

Article

Research on the promotion of positive emotions on the mental health of college cancer patients

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Abstract: Positive emotions can expand the individual thinking activity sequence of ordinary college students, and have an irreplaceable role in promoting the mental health of this special group of college cancer patients. College cancer patients need to endure both the physical pain and psychological pressure of cancer treatment. Positive emotions can help them broaden their cognitive boundaries in difficult situations, no longer limited to negative feelings caused by illness. Psychological health education is an important support for the physical and mental recovery of college cancer patients. However, the current mental health education for this group often ignores its special needs such as "dual pressure of disease and study" and "unstable treatment cycle", and still uses a single model for ordinary college students, resulting in unsatisfactory educational effect and difficulty in effectively solving the psychological dilemma of patients. Based on this, this article focuses on the physical and mental characteristics of college cancer patients, and deeply analyzes the specific promoting effect of positive emotions on their mental health. Including alleviating negative emotions, enhancing treatment confidence, repairing social connections, etc., combined with the actual needs of patients in the treatment and rehabilitation stages. It proposes targeted practical suggestions aimed at providing reference for optimizing the mental health education system for college cancer patients.

Keywords: college cancer patients; psychological resilience; positive emotions; mental health.

1. Introduction

College cancer patients are different from ordinary cancer patients and also have significant differences from the healthy college student population. They were supposed to enjoy their youth on campus, explore knowledge boundaries, build social networks, and plan their future blueprints. However, the diagnosis of cancer was like a sudden "storm of life", completely breaking their pace of life and pushing them into a dual dilemma of physiology and psychology [1]. From a physiological perspective, the side effects of chemotherapy, radiation therapy, surgery, and other methods during cancer treatment include nausea, vomiting, hair loss, physical weakness, and weakened immunity. Not only did it seriously damage their physical functions, forcing them to temporarily interrupt their studies, detach themselves from the familiar campus environment, and be in a cycle of hospital treatment and home rest for a long time [2]. It also allows them to experience physical pain and weakness too early in their young life stages, which can easily trigger a psychological chain reaction due to the physiological impact.

On a psychological level, college cancer patients face more complex and severe challenges. In the early stages of diagnosis, the vast majority of patients will

experience emotional stages of shock, denial, fear, and helplessness. They find it difficult to accept the association between their young lives and the terrible disease of "cancer", and are full of anxiety about the unknown nature of the disease and the uncertainty of treatment [3]. They may even develop self doubt and negative cognition of "why I am" and unfair fate. With the advancement of treatment, the long-term torment of illness, economic pressure caused by treatment costs, and differences in life trajectories with peers further exacerbate their psychological burden [4]. Some patients experience psychological problems such as decreased self-worth and loss of confidence in the future as they watch their former classmates attend classes, participate in club activities, prepare for postgraduate entrance exams or job hunting while being trapped in the hospital room due to academic interruptions [5,6]. Some patients, fearing discrimination and burdening their family and friends, actively distance themselves from social circles and fall into a state of loneliness and isolation, leading to more serious psychological distress such as depression and paranoia. In addition, the recovery period after cancer treatment is long, and patients' fear of disease recurrence is like the "sword of Damocles" hanging in their hearts. This long-term psychological pressure will continue to affect their emotional state and quality of life [7,8]. Even if one returns to campus after rehabilitation, they may still face difficulties in quickly integrating into the group due to the "psychological shadow after illness" and facing social adaptation challenges.

2. The Relationship Between Positive Emotions and the Psychological Health of College Students With Cancer

2.1 Eliminating college students' negative emotions

In the mental health education of college cancer patients, the cultivation of positive emotions should become a core direction [9,10]. Currently, some universities have focused on the role of positive emotions in guiding the mental health of ordinary college students, but there is still a problem of "generalization" in interventions for cancer patients [11]. The conventional approach of "relieving academic pressure" and "alleviating employment anxiety" has been followed, ignoring the special needs of patients for "disease rehabilitation" and "social reconstruction". In fact, teachers, medical staff, and psychologists should collaborate to build a "disease adapted" positive emotion cultivation system. In the treatment scenario, positive emotional experiences of patients are enhanced through methods such as "positive feedback on rehabilitation progress" and "music therapy+positive association". In campus rehabilitation support, organize a "Cancer Patient Academic Mutual Aid Group" to provide patients with a sense of achievement while completing lightweight learning tasks [12,13]. It uses positive interactions among peers to alleviate feelings of loneliness. These targeted measures can help college cancer patients gradually break free from negative emotional constraints and develop healthy psychological qualities.

