Research Advances on Goal Adjustment Ability in Cancer Patients and Its Impact on Physical and Mental Health: Postprint

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Abstract

Cancer diagnosis constitutes a major traumatic event that severely disrupts individuals' pursuit of life goals and precipitates various emotional disorders. Appropriately adjusting life goals facilitates patients' reconstruction of life direction and improvement of physical and mental well-being. This article, through a literature review methodology, systematically examines the current state of research both domestically and internationally regarding the impact of cancer on patients' life goal pursuit, and synthesizes research progress in existing literature concerning goal adjustment behaviors among cancer patients and their effects on patients' physical and mental health. The literature review demonstrates that the impact of cancer diagnosis on patients' life goal pursuit is primarily manifested in effects on self-efficacy in goal pursuit, goal pursuit capacity, and goal priority setting. Appropriate goal adjustment behaviors contribute to improved physical and mental health in patients, including: promotion of positive emotions, alleviation of negative emotions, reduction of physical symptom distress, and enhancement of quality of life. Consequently, future intervention designs targeting emotional health in cancer patients may be grounded in guiding patients to replan and adjust their life goals, thereby improving patients' quality of life, promoting emotional health, and enhancing disease prognosis.

Full Text

Advances in Life Goal Adjustment Ability of Cancer Patients and Its Effect on Physical and Mental Health

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Abstract

Cancer is a major traumatic event that causes serious interference in the pursuit of individual life goals and leads to a variety of emotional disorders. Rational adjustment of life goals is beneficial for helping patients rebuild life direction and improve physical and mental health. This paper reviews current domestic and international research on how cancer affects patients' pursuit of life goals, and summarizes advances in the existing literature regarding goal-adjustment behaviors among cancer patients and their effects on physical and mental health. The literature review shows that the impact of cancer diagnosis on patients' life goal pursuit is mainly manifested in three areas: self-efficacy in goal pursuit, goal pursuit ability, and goal prioritization. Reasonable goal-adjustment behaviors can improve patients' physical and mental health by promoting positive emotions, alleviating negative emotions, reducing physical discomfort symptoms, and enhancing quality of life. Therefore, future psychosocial interventions for cancer patients' emotional health should be based on guiding patients to replan and adjust their life goals, thereby improving quality of life, promoting emotional health, and enhancing disease prognosis.

Keywords: Neoplasms; Goal adjustment; Psychological health; Quality of life; Disease prognosis; Review

1. Literature Search Strategy

This review employed the following search strategy: English keywords "Cancer," "Goal adjustment," "psychological health," and "goal intervention" were used to search PubMed, Medline, and Web of Science; Chinese keywords "癌症" (cancer), "目标调整" (goal adjustment), "心理健康" (psychological health), and "目

标干预" (goal intervention) were used to search CNKI and Wanfang Data Knowledge Service Platform. The search timeframe was from database inception to September 10, 2023. Inclusion criteria were published literature, with priority given to high-quality journal articles. Exclusion criteria were: (1) literature with insufficient data information, duplicate publications, or unavailable full text; (2) literature of poor quality.

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2. Impact of Cancer and Treatment on Goal Pursuit Behavior and Ability

Existing literature indicates that cancer diagnosis and the lengthy treatment process affect individuals' life goal pursuit in three main aspects: self-efficacy in goal pursuit, goal pursuit ability, and goal prioritization.

First, cancer diagnosis can reduce patients' self-efficacy in pursuing goals. Self-efficacy refers to an individual's confidence in their ability to execute certain behaviors to achieve expected outcomes in specific situations [6]. CURRIN-MCCULLOCH et al. [7] conducted semi-structured interviews with 13 young adult cancer patients and found that most had not experienced major life setbacks before diagnosis. Consequently, they often experienced low self-efficacy when attempting to rebuild life goals and hope after diagnosis, which further exacerbated their psychological distress.

