

Article

Material stability and cancer patient mental health: A Williamson Transaction Cost perspective

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Abstract: Public health emergencies impose substantial psychological strain on individuals undergoing cancer treatment, whose distress is shaped not only by clinical vulnerability but also by the stability of the healthcare environment. This narrative conceptual analysis examines how material stability during epidemic conditions influences the emotional well being of cancer patients. Drawing on literature from psycho oncology, health systems research, and Williamson's Transaction Cost Theory, the paper explores how structural features such as asset specificity, environmental uncertainty, and transaction frequency shape the reliability of epidemic prevention materials. These system level characteristics become perceptible to patients through observable cues, including the availability of protective equipment, consistency of clinical routines, and continuity of treatment. Material stability functions as an important psychological signal that reduces fear of infection, mitigates uncertainty, reinforces institutional trust, and supports a sense of control, thereby enhancing resilience. A descriptive case illustration from Jiangsu Province demonstrates how coordinated procurement, reserve mechanisms, and transparent oversight contribute to patient reassurance. The analysis underscores the need for psycho oncology practice to integrate awareness of systemic conditions into supportive care and highlights the importance of organisational preparedness in sustaining emotional stability during public health crises.

Keywords: cancer; psychological distress; material stability; epidemic prevention; transaction cost theory; institutional trust; treatment continuity; psycho-oncology

1. Introduction

Public health emergencies place considerable strain on oncology services and expose cancer patients to a unique constellation of medical and psychological risks. During widespread epidemics, individuals undergoing cancer treatment face increased susceptibility to infection, complications related to immunosuppression, and disruptions in their treatment schedules [1,2]. These clinical vulnerabilities occur in parallel with substantial emotional burdens, such as increased levels of anxiety, depression, and insomnia among cancer patients [3]. The COVID-19 pandemic highlighted the degree to which abrupt changes in healthcare delivery, combined with shortages of basic medical supplies, can intensify psychological distress among patients already coping with a life-threatening disease [1].

Cancer patients frequently report heightened fear of infection during epidemic conditions, driven by concerns about adverse outcomes should they acquire a viral infection [4]. This fear is compounded by uncertainty regarding the continuity of oncology services, the safety of treatment environments, and the availability of essential diagnostic and therapeutic resources [5,6]. Perceived instability within the

healthcare system often manifests as persistent worry, anticipatory anxiety, feelings of loss of control, and doubts regarding disease prognosis [5,7]. Treatment interruptions, or the anticipation of such interruptions, have been shown to exacerbate emotional distress and reduce overall confidence in the treatment plan [8]. The cumulative effect of these experiences threatens psychological well-being and may impair adherence to treatment recommendations [8,9].

Within this context, the stability of epidemic prevention materials represents an important but often overlooked determinant of patient psychological outcomes. Consistent availability of protective equipment, disinfectant supplies, diagnostic reagents, and treatment-related materials contributes to a treatment environment that patients perceive as orderly and reliable [10,11]. When material stability is maintained, patients are more likely to experience a sense of safety and reassurance regarding the continuity of their care. Conversely, visible shortages or reports of supply inconsistency can amplify uncertainty, intensify fear of infection, and contribute to a broader perception of systemic fragility. These perceptions have direct implications for patient emotional responses during periods of public health disruption.

Williamson's Transaction Cost Theory provides a useful conceptual foundation for examining why some healthcare systems maintain greater material stability than others during periods of epidemic stress [12]. Although originally grounded in the field of institutional economics, the theory offers relevant insights into how asset specificity, environmental uncertainty, and transaction frequency shape the reliability and performance of complex operational systems [13]. When applied to the context of epidemic prevention materials, these structural factors influence the predictability of supply chains and determine the degree of stability observed by patients within the treatment environment [14]. Understanding these system-level dynamics is important because patients form psychological impressions not only from clinical interactions but also from observable organizational conditions [15,16].

The purpose of this narrative conceptual analysis is to explore the relationship between material stability during epidemic conditions and the psychological wellbeing of cancer patients. Drawing upon literature in psycho oncology, health system research, and organisational theory, this paper examines how system reliability influences patient perceptions of safety, uncertainty, and emotional control. A descriptive case illustration is included to demonstrate how specific organisational practices may mitigate or exacerbate distress. The analysis aims to deepen understanding of the interface between systemic functioning and patient psychological outcomes and to provide conceptual guidance that may support the development of more resilient and patient centred oncology services during future public health emergencies.

2. Methodology

This work is presented as a narrative conceptual analysis. The study does not involve the collection of primary clinical data but instead synthesises evidence from several established bodies of literature, including psycho oncology, health system research, and institutional economics. This approach is appropriate for topics in which theoretical integration is required to explain clinical phenomena that emerge from

complex interactions between structural conditions and patient experience. The method allows exploration of conceptual pathways through which system level factors influence psychological outcomes among cancer patients during epidemic conditions.