Compared with ordinary college students, cancer college students need to cope with multiple psychological challenges during treatment and rehabilitation, including learning adaptation, social relationship reconstruction, and physical function recovery [14,15]. These challenges are often intertwined, forming a heavy psychological burden. However, positive emotions play a crucial role in this process, as they can significantly enhance patients' psychological resilience, improve cognitive flexibility and action ability. Taking learning as an example, the side effects of chemotherapy may lead to difficulty concentrating, and positive emotions can help patients adjust their learning strategies and avoid falling

into negative thinking of 'I can't do it'. In terms of social interaction, facing excessive concern or avoidance behavior, positive emotions can guide patients to communicate with an open mind and effectively alleviate social anxiety. This ability enhancement driven by positive emotions not only helps patients maintain basic learning and social skills during treatment, but also lays a solid foundation for their return to school and integration into society after rehabilitation. Through this approach, patients can gradually achieve coordinated physical and mental development, and better cope with the challenges brought by the disease [16,17]. The social development interaction relationship of cancer student patients is shown in **Figure 1**, which clearly demonstrates the important role of positive emotions in promoting rehabilitation and integration into society [18].

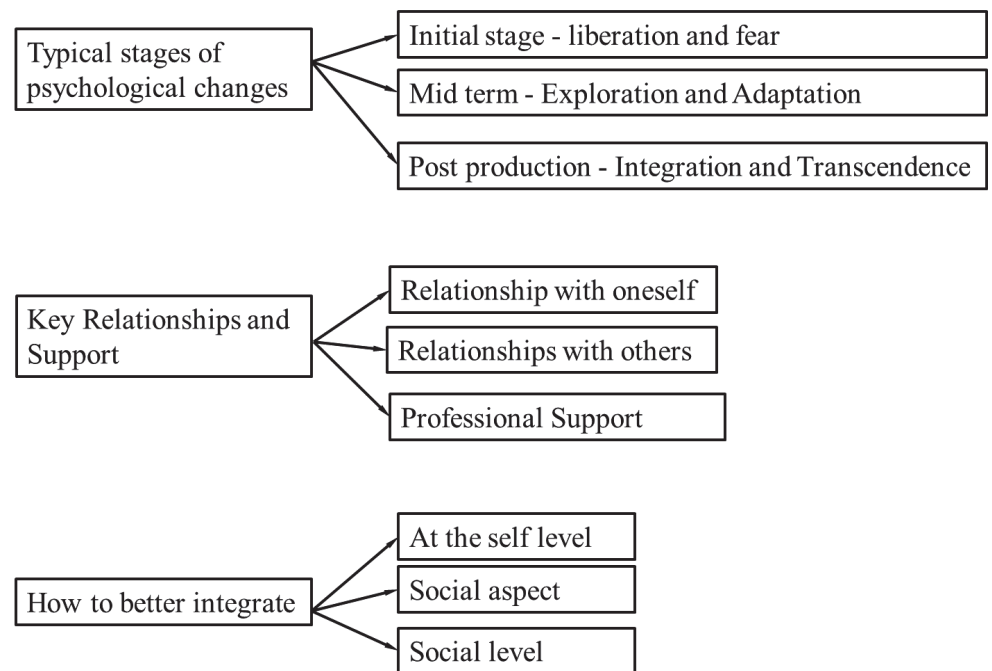


Figure 1 Interactive relationship between students' social development

Cancer has become a major public health issue threatening the physical and mental health of college students. College cancer patients not only have to endure the physiological pain caused by treatment, but also face multiple psychological impacts such as academic interruption, social isolation, and future uncertainty [19]. The incidence of mental health problems is much higher than that of the general population. The value of positive emotional intervention in improving the mental health status of this group, promoting rehabilitation and returning to school has become increasingly prominent [20]. This study conducted multidimensional empirical tests on the relationship between positive emotions and the mental health of cancer college students, and obtained clear verification results based on a research design combining quantitative evaluation and qualitative interviews.