Second, cancer diagnosis affects patients' ability to achieve goals. On one hand, cancer-related physical symptoms and treatment side effects can impair cognitive function and physical capacity, thereby affecting goal achievement ability. In a study of 42 cancer patients by VETSCH et al. [8], 69% experienced cognitive decline and physical discomfort, making it difficult for them to reintegrate into school or meet workplace requirements and reducing their ability to achieve academic or career goals. On the other hand, cancer diagnosis can affect patients' interpersonal relationships, making it difficult to obtain adequate social support and increasing the difficulty of pursuing life goals. LIU et al. [9] conducted semi-structured interviews with 15 Chinese cancer patients to explore their psychological support needs and found that although patients generally desired to participate in social activities, some reported frequent experiences of discrimination and rejection from friends and neighbors. Such social avoidance from others made it even more difficult for patients already struggling with physical symptoms and emotional disorders to obtain necessary socio-emotional support, further complicating the pursuit of original life goals. Additionally, SHIM et al. [10] found that 20.7% of 433 cancer patients reported experiencing discrimination from employers and colleagues, which may increase the risk of income reduction or unemployment, thereby affecting the economic resources necessary for pursuing life goals.

Third, cancer diagnosis affects patients' goal priority setting. The diagnosis changes patients' life expectations, forcing them to rearrange the importance of

various life goals and develop new perspectives on goals in different domains. OFFERMAN et al. [6] studied 40 head and neck cancer patients and found that compared with before diagnosis, patients after diagnosis focused more on goals such as "restoring physical condition" and "enjoying life as much as possible," while de-emphasizing the pursuit of life achievements. Similarly, JANSE et al. [11] found that among 130 colorectal cancer patients, interpersonal relationships were valued more than career goals. These studies suggest that when individuals' foreseeable lifespan is shortened by cancer, they tend to prioritize goals that enhance subjective well-being rather than goals that expand life achievements.

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3. Importance of Goal Adjustment Ability for Cancer Patients' Physical and Mental Health

Research shows that when cancer patients face goal frustration, timely goal adjustment behaviors (such as disengaging from unattainable original goals and establishing new ones) are positively correlated with positive emotions and psychological well-being [12-14]. Therefore, reasonable and active goal adjustment behaviors can help reduce feelings of goal frustration, alleviate psychological pressure, and improve patients' physical and mental health. Goal adjustment ability refers to an individual's capacity to make reasonable adjustments to original goals when life stressors prevent their achievement [15]. WROSCH [16] noted that there are significant individual differences in goal adjustment ability. When original goals become unattainable due to major life stressors, some individuals more easily accept reality and make reasonable adjustments to adapt to new life circumstances, while others struggle to psychologically abandon original goals and continue to invest resources in pursuing them. However, under the physical and mental health impacts of cancer, such continued investment in difficult-to-achieve goals often creates more severe psychological frustration and hinders psychosocial adaptation. Therefore, reasonable goal adjustment is crucial for cancer patients' emotional health.

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4. Theoretical Models of Goal Adjustment Ability in Cancer Patients

Currently, the most widely used scales for measuring goal adjustment behaviors in cancer patients include the Goal Adjustment Scale (GAS) and the Tenacious Goal Pursuit and Flexible Goal Adjustment Scales (TGP&GAS). These scales are based on the following theoretical models.

4.1 Dual Process Model The dual process model posits that when facing goal pursuit frustration, individuals dynamically alternate between "assimilation" and "accommodation" regulatory processes based on current resources and environmental conditions to achieve good physical and mental adaptation.

