC = 6913.855), with both metrics achieving a weight of 1.000. This suggests that the specified model is highly preferred among competing models. The R^2 values for the dependent variables (psychological adjustment) highlight the model's ability to explain variance. This indicates that the predictors (social support, self-esteem, and age) explained 88.0% increase in the psychological adjustment of young adults diagnosed of cancer. In contrast, age accounted for only 6.5% of the variance (R^2=0.065), suggesting that the age have a relatively modest influence on the psychological adjustment of individuals diagnosed of cancer.

Research Question 2: To what extent does gender moderate the relationship between social support and psychological adjustment?

Table 4: Moderation path model showing the effect of social support and gender on psychological adjustment

Independent/Moderator variable		Dependent variable	Label	Estimate (β)	Std. Error	z-value	p
Social Support	→	Psychological Adjustment	c1	1.120	0.076	14.810	< .001
gender	→	Psychological Adjustment	c2	-4.277	1.585	-2.697	0.007
Social Support * Gender	→	Psychological Adjustment	c3	-0.519	0.131	-3.950	< .001

Table 5: Conditional Process effect showed the moderation path model of gender in the relationship between social support and psychological adjustment

Independent variable		Dependent variable	Gender (Moderator)	Label	Estimate (β)	Std. Error	z-value	p
Social Support	→	Psychological Adjustment	0 (male)	(c1 + c3 ✻ 0)	1.120	0.076	14.810	< .001
Social Support	→	Psychological Adjustment	1 (female)	(c1 + c3 ✻ 1)	0.601	0.107	5.602	< .001

Table 4 indicated that social support significantly predicted psychological adjustment (β = 1.120, z=14.810, p<.001), with higher levels of social support being associated with better psychological adjustment. Gender also had a significant direct effect on psychological adjustment (β = −4.277, z = −2.697, p < 0.05). This suggests that females (coded as 1) reported lower levels of psychological adjustment compared to males (coded as 0). Table 4 also reveals that there was a significant interaction effect between social support and gender was observed (β = −0.519 z = −3.950 p <.001) on psychological adjustment. This indicates that gender moderates the relationship between social support and psychological adjustment among young people diagnosed of cancer.

While table 5 showcased the nature of this moderation was further examined through conditional effects. Considering young males diagnosed of cancer (Gender= 0), the effect of social support on psychological adjustment was strong and positive (β = 1.120, z= 14.810, p< .001). This suggests that males diagnosed of cancer benefit significantly from social support in terms of improved psychological adjustment. While on the account of females diagnosed of cancer (Gender = 1), the effect of social support on psychological adjustment was positive but weaker (β = 0.601, z= 5.602, p< .001), indicating that while social support still plays a role in enhancing psychological adjustment for females, its impact is less pronounced compared to males diagnosed of cancer.

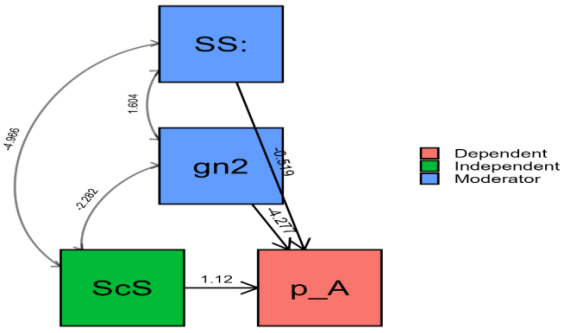

Fig 2: Moderation path model showing the effect of social support and gender on psychological adjustment

Table 6: Model summary showing effect of social support and gender influence psychological adjustment

	Hayes number[a]	AIC	AIC weight	BIC	BIC weight	Log-likelihood	n	df
Model 1	1	5202.698	1.000	5238.902	1.000	-2591.349	276	0

R-squared: 0.772

Table 6 provides a model summary with regards to the research question of social support and gender on the psychological adjustment of young people diagnosed of cancer. The model statistical indices characteristic reveal that the AIC = 5202.70 (Akaike Information Criterion (AIC) is 5202.698 and the AIC weight is 1.000), which confirms the priority of the model being presented, as it has the lowest AIC among all the models under consideration. The BIC is 5238.90, the BIC weight is 1.000, signifying this particular model has the lowest value of BIC. While the coefficient of determination indicated that the model explained 77.2% variance in the psychological adjustment of young people diagnosed of cancer.