The literature informing this analysis was identified through searches of major academic databases, including PubMed, Elsevier and Web of Science, as well as through targeted review of reference lists from key publications. Sources included peer reviewed studies on psychological distress in cancer populations, publications examining the impact of epidemics on oncology care, research on uncertainty and stress responses, and foundational works on Transaction Cost Theory. Policy documents, governmental reports, and publicly accessible guidelines on epidemic prevention material management were consulted to provide contextual understanding of how health systems attempt to maintain material stability during public health emergencies.

The conceptual framework guiding this analysis integrates Williamson's Transaction Cost Theory with established psychological models relevant to cancer care. Transaction Cost Theory offers a structural lens through which to interpret the organization of material supply systems and the factors that influence their stability [17,18]. Psycho oncology frameworks, including the stress appraisal model, uncertainty in illness theory, and the literature on resilience and perceived safety, provide insight into how patients psychologically interpret and respond to changes within their treatment environment. The combination of these perspectives supports the development of an integrated explanation of how system reliability shapes patient emotional outcomes.

A descriptive case illustration involving epidemic prevention material assurance practices in Jiangsu Province was incorporated to provide concrete examples of how organisational strategies may influence patient perceptions of safety and continuity. This material was used exclusively to illustrate systemic processes and is not presented as empirical evidence. Only publicly available documents were reviewed, and no interaction with institutions or individuals occurred. No human participants were involved in the development of this analysis, and no identifiable clinical information was accessed. Ethical approval was therefore not required. The objective of the methodological approach is to provide a coherent theoretical account that may guide future empirical research and contribute to the ongoing refinement of supportive care strategies for cancer patients during public health emergencies.

3. Psychological burden of epidemics on cancer patients

3.1. Anxiety, fear of infection, and heightened perceived vulnerability

Cancer patients often experience heightened feelings of physical vulnerability, which are exacerbated during periods of increased infectious disease risk within the population. Many patients undergoing treatments such as chemotherapy, radiotherapy, or immunomodulatory therapy are acutely aware that even a mild infection, which may be manageable for the general population, could lead to severe complications for them [19]. This awareness fosters a significant sense of threat that influences their perceptions during routine clinical encounters [20,21]. Activities that would typically feel manageable, such as traveling to treatment facilities or interacting with healthcare

providers, can trigger intrusive thoughts and anxiety [22]. Patients frequently express a sensation of being continually at risk, prompting heightened vigilance regarding environmental factors like crowding, sanitation, and availability of protective equipment [23].

This increased vigilance can contribute to a persistent state of anxiety. Patients often report difficulty in relaxing or distancing themselves from worries about infection risks, which can lead to emotional fatigue and reduced coping mechanisms over time [21]. When patients perceive instability in infection control measures, such as inconsistent access to masks or sanitizers, their anxiety tends to heighten [24]. These observations enhance their belief that their health is precariously dependent on external circumstances, a key factor contributing to epidemic-related psychological distress among oncology patients [25].

3.2. Psychological effects of treatment disruptions and the loss of control

Continuity of cancer care provides a powerful source of psychological stability, and even minor disruptions during epidemic conditions can produce significant distress. Treatment plans are viewed by many patients as the primary defense against disease progression, and deviations from these plans may be interpreted as a direct threat to clinical outcomes [1,26]. Postponed appointments, delayed imaging, or changes in infusion schedules are typically experienced as more than logistical inconveniences; rather, they evoke fears that the cancer may advance unchecked or that previously effective therapies may lose potency through interruption. The emotional response to such disruptions is often disproportionate to the length of the delay because the underlying anxiety relates not to the duration itself but to the perceived consequences [27].

Patients frequently report a profound sense of lost control when treatment schedules change due to factors unrelated to their clinical needs [22]. Epidemic conditions introduce uncertainties that may shift decision-making from predictable clinical routines to rapidly evolving external constraints. This loss of agency can nurture feelings of helplessness, particularly in individuals who depend on treatment regularity for psychological reassurance [28]. The relentless anticipation that further delays may occur places additional strain on patients and contributes to difficulty concentrating, disrupted sleep, and persistent worry [29]. These patterns of distress reflect the emotional consequences of diminished control and the complex meanings that cancer patients attach to treatment continuity [30].

A summary of the core psychological stressors that commonly emerge in this context is presented in **Table 1**, which illustrates how specific epidemic related disruptions translate into clinically recognisable emotional responses.

Table 1. Principal psychological stressors observed in cancer patients during epidemic conditions.