The "assimilation" process refers to individuals consciously investing more resources and effort to overcome difficulties and persist in pursuing original goals. Goal regulation behaviors using assimilation strategies are called "goal tenacity" [17-18]. The "accommodation" process refers to individuals adjusting original goals or seeking new ones when limited resources make goal pursuit severely obstructed. Goal adjustment behaviors using accommodation strategies are called "goal flexibility." SLAGHMUYLDER et al. [19] conducted focus group interviews with 31 breast cancer patients to investigate strategies for coping with pain and pursuing life goals. Qualitative analysis of interview data revealed that pain-related stress prompted patients to begin self-regulation processes: some patients adopted "assimilation" coping strategies, such as frequently seeking medical care and trying different treatments to alleviate pain in order to maintain current life goals and states; other patients accepted that pain was difficult to relieve and adopted "accommodation" coping strategies by adjusting current life goals and daily activities to coexist with chronic pain.

4.2 Goal Adjustment Model This model proposes two goal regulation behavioral tendencies when original goals become unattainable: disengaging from original goals and reengaging with new goals [20]. Disengaging from original goals refers to abandoning behavioral efforts and psychological commitment to pursue original goals when major life changes prevent their achievement, while reengaging with new goals refers to behaviors and motivations for exploring and pursuing new goals. LAM et al. [21] studied the impact of goal adjustment behavioral tendencies on emotional health in advanced breast cancer patients and found that both disengagement ability and reengagement ability improved anxiety and depression.

4.3 Self-Regulation Theory This theory explains that when stressors prevent original goal achievement, individuals assess the gap between goals and personal capabilities to determine how to adjust goals [22]. NAIRN et al. [23] conducted an intervention study to enhance stress coping skills in 134 cancer patients based on self-regulation theory. Results showed that guiding patients to assess the gap between goals and personal capabilities and make reasonable adjustments could enhance patients' self-efficacy in coping with stress.

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5. Measurement Scales for Goal Adjustment Ability in Cancer Patients

5.1 Goal Adjustment Scale (GAS) The GAS was designed by WROSCH et al. [24] to measure goal adjustment ability. Based on the Goal Adjustment Model, it includes two subscales: disengagement from original goals (4 items) and reengagement with new goals (6 items). The disengagement subscale assesses motivation and ability to timely disengage from original goals when major life events make them difficult to achieve (e.g., "I find it easy to reduce my

efforts toward the original goal," "I find it easy not to dwell on the original goal"). Items are scored on a 5-point Likert scale from 1 ("strongly disagree") to 5 ("strongly agree"), with total scores ranging from 4 to 20, where higher scores indicate stronger ability or motivation to disengage from original goals. The reengagement subscale assesses motivation and ability to promptly find and work toward new goals when original goals become unattainable. Also using a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"), total scores range from 6 to 30, with higher scores indicating stronger motivation or ability to reengage with new goals. The Chinese versions of both subscales demonstrate good internal consistency reliability. LAM et al. [21] used the Chinese version of GAS to measure goal adjustment behaviors in 225 Chinese advanced breast cancer patients, showing good internal consistency for both the disengagement subscale (Cronbach's $\alpha = 0.77$) and the reengagement subscale (Cronbach's $\alpha = 0.89$).

5.2 Tenacious Goal Pursuit and Flexible Goal Adjustment Scales (TGP&GAS) This scale was developed by BRANDTSTÄDTER et al. [25] based on the "goal tenacity" and "goal flexibility" dimensions of the dual process model. It includes two subscales: tenacious goal pursuit (15 items) and flexible goal adjustment (15 items). The tenacious goal pursuit subscale assesses motivation and behavioral tendencies to persist in pursuing original goals when they become difficult to achieve. Items are scored on a 5-point Likert scale from 1 ("strongly disagree") to 5 ("strongly agree"), with total scores ranging from 15 to 75, where higher scores indicate stronger motivation and behavioral tendencies to persistently pursue original goals. The flexible goal adjustment subscale assesses individuals' ability to flexibly adjust goals according to environmental changes. Also using a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"), total scores range from 15 to 75, with higher scores indicating stronger ability to flexibly adjust goals. BRANDTSTÄDTER et al. [25] administered the tenacious goal pursuit scale and flexible GAS to a sample of 890 individuals aged 34-63, demonstrating good internal consistency reliability (Cronbach's $\alpha = 0.83$).