Research Question 3: To what extent does gender moderate the relationship between self-esteem and psychological adjustment?

Table 7: Moderation path model summary showing effect of self-esteem and gender influence psychological adjustment

Independent		Dependent variable	Label	Estimate	Std. Error	z-value	p
Self-Esteem	→	Psychological Adjustment	c1	0.814	0.075	10.892	< .001
Gender	→	Psychological Adjustment	c2	-8.418	1.607	-5.239	< .001
Self-Esteem *Gender	→	Psychological Adjustment	c3	-0.470	0.130	-3.615	< .001

Table 8: Conditional Process effect showed the moderation path model of gender in the relationship between self-esteem and psychological adjustment

Independent		Dependent	Gender (moderator)	Label	Estimate	Std. Error	z-value	p
Self Esteem	→	Psychological Adjustment	0 (male)	(c1 + c3 ✻ 0)	0.814	0.075	10.892	< .001
Self Esteem	→	Psychological Adjustment	1(female)	(c1 + c3 ✻ 1)	0.344	0.106	3.228	0.001

Table 7 reveals that there is a significant direct effect of self-esteem on psychological adjustment (β =0.814, z= 10.892, p<. 001), indicating that higher levels of self-esteem are associated with better psychological adjustment among young individuals diagnosed of cancer. Gender had a significant negative direct effect on psychological adjustment (β = −8.418, z= −5.239, p<. 001), suggesting that females reported lower psychological adjustment compared to males diagnosed of cancer.

Table 8 showcased the interaction effect between self-esteem and gender was also significant (β = −0.470, z=−3.615, p< .001). This result indicates that the relationship between self-esteem and psychological adjustment is moderated by gender, with differing effects for males and females diagnosed of cancer. Conditional process model reveals that among males individuals (coded as 0), indicated significant positive effect between self-esteem and psychological adjustment (β = 0.814, z=10.892, p < .001). While among females (coded as 1), the effect of self-esteem on psychological adjustment was weaker but remained significant (β = 0.344, z= 3.228, p < .001).

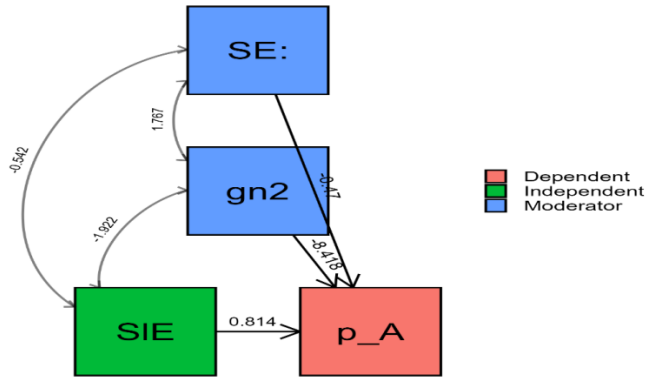

Fig3: Moderation path model summary showing effect of self-esteem and gender influence psychological adjustment.

Table 9: Model summary showing effect of self-esteem and gender influence psychological adjustment

	Hayes number[a]	AIC	AIC weight	BIC	BIC weight	Log-likelihood	n	df
Model 1	1	5431.664	1.000	5467.868	1.000	-2705.832	276	0

R-squared: 0.704

Table 9 reveals that the model demonstrated an excellent fit to the data, as reflected by the Akaike Information Criterion (AIC) of 5431.66 and the Bayesian Information Criterion (BIC) of 5467.87, both with weights of 1.000. These metrics indicate that this model is strongly favoured relative to alternative models. The R^2 value for psychological adjustment was 0.704, indicating that the predictors included in the model explained 70.4% of the variance in psychological adjustment among young people diagnosed of cancer.