Psychological stressor	Clinical description	Underlying mechanism	Observed emotional impact
Fear of infection	Persistent worry about exposure during daily activities or hospital visits	Immunosuppression increases perceived threat	Hypervigilance, intrusive worry, avoidance
Treatment uncertainty	Concern about delays or unpredictable scheduling	System instability and external constraints	Loss of control, anticipatory anxiety

Table 1. (Continued).

Psychological stressor	Clinical description	Underlying mechanism	Observed emotional impact
Perceived instability of the care environment	Observation of inconsistent supplies or disrupted routines	Environmental cues interpreted as risk signals	Erosion of trust, emotional insecurity
Stress related physiological symptoms	Fatigue, sleep disturbance, somatic complaints	Neuroendocrine activation due to prolonged stress	Increased vulnerability and reduced coping

3.3. Psychoneuroimmunological interactions: Stress and immune suppression

The interplay between psychological stress and immune function is of particular consequence for cancer patients. Persistent emotional distress activates neuroendocrine pathways that regulate immune and inflammatory processes [31]. Activation of these pathways can suppress cellular immunity and alter inflammatory signaling, which may heighten the risk of infection. In epidemic settings, patients often become aware of these physiological changes, and this awareness may magnify fear and reinforce the belief that they are increasingly susceptible to harm [32]. The convergence of emotional and biological responses forms a cyclical pattern in which fear exacerbates physiological vulnerability, and physiological vulnerability intensifies fear [33].

The clinical significance of these psychoneuroimmunological mechanisms becomes evident when patients report worsening fatigue, reduced sleep quality, or bodily sensations that they interpret as early signs of illness. In many cases, these symptoms reflect stress mediated physiological dysregulation rather than disease progression, yet the interpretive uncertainty creates additional anxiety. The conceptual interaction between emotional stress, perceived vulnerability, and immune function is illustrated in **Figure 1**, which outlines the pathways through which epidemics may influence psychological and biological responses simultaneously.

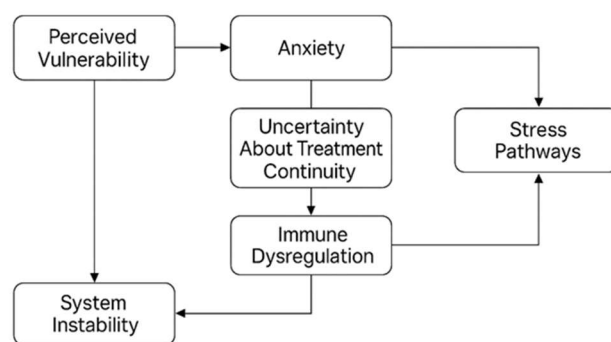


Figure 1. Conceptual pathways illustrating how perceived vulnerability, treatment uncertainty, and system instability contribute to anxiety, activation of stress responses, and immune dysregulation in cancer patients during epidemic conditions.

3.4. The importance of perceived safety and trust in healthcare systems

The psychological well-being of cancer patients during epidemics is strongly influenced by their perceptions of safety within the healthcare environment. Trust in the healthcare system plays a central role in modulating emotional responses. When

patients observe well-organized clinical procedures, consistent availability of protective materials, and clear communication from healthcare teams, they are more likely to experience reassurance and confidence in the stability of their care [2]. These perceptions foster a sense of order and predictability, which can help mitigate fear and support psychological endurance during prolonged periods of societal disruption [34].

Conversely, when shortages of essential items become visible or when clinical routines appear disorganized, patients may interpret these signs as evidence of broader systemic instability. Even if the actual risk to their treatment remains minimal, the perception of instability can amplify distress and erode trust [35]. This loss of trust has far-reaching consequences, including reluctance to attend appointments and uncertainty about the safety of treatment facilities [36]. These reactions illustrate how material stability within healthcare systems functions as an important determinant of emotional stability, significantly impacting patient behavior and psychological adjustment during epidemic conditions [37].

4. Williamson's Transaction cost theory and system stability

4.1. Asset specificity and vulnerability to shortages

Asset specificity is a central construct within Transaction Cost Theory and is highly relevant to understanding why epidemic prevention materials become unstable during periods of increased demand. Supplies such as medical-grade masks, sterile gowns, diagnostic reagents, and specialized treatment consumables possess limited substitutability, which can lead to challenges in supply dynamics during health crises. Their specialized design limits production to a relatively small group of qualified manufacturers, and the lead time required to expand capacity during a crisis is often considerable [38]. As a result, supply elasticity remains low during epidemic surges, making even minor disruptions significantly impactful on availability [39]. These gaps in supply can be perceived by patients as indicators of diminished institutional capacity and reduced safety [40].

