

social needs, and on the other hand, enhance mutual trust. As a result, patients are more likely to complete chemotherapy successfully and can also play a positive role in the overall treatment effect (Tang et al., 2025).

### **3 Psychological Characteristics of Cancer Chemotherapy Patients**

#### **3.1 The main manifestations include anxiety, depression and fear**

Many cancer patients undergoing chemotherapy will experience severe anxiety, fear and depression. Patients with more severe conditions require particular attention. Outpatient surveys show that approximately one quarter to nearly half of the patients have moderate to severe anxiety or depression symptoms, and many patients also have multiple emotional problems. A multi-center study classified the patients' emotional states into different grades, and the results revealed that over 40% of the patients were in a moderately to highly disordered emotional state. This indicates that such emotional problems are very common among chemotherapy patients (Calvo-Schimmel et al., 2025).

These emotional issues are closely related to the patient's physical condition and quality of life. The more severe the patient's anxiety and depression symptoms are, the more likely they are to feel tired, the quality of sleep will deteriorate, pain may worsen, and the quality of life will decline accordingly. There is a mutual influence between emotions and physical reactions. The more severe the problem is, the more obvious this mutual influence becomes (Calvo-Schimmel et al., 2025). Additionally, the study also found that over 80% of the patients experience anxiety or fear, and approximately one-third of the patients have a tendency towards depression. These conditions will affect the patient's daily life, so these emotional issues cannot be ignored.

#### **3.2 Psychological stress caused by chemotherapy side effects**

Chemotherapy itself is already a significant source of stress. The side effects caused by chemotherapy do not all manifest at once but accumulate gradually during the treatment process. Patients usually have difficulty predicting when the side effects will occur and how severe they will be. This uncertainty alone is likely to cause anxiety. A study conducted on breast cancer patients found that during chemotherapy, symptoms of fatigue, anxiety, and depression tend to worsen together, and persist for a period before and after the treatment. The more obvious the symptoms are, the faster the quality of life declines. This indicates that emotional changes are closely linked to physical discomfort such as fatigue, nausea, and pain.

Emotional problems and the side effects of chemotherapy are not unrelated; they influence and interact with each other. Physical discomfort makes patients more prone to anxiety and depression; while those with already poor emotional states are more likely to experience more severe chemotherapy side effects. Patients with poor emotional conditions before chemotherapy have a higher probability of experiencing bone marrow suppression. Outpatient research also indicates that patients with more severe levels of anxiety and depression typically have more physical discomfort and weaker daily activity capabilities. Therefore, the side effects of chemotherapy not only impose a burden on the body but also further exacerbate the psychological stress of patients, sometimes even forming a vicious cycle, making both physical and emotional problems become more severe (Papadopoulou et al., 2022).

#### **3.3 Changes in patients' psychological states during different treatment stages**

During chemotherapy, the patient's psychological state is not always stable. As the treatment progresses step by step, the patient's emotions will also change. Studies have shown that at the beginning of chemotherapy, the patient's anxiety and depression will become more pronounced; as the treatment continues, these emotions will fluctuate and may gradually ease. One study found that before and after chemotherapy, patients' emotional problems were the most severe. After the first treatment course ended and during subsequent follow-ups, these emotional problems would significantly decrease. However, for those patients who had psychological problems before chemotherapy, they still endured severe psychological distress throughout the treatment process (Kamimura et al., 2024).

The research by Yang et al. (2023) also reached a similar conclusion. Some breast cancer patients had the highest level of anxiety before chemotherapy, and this anxiety would gradually decrease afterwards; while depression may