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6. Research on the Impact of Goal Adjustment Behaviors on Physical and Mental Health in Cancer Patients

Through comprehensive literature review of PubMed, Web of Science, CNKI, and Wanfang Data Knowledge Service Platform, we found that current domestic research on goal adjustment behaviors in cancer patients is very limited. Over the past 15 years, international research on the relationship between goal adjustment behaviors and physical and mental health in cancer patients has been relatively abundant, primarily focusing on promoting positive emotions, alleviating negative emotions, and improving quality of life.

6.1 Promoting Positive Psychological States Multiple studies demonstrate that goal adjustment behaviors in cancer patients help promote positive psychological states, including well-being, positive emotions, and emotional adaptation. COFFEY et al. [26] conducted a meta-analysis covering 13 studies on cancer survivors and found that setting new realistic goals could enhance patients' psychological and physical health by increasing emotional support. "Reengagement with new goals" strategies showed stronger effects than "disengagement from original goals" in promoting positive psychological states [27-29].

6.1.1 Intervention Studies In response to cancer patients' psychological needs for goal reconstruction, international scholars have developed multiple psychosocial support intervention models based on goal adjustment techniques. Research shows these goal regulation-based intervention models effectively reduce psychological conflict from goal frustration, improve emotional health, and enhance hope. BERG et al. [30] developed a goal adjustment strategy-based intervention program for young cancer patients and evaluated its potential positive effects in 63 young patients through a randomized controlled pilot trial, showing potential benefits in enhancing hope ($P = 0.083$) and health status ($P = 0.05$). WAGLAND et al. [31] studied a life-coaching-based intervention program designed to guide cancer patients in regulating goals, pursuing objectives, and rebuilding self-confidence. Analysis of pre-post data from 11 cancer patients revealed that the intervention improved psychological distress levels and self-confidence, thereby promoting positive psychological states ($P = 0.02$). Positive interventions including goal adjustment and other active approaches not only help reduce burden and stress but also improve patients' mental health and quality of life.

6.1.2 Cross-Sectional Studies HUANG et al. [32] conducted a cross-sectional study of 207 Chinese breast cancer patients and found that adjusting goals according to actual life circumstances enabled optimistic coping and increased well-being ($P \leq 0.01$). Additionally, SCHROEVERS et al. [13] studied 108 cancer patients and found that both disengaging from original goals and reengaging with new goals helped patients shift to more attainable goals, thereby promoting positive emotions ($r = 0.04$, $P < 0.001$). SCHROEVERS et al. [27] explored the promoting effect of goal adjustment on positive emotions, comparing the effects of disengagement versus reengagement, and found that establishing new goals ($\beta = 0.26$, $P \leq 0.01$) showed a stronger positive correlation with well-being than disengaging from original goals ($\beta = 0.05$, $P \leq 0.01$). Researchers suggested this might be because patients more easily adapt to changes from goal disengagement than those from goal reengagement, making new goal establishment more effective for promoting positive emotions.

6.1.3 Longitudinal Observational Studies Multiple longitudinal observational studies report that cancer patients' goal adjustment behaviors, including disengaging from original goals and reengaging with new goals, help alleviate

psychological pressure from goal frustration and promote positive emotions [21, 28-29, 33-39]. LAM et al. [21] used the Chinese version of GAS to survey 225 advanced breast cancer patients and found that patients skilled in goal reengagement showed higher positive emotions after completing treatment (r = -0.39, P = 0.13). In another study, JANSE et al. [33] analyzed data from three measurements over 18 months in 186 colorectal cancer patients and found that patients who engaged in goal adjustment behaviors showed significantly improved psychological well-being throughout the study period ($P \leq 0.01$). WROSCH et al. [29] assessed goal adjustment strategies and physical and mental health status 3 months after baseline cancer diagnosis in 176 breast cancer patients and found that those who reengaged with new goals ($\beta = 0.36$, $P \leq 0.01$) or disengaged from original goals ($\beta = 0.16$, P = 0.17) showed significantly improved positive emotions and well-being ($P \leq 0.05$). Two additional longitudinal follow-up studies spanning 12 and 20 months both demonstrated that cancer patients' reengagement with new goals improved life adaptability [36-37].