Discussion of Findings

The first research question examined how do social support, self-esteem, and age influence psychological adjustment. The result showcased a positive direct effect of social support on psychological adjustment (β = 1.265, z = 23.853, p < .001) which corroborates findings from previous research. Kim et al., (2021) found that perceived social support enhances emotional well-being and facilitates coping mechanisms among individuals with chronic illnesses, including cancer. Similarly, Nguyen et al. (2023) reported that strong social networks significantly reduce stress and depressive symptoms in cancer patients. Social support appears to serve as a buffer against psychological distress by fostering a sense of belonging and emotional security, which are crucial for young adults navigating the complexities of a cancer diagnosis. In contrast, Liu et al. (2021) suggests that the quality of social support, rather than its quantity, is a more critical determinant of psychological outcomes. This raises questions about the dimensions of social support assessed in the current study and their relative influence on psychological adjustment. Furthermore, cultural factors in Uganda, such as communal living and extended

family structures, might uniquely shape the experience and impact of social support on psychological adjustment, suggesting the need for culturally tailored interventions.

The result also indicated that self-esteem demonstrated a significant positive effect on psychological adjustment ($\beta = 0.345$, $z = 6.760$, $p < .001$). This finding aligns with the findings of Chen et al., (2023) which posits that individuals with high self-esteem perceive themselves as capable and valuable, promoting adaptive coping strategies. Empirical studies have echoed this, such as findings by Liu et al. (2021), which indicated that higher self-esteem is associated with better mental health and resilience in adolescents facing chronic health conditions. However, contrasting findings by Thomas et al. (2020) highlight that self-esteem may fluctuate with age and life circumstances, particularly in populations experiencing significant life stressors like cancer. This underscores the need to examine how self-esteem interventions can be integrated into psychological support programs for young cancer patients.

Age also exhibited a significant positive direct effect on psychological adjustment ($\beta = 0.956$, $z = 21.325$, $p < .001$), suggesting that older individuals within the 18–25 age range demonstrated better psychological adjustment. This finding aligns with developmental psychology perspectives, which posit that older emerging adults may possess more advanced emotional regulation and problem-solving skills (Wood et al., 2018). However, the non-significant indirect effects of age in mediating the relationships between social support and self-esteem with psychological adjustment challenge existing frameworks that emphasize the moderating or mediating role of age in psychological outcomes (Yu et al., 2024).

The second research question examined the extent to which gender moderate the relationship between social support and psychological adjustment. The result showed that **s**ocial support emerged as a significant predictor of psychological adjustment ($\beta = 1.120$, $z = 14.810$, $p < .001$), reinforcing the well-established role of supportive networks in enhancing mental health outcomes. This finding is consistent with the study of Ye et al., (2020), which demonstrated that perceived social support mitigates emotional distress and promotes resilience among individuals coping with chronic illnesses. On the account of young cancer patients, the emotional, informational, and tangible support provided by close networks likely contributes to their ability to manage the psychological demands of their condition. On the other the significant negative direct effect of gender on psychological adjustment ($\beta = -4.277$, $z = -2.697$, $p < .05$) indicates that females reported lower levels of psychological adjustment compared to males. This finding aligns with literature suggesting that women often report higher levels of psychological distress in the face of chronic illnesses (Alfaraj et al., 2022). Factors such as societal expectations, caregiving roles, and differences in coping mechanisms may contribute to these disparities. In contrast, some studies, such as those by Zhang (2018), argue that women are more likely to seek and utilize emotional support, which can buffer against distress, highlighting the complexity of gender differences in psychological outcomes.

The result also reveals that the interaction effect between social support and gender on psychological adjustment ($\beta = -0.519$, $z = -3.950$, $p < .001$) indicates that gender moderates this relationship. For males ($\beta = 1.120$, $z = 14.810$, $p < .001$), social support had a strong and positive effect on psychological adjustment, suggesting that males benefit significantly from the presence of social networks. This finding aligns with studies such as Emami et al. (2023), who highlighted that those men often rely heavily on external support during periods of health crises. On the other hands, among females ($\beta = 0.601$, $z = 5.602$, $p < .001$), social support also positively influenced psychological adjustment, the effect was weaker. This aligns with literature suggesting that women may internalize stress more deeply or may rely on coping strategies beyond external social support (Risner, 2014). Additionally, cultural and societal norms in Uganda may shape the way women perceive and utilize social support, potentially limiting its impact on their psychological well-being. In contrast, Wurtz, (2022) suggested that women generally derive greater emotional benefits from social support than men, emphasizing the importance of context-specific factors, such as cultural norms and individual coping styles, in moderating these effects. In the Ugandan context, traditional gender roles and expectations may exacerbate stress among women, limiting the perceived utility of social support. Men, on the other hand, might view social support as a critical resource during illness, amplifying its positive impact on their psychological adjustment.