The positive emotion intervention program adopted in this study is designed around the psychological characteristics and rehabilitation needs of cancer college students, and is highly compatible with the long-term goals of disease management and returning to campus: the core is not only to improve temporary emotional experiences, but also to help patients rebuild their emotional regulation ability, reconstruct their learning and living order after the impact of the disease, achieve systematic improvement in emotional stability, sense of responsibility, and self-

management, and ultimately reconstruct a healthy psychological state suitable for university life from the psychological collapse caused by the disease.

The multidimensional evaluation data of this survey fully verified the positive effect of the intervention, improving the coverage of various core dimensions of mental health: after a three-month follow-up intervention, the total positive emotion score of the evaluation subjects increased by 32.7% compared to before the intervention, and all core mental health indicators showed significant improvement at the statistical level: anxiety score decreased by 28.1%, depression score decreased by 31.4%, indicating that the intervention has a clear effect on improving the most prominent negative emotional problems of cancer college students; The emotional regulation ability score in the dimension of psychological resilience increased by 24.3%, proving that positive emotional intervention not only improves the current emotional experience, but also helps cancer college students establish long-term psychological resilience from the ability level, enabling this group to acquire the core ability to actively regulate negative emotions (As shown in **Table 1**).

In terms of daily behavior and self-management, the improvement of the intervention is also significant: originally only 41.2% of the respondents were able to adhere to the learning and rehabilitation plan, but after the intervention, it increased to 72.6%, the compliance rate of regular sleep and rest also increased from 36.8% to 68.9%, and the self responsibility cognition score increased from 4.6 points before the intervention to 7.8 points, fully proving that the establishment of positive emotions effectively promotes the development of patients' self-management ability and sense of responsibility. The overall satisfaction of this intervention reached 4.2 points (out of 5 points), and the respondents had a high acceptance of the intervention.

The effectiveness of the intervention was further confirmed by comparing the experimental groups, and all indicators improved to a statistically significant level. The results of this survey provide reliable support for positive emotion intervention to improve the mental health of cancer college students, and also provide a feasible plan for universities to provide psychological support for this group, helping cancer college students to rebuild healthy psychology while healing their bodies, and laying a solid foundation for returning to campus and normal life.

Table 1 Survey of psychological training plans

Evaluation Dimension	evaluation metrics	Measurement tools/statistical methods	Baseline value before intervention	Evaluation value after three months of intervention	variation range	statistical significance
Positive emotional state	Total score of positive emotional experience	Positive Affect Scale (PANAS)			+32.7%	$P < 0.05$
Negative psychological health symptoms	Anxiety symptom score	SAS Self Rating Anxiety Scale			-28.1%	$P < 0.05$
	Depression symptom score	SDS Depression Self Rating Scale			-31.4%	$P < 0.05$
Psychological resilience level	Emotional regulation ability score	CD-RISC Psychological Resilience Scale			+24.3%	$P < 0.05$

Continuation Table:

Evaluation Dimension	evaluation metrics	Measurement tools/statistical methods	Baseline value before intervention	Evaluation value after three months of intervention	variation range	statistical significance
Daily behavior management	Execution rate of learning/rehabilitation plan	Self recorded statistics	41.2%	72.6%	+31.4%	$P < 0.05$
	Regular sleep schedule compliance rate	Self recorded statistics	36.8%	68.9%	+32.1%	$P < 0.05$
Sense of responsibility and self-management	Self responsibility cognition score	Self made scale (1-10 points)	4.6 分	7.8 分	+3.2 分	$P < 0.05$
Patient intervention satisfaction	Overall satisfaction	Five level rating system	-	4.2/5 分	-	-

The goal of mental health education is to follow the law of psychological development of college students, correct their psychological state through scientific mental health education methods, and then cultivate their excellent personality. Positive emotions can enable college students to actively change methods and explore new solutions when they encounter difficulties in learning, and enable them to gradually improve their thinking ability in practice, and gradually develop and mature their thinking in practice. Mental health education has a very important influence on students' psychological growth, and the concentrated expression of this influence is students' daily school behavior.