6.2 Alleviating Negative Emotions Multiple studies show that goal adjustment has alleviating effects on negative emotions in cancer patients. LUI et al. [40] conducted a meta-analysis of 93 studies and found that self-management and goal adjustment interventions for cancer patients significantly reduced depression and anxiety levels.

6.2.1 Intervention Studies LOH et al. [41] developed a self-management intervention model for breast cancer patients that included guidance on setting and regulating life goals after diagnosis and evaluated its effects in 147 patients. Results showed that after 4 weeks of intervention, breast cancer patients' psychological distress levels improved (P = 0.03). Additionally, CHEAVENS et al. [42] developed an intervention focused on rebuilding life direction and hope. A pilot study of 39 cancer patients found that post-intervention, patients' negative emotions including depression (P = 0.07) and anxiety (P = 0.03) improved. Both intervention studies demonstrated that goal adjustment has beneficial effects in alleviating negative emotions in cancer patients.

6.2.2 Cross-Sectional Studies OFFERMAN et al. [6] surveyed 40 head and neck cancer patients and found that reengaging with new goals was negatively correlated with anxiety (r = -0.29) and depression (r = -0.47, $P < 0.001$). Similarly, SCHROEVERS et al. [27] found in 108 cancer patients that both disengagement (r = -0.24, $P < 0.01$) and reengagement (r = -0.24, $P < 0.01$) were negatively correlated with negative attitudes toward life.

6.2.3 Longitudinal Observational Studies Multiple longitudinal observational studies report negative correlations between cancer patients' goal adjustment behaviors and negative emotions [34, 36, 43-44]. Several studies indicate that disengagement from original goals shows stronger negative correlations with

negative emotions than reengagement with new goals [21, 28-29, 43]. For example, LAM et al. found in a study of 225 breast cancer patients that higher levels of disengagement from original goals better predicted reduced depression levels ($P < 0.01$) compared to establishing new goals ($P < 0.01$). Research also shows that disengagement is negatively correlated with depression and anxiety levels ($P < 0.01$), suggesting that helping patients disengage from unachievable goals at the start of chemotherapy may help reduce psychological pressure and improve quality of life [21]. ZHU et al. [43] conducted a longitudinal study of 241 cancer patients receiving psychosocial care and found that disengagement strategies showed greater negative correlation with anxiety 3 months post-diagnosis ($r = -0.25$, $P < 0.001$) than reengagement strategies ($r = -0.24$, $P < 0.001$). Additionally, during the same follow-up period, establishing new goals was negatively correlated with both depression ($P < 0.001$) and anxiety. Some studies found that disengagement behaviors were positively correlated with negative emotions in the early stages after cancer diagnosis [21, 34]. THOMPSON et al. [34] studied the relationship between goal adjustment strategies and psychological states in metastatic breast cancer patients ($r = -0.16$, $P \leq 0.01$) and found that disengagement strategies could predict depression severity after 3 months.

6.3 Effects on Physical Symptoms and Quality of Life Research shows that goal adjustment can alleviate physical symptoms and improve quality of life in cancer patients.

6.3.1 Intervention Studies In CHEAVENS et al.'s [42] psychosocial intervention study based on goal and hope reconstruction with 39 cancer patients, structured interviews revealed that goal adjustment had potential positive effects on improving patients' overall quality of life. Another meta-analysis on digital health models' effects on cancer patients' mental health showed that digital interventions guiding patients to adjust goals and pursue life objectives helped alleviate physical symptoms such as sleep disturbances [45].