The third research question examined the extent to which gender moderate the relationship between self-esteem and psychological adjustment. The result shows a significant negative direct effect of gender on psychological adjustment ($\beta = -8.418$, $z = -5.239$, $p < .001$), this suggests that females report lower psychological adjustment compared to males. This finding aligns with research suggesting that women often experience higher levels of emotional distress when coping with chronic illnesses (Warner et al., 2019). Factors such as societal expectations, caregiving roles, and biological differences in stress responses may contribute to these gender disparities (Sharma et al., 2016).

Contrastingly, some studies, such as those by Che et al., (2018), argue that women may benefit more from emotional expression and social support, which can buffer against distress. However, the current findings suggest that these benefits might not fully compensate for the heightened psychological challenges faced by females in the context of a cancer diagnosis.

The result also indicated that the interaction effect between self-esteem and gender on psychological adjustment ($\beta = -0.470$, $z = -3.615$, $p < .001$) indicates that gender moderates this relationship, with males benefiting more from high self-esteem compared to females diagnosed of cancer. Among males ($\beta = 0.814$, $z = 10.892$, $p < .001$), self-esteem had a strong and significant positive effect on psychological adjustment. This finding is consistent with research by Rogers et al. (2021), which suggests that males often derive substantial psychological benefits from self-esteem, potentially due to socialization patterns that emphasize individual autonomy and self-reliance. While for females ($\beta = 0.344$, $z = 3.228$, $p < .001$), the effect of self-esteem on psychological adjustment was weaker, though still significant. This aligns with findings from studies such as Merino et al., (2024), who indicated that women's psychological outcomes are often influenced by a broader set of interpersonal and contextual factors, including relational dynamics and social connectedness, beyond individual self-esteem. However, these findings diverge from some studies suggesting that women typically benefit more from self-esteem in buffering against psychological distress (Dang, 2014; Li et al., 2015). This discrepancy may be influenced by cultural and

contextual factors in Uganda, where gender roles and societal expectations may amplify stress for women, thereby diminishing the relative protective effect of self-esteem. Additionally, systemic barriers such as limited access to resources and healthcare may disproportionately affect females, further complicating the relationship between self-esteem and psychological adjustment.

Conclusion

This study explored the moderating role of gender in the relationship between self-esteem and psychological adjustment among young individuals diagnosed with cancer. The findings revealed that self-esteem significantly predicted psychological adjustment, with males benefiting more from higher self-esteem than females. Gender also had a direct effect on psychological adjustment, with females reporting lower levels compared to males. These results highlight the critical interplay between individual and contextual factors in shaping the psychological well-being of young cancer patients. The findings underscore the need for gender-sensitive and culturally relevant approaches to psychosocial interventions in this population.

Recommendations

1. Psychosocial support programs should be tailored to address the unique needs of males and females. For males, interventions should focus on enhancing self-esteem and fostering resilience. For females, strategies should integrate self-esteem enhancement with relational and community support to address broader psychosocial needs.
2. Given the contextual factors in Uganda, community-based initiatives and policies aimed at addressing systemic barriers, such as limited access to healthcare and support services for females, are essential. These interventions should promote gender equity in healthcare delivery.
3. Mental health interventions should combine individual-focused approaches, such as cognitive-behavioural techniques to build self-esteem, with relational approaches that strengthen social networks, particularly for females.
4. Policymakers should prioritize funding and implementing programs that provide mental health services in cancer care settings. Special emphasis should be placed on improving access for young women, who may face greater systemic and psychological challenges.
5. Further studies should examine other potential moderators, such as socioeconomic status, family dynamics, and cultural beliefs, to provide a more comprehensive understanding of psychological adjustment in this population. Longitudinal designs would also help clarify causal relationships and the long-term impact of self-esteem and gender on psychological outcomes.

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