2.2 Improve college students' happiness

The concept of "proactive coping" advocated by positive psychology has a potential and important role in the intellectual development and psychological reconstruction of college cancer patients. Ordinary college students can overcome difficulties in their studies and work through positive emotions. College cancer patients may face problems such as lack of concentration and memory decline during treatment [23]. Positive emotions can alleviate anxiety and cognitive function inhibition by regulating brain neurotransmitters. For example, when conducting knowledge learning or thinking training, if patients are in a positive emotional state of "full of expectations for campus life after rehabilitation", their attention concentration and information reception efficiency will be significantly improved, thereby reducing the negative impact of the disease on intellectual development. In addition, positive emotions can help patients maintain a desire to explore new things, and even in the ward, they are willing to enrich their spiritual world through reading, online courses, interest cultivation, and other means. This can not only alleviate the boredom during treatment, but also maintain cognitive activity, laying a cognitive foundation for returning to campus learning after rehabilitation. **Figure 2** shows the positive effects of various positive psychological factors on improving the rehabilitation of college cancer patients.

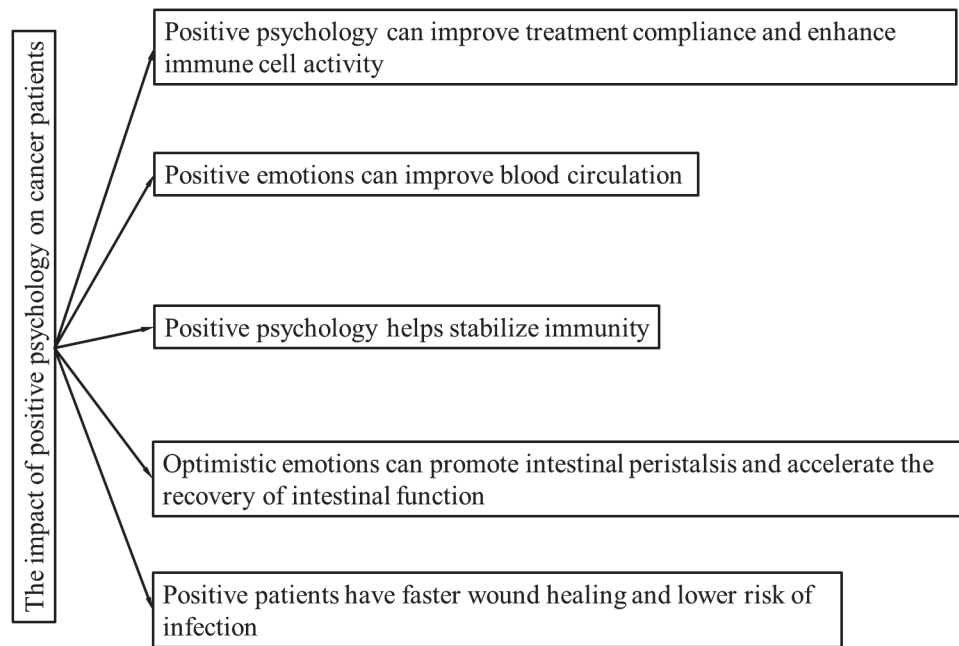


Figure 2 Positive psychology plays a positive role in improving the rehabilitation of college cancer patients

Positive emotions are a warm and powerful emotional state deep in people's hearts. They are like a beacon in the darkness, which can dispel the negative emotions such as fear, anxiety, and despair caused by the disease for college cancer patients. Through the dual challenges of physical and mental health, they can regain the color of life, show perseverance, optimism, and upward spirit, promote the balanced development of physical and mental health, and inject continuous power into the fight against the disease. However, in today's fast-paced era, the constantly accelerating pace of human life is like a high-speed train, engulfing the college student population. They not only carry the parents' earnest expectations for their children's success, but this expectation is like an invisible burden weighing on their hearts; We also need to meet the strict requirements of schools for students' academic performance and strive to climb in the fierce academic competition; At the same time, various transactional pressures brought about by student work are like complex threads intertwined in daily life. In the process of collecting these pressures, college students are like sailing ships in a storm. A slight mistake can lead to varying degrees of mental health problems, which are like reefs that hinder their comprehensive development and make their growth path full of obstacles. For college cancer patients, positive emotions are even more crucial. It can improve their adaptability to the living environment, society, and school learning, so that they no longer feel confused and helpless when facing the dual pressures of illness and academic studies. When they make small progress in the treatment process or receive recognition and encouragement from others, a sense of achievement will surge in their hearts. This sense of achievement is like a sweet spring water, nourishing their hearts and enabling them to respond to changes in their living environment with a more positive attitude, adjust their mentality in a timely manner, adapt to the constantly changing social environment, and shine their own light in adversity.