6.3.2 Cross-Sectional Studies BAHRAMI et al. [46] surveyed 156 cancer patients and found that goal adjustment scores were significantly positively correlated with quality of life ($r = 0.69$, $P < 0.05$).

6.3.3 Longitudinal Observational Studies Multiple longitudinal studies report positive correlations between goal adjustment and quality of life [29, 33, 37-38]. JANSE et al. [33] tracked 186 cancer patients for 18 months post-diagnosis and found that goal adjustment motivation scores at 7 months post-diagnosis positively predicted quality of life at 18 months. Both reengagement and disengagement strategies showed significant positive correlations, though the study did not compare the two strategies. Additionally, WROSCH et al. [29] conducted a longitudinal observational study of physical symptom burden in 176 breast cancer patients and found that patients skilled in reengaging with goals

(r = -0.14) and disengaging from original goals (r = -0.02) showed fewer physical discomfort symptoms after 3 months. Compared to "establishing new goals," disengagement showed stronger positive correlation with physical health.

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7. Research Limitations and Future Directions

Currently, domestic research on goal adjustment strategies and their effects on physical and mental health in cancer patients is very limited. Given that goal adjustment ability varies across cultures and is influenced by cultural values and social environments [47], future systematic studies are needed on the characteristics of goal adjustment behaviors in Chinese cancer patients and their relationships with emotional health, physical symptoms, and quality of life, as well as cross-cultural comparative studies.

Although international research on goal adjustment ability in cancer patients has made progress over the past 15 years, several limitations remain.

7.1 Lack of Stratified Research for Different Age Groups Young and middle-aged adults are in a critical period of life expansion and self-actualization. Numerous studies have found that compared with older populations, younger age groups place greater emphasis on life goal achievement [48]. Therefore, when cancer diagnosis disrupts life plans, young and middle-aged patients may experience more significant psychological frustration than older patients. Future research should investigate differences in goal adjustment ability and its effects on physical and mental health across different age groups of cancer patients to provide references for developing individualized psychological intervention strategies tailored to different age groups' psychological support needs.

7.2 Need to Expand Evaluation Indicators for Goal Adjustment Interventions Existing literature shows that using reasonable goal adjustment strategies can reduce physical symptom burden and improve quality of life in cancer patients. However, most quantitative studies have focused on well-being and disease recovery, while research on whether goal adjustment can alleviate anxiety and depression symptoms remains preliminary. Depression has a relatively high prevalence among Chinese cancer patients [49] and significantly impacts cancer prognosis and treatment outcomes. Investigating the effects of goal adjustment on anxiety and depression in cancer patients is therefore important.

7.3 Potential Moderating Factors of Goal Adjustment Effects Remain to Be Elucidated The effects of cancer patients' goal adjustment behaviors on physical and mental health may be further influenced by other factors. Current domestic and international literature contains very limited research on

moderating factors that may affect the role of goal adjustment behaviors in cancer patients. Elucidating these moderating factors and identifying sensitive populations for goal adjustment interventions will help enhance intervention effectiveness and optimize allocation of intervention resources.

Conclusion

Cancer severely affects individuals' sense of self-worth and pursuit of original life goals, causing serious emotional disorders. Existing literature indicates that making reasonable adjustments to original life goals after cancer diagnosis helps promote psychosocial adaptation, improve quality of life, reduce physical symptom burden, and enhance disease prognosis. However, current research has predominantly focused on cancer patients in Europe and America, with very few studies on goal adjustment behaviors in Chinese cancer patients. Additionally, minimal research has conducted stratified studies across different age groups or elaborated on potential moderating factors. Future research should deeply investigate goal adjustment behaviors and their effects on physical and mental health in Chinese cancer patients and elucidate potential moderating factors. Such research is crucial for developing goal adjustment-based psychological intervention models that address patients' genuine psychological support needs, thereby alleviating psychological pressure, improving quality of life, and enhancing disease prognosis.

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