3. Ways to promote college students' mental health education by positive emotions

3.1 Enrich the teaching mode

The core of enriching the teaching mode of cultivating positive emotions and

mental health education for cancer college students lies in breaking the traditional framework of "single classroom, fixed process" and constructing a more flexible, diverse and resilient teaching system. This system aims to deeply adapt to the special physical and mental needs of cancer patients, finding the best balance between academic support and psychological care. It not only enhances patients' positive emotional experiences through various forms, helping them establish an optimistic attitude and confidence in overcoming the disease, but also effectively avoids increasing their physical and mental burden due to unreasonable teaching arrangements, ensuring that the education process becomes a positive factor in assisting rehabilitation. Compared with the "theoretical courses+regular activities" model for ordinary college students, the teaching mode for cancer patients needs to pay more attention to "scene flexibility" and "emotional adaptability". For example, in addition to offline mental health courses, it is necessary to establish an online teaching platform to provide patients who cannot attend school during treatment with the option of "recorded courses+on-site interaction". This blended learning approach allows patients to flexibly schedule their study time based on the chemotherapy cycle and physical condition, avoiding anxiety and loss caused by "absence from class", and ensuring that they can continue to participate in learning when their physical conditions permit. In terms of course content, reduce simple theoretical explanations and add "experiential and healing" modules, such as "Positive Emotion Meditation Class", "Anti Cancer Story Sharing Session", "Art Healing Workshop", etc. These modules provide immersive experiences that allow patients to feel the power of positive emotions during the participation process, gradually breaking the single perception of disease pain. For example, in the "Cancer Story Sharing Conference", patients can listen to others' rehabilitation experiences, gain emotional resonance and psychological support; In the 'Art Healing Workshop', express inner emotions, release stress, and enhance self-awareness through art forms such as painting and music. These experiential courses not only enrich the teaching content, but also promote the psychological health and emotional regulation ability of patients unconsciously.

College cancer patients are in a dual critical period of "treatment and rehabilitation" and "psychological maturity". The cultivation of their positive emotions cannot rely solely on mental health classes, but needs to be integrated into the entire process of academic teaching and daily care, achieving "psychological and physical and mental coordinated nourishment". For example, in professional course teaching, teachers can adopt the "project-based learning+layered task" model. Breaking down complex course content into "micro tasks", allowing patients to choose task difficulty and completion deadlines based on their physical condition, and giving recognition through "progress visualization" after completion, allowing patients to gain a sense of achievement in academic participation and cultivate positive emotions of self-identity. At the same time, "positive emotional elements" can be integrated into course cases, such as explaining the relationship between human immunity and psychological states in biology courses and exploring "social support networks in difficult situations" in sociology courses. This allows patients to unconsciously establish a cognitive understanding of "positive emotions helping with rehabilitation" through knowledge learning, achieving the dual goals of "academic improvement and psychological construction".

The traditional model of "teacher led, student passive" in higher education and teaching can exacerbate the "powerlessness" of cancer patients among college students - physical weakness during treatment and concerns about academic

backwardness can make them more prone to self doubt while passively listening to lectures. Therefore, enriching the teaching mode requires synchronously optimizing the teacher-student interaction relationship and constructing a collaborative teaching mode of "teacher guided, patient led". For example, in the 'Positive Emotions Workshop', teachers are no longer one-way presenters, but instead use 'topic guidance+emotional listening' to engage patients. With the theme of "The Warmest Moment in Treatment", encourage patients to share heartwarming stories with medical staff and family members, and provide timely empathetic responses and positive reinforcement from teachers. Activate positive emotions in patients through expression and recognition; For patients with weak social willingness, the "group mutual aid+peer support" model can be adopted, where patients and healthy students form 2-3 person groups to carry out "lightweight learning interaction", helping patients rebuild interpersonal connections, alleviate loneliness, and cultivate the important positive emotion of belonging in low-pressure social interactions.

In addition, enriching teaching modes also requires attention to the immediacy and personalization of teaching feedback. Due to the emotional state of college cancer patients being easily affected by treatment effectiveness and physical sensations, teachers need to establish a "dynamic feedback mechanism". Through online questionnaires and one-on-one communication, regularly understand patients' feelings about teaching content and form, and adjust plans in a timely manner - for example, if patients feedback that "story sharing can cause anxiety", temporarily switch to "relaxed interest based activities". If patients wish to increase academic support, they can supplement "one-on-one tutoring" resources. At the same time, it is possible to collaborate with medical staff to establish a "teaching medical" linkage feedback, adjust the teaching intensity according to the patient's treatment progress, and ensure that the teaching mode always adapts to the patient's physical and mental state. Truly achieving a patient-centered approach, continuously cultivating positive emotions through rich and precise teaching models, and laying a solid foundation for mental health.

3.2 Give full play to the positive role of teachers

The dominant position of college cancer patients needs to be respected and cared for in the learning process. Especially for patients in the treatment period, with limited mobility or emotional sensitivity, teachers need to break the traditional classroom model of "teachers as the subject of behavioral ability" and build a "flexible and adaptable" learning support system. For example, for patients who cannot attend classes offline, teachers can provide customized learning materials, allowing patients to flexibly arrange their learning progress according to the treatment cycle, avoiding self doubt caused by "academic backwardness". In learning guidance, teachers need to actively pay attention to the physical and mental state of patients. When patients are unable to concentrate and complete learning tasks due to chemotherapy side effects, they should not rush to urge or criticize, but guide patients to summarize suitable learning methods based on their own pace. Enable patients to feel understood through autonomous adjustment, gradually establish a sense of control over learning, and reduce the sense of powerlessness caused by illness.

Establishing a harmonious and supportive teacher-student relationship is the core element for teachers to help college cancer patients cultivate positive emotions. Teachers need to actively break through the limitations of "conventional communication" and establish a multidimensional communication mechanism of "treatment academic psychology". On the one hand, regular online private messages, phone calls, or ward

visits are used to understand the patient's treatment progress and psychological state, avoiding focusing only on academic studies and neglecting their physical pain. On the other hand, when communicating, attention should be paid to "emotional empathy", for example, when patients confide in the pain of chemotherapy side effects, they should first give an emotional response of "I understand your current difficulties". Further explore how to maintain mild learning or interest activities within the body's tolerance range, and through effective and warm communication, make patients feel valued and cared for, gradually alleviate feelings of loneliness and anxiety, and stimulate positive emotions. The establishment of this teacher-student relationship not only provides psychological support for patients, but also serves as their emotional support when facing illness, enhancing their confidence in fighting against the disease.

4. Conclusions

This study explores the promoting effect of positive emotions on the mental health of college cancer patients. From the perspective of its mechanism of action, positive emotions can help college cancer patients break the negative cognitive loop. By stimulating patients' expectations for recovery and a renewed sense of self-worth. Reduce self doubt caused by treatment side effects and academic interruptions, and gradually establish a cognitive model of "overcoming difficulties". At the same time, positive emotions can regulate the emotional state of patients, alleviate negative emotions such as anxiety, depression, and loneliness, and reduce the interference of psychological pressure on physiological treatment. Even indirectly promoting the recovery of bodily functions by improving sleep quality, enhancing appetite, and so on. At the behavioral level, positive emotions can drive patients to actively cooperate with treatment, participate in mild academic and social activities, break the behavioral inertia of "illness isolation", and lay the foundation for their subsequent return to campus and society. The synergistic improvement of "cognition emotion behavior" is a unique value that distinguishes positive emotions from traditional psychological interventions, and also confirms its core promoting effect on the mental health of college cancer patients. The results indicate that positive emotions, as the core focus of mental health education for college cancer patients, can provide key support for this group from three dimensions: cognition, emotion, and behavior. It effectively alleviates the physical and mental difficulties caused by diseases, injecting lasting motivation into their treatment, rehabilitation, and social return.

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