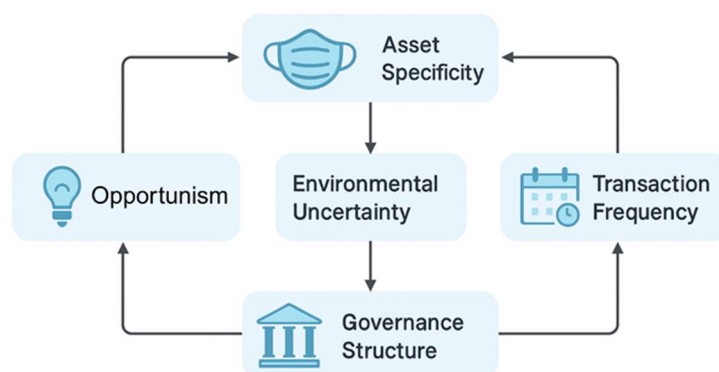


Figure 2. Conceptual representation of the principal components of Transaction Cost Theory and their relationship to system stability in the context of epidemic prevention materials. The diagram illustrates how asset specificity, environmental uncertainty, transaction frequency, opportunism, and governance mechanisms interact to influence institutional reliability during epidemic conditions.

For individuals undergoing cancer treatment, visible inconsistency in essential materials often heightens emotional vulnerability. When supplies appear scarce, patients may question whether the clinical environment can offer adequate protection from infection. This perception fosters uncertainty and reinforces a sense of environmental fragility. The broader structural relationships among asset specificity, system stability, and perceived risk within the Transaction Cost Theory framework are illustrated in **Figure 2**, which situates these constructs within a coherent conceptual structure without interrupting clinical interpretation.

4.2. Environmental uncertainty and its emotional amplification

Environmental uncertainty describes the degree of unpredictability in conditions that influence organizational decision making. During large-scale public health events, healthcare institutions must navigate fluctuating infection rates, evolving regulatory guidance, unpredictable supplier conditions, and shifting international supply chains. This volatility complicates procurement planning and forces institutions to revise strategies with limited foresight. Patients, including those with cancer, may become aware of these fluctuations through changes in clinical schedules, staffing patterns, or shifting institutional protocols [41,42].

Uncertainty of this nature carries psychological weight. Patients who interpret institutional adjustments as signs of instability may experience heightened anticipatory anxiety. They may become increasingly alert to minor variations in procedures or departmental routines. Even when care continues safely, the impression that the system is adapting rapidly to external pressures can lead to the belief that control is diminishing. The emotional response to uncertainty, therefore, arises not only from the instability itself but also from the patient's cognitive appraisal of systemic unpredictability. This is supported by research suggesting that environmental and psychosocial stressors can affect psychological well-being and immune function, thereby influencing patient outcomes in healthcare contexts [43,44].

4.3. Transaction frequency and perceived instability during epidemics

Transaction frequency refers to how often an institution must replenish essential materials. Epidemic conditions typically increase the volume of consumption dramatically. Frequent procurement cycles place pressure on logistics networks, and any disruption in transportation or storage may produce irregularities in supply. Patients may notice these irregularities through observable variations in clinical routines, alterations in staff equipment, or informal conversations within the treatment environment. These cues can contribute to a perception that essential resources are unstable [45,46].

This perception exerts a measurable psychological effect. When patients believe that protective or therapeutic materials may fluctuate, they often feel that their safety is contingent on volatile conditions. Such beliefs can heighten fear of infection and distress related to treatment continuity. The main constructs of the theory and their relevance to epidemic prevention material stability are summarised in **Table 2**, which provides an organised synthesis of how structural features of the system translate into potential psychological consequences.

Table 2. Core elements of Transaction Cost Theory and their relevance to epidemic prevention material stability

Component	Definition	Relevance to material stability	Psychological impact on cancer patients
Asset specificity	Resource cannot be easily substituted due to specialised function	Limits flexibility when demand increases	Heightens fear and perceived fragility when shortages appear
Environmental uncertainty	Difficulty predicting external conditions affecting decisions	Disrupts planning and supply continuity	Increases anticipatory anxiety and vigilance
Transaction frequency	Rate of procurement and coordination cycles	Frequent replenishment increases instability risk	Creates impression of volatility and reduced safety
Opportunism	Behaviour exploiting information or supply asymmetry	Redirects limited resources toward high profit markets	Contributes to mistrust and emotional insecurity
Governance structure	Mechanisms that coordinate transactions and reduce uncertainty	Centralised reserves improve predictability	Reinforces sense of safety and institutional competence

4.4. Implications for psycho-oncology: How system structures become psychological stressors

Transaction Cost Theory provides insights into how material instability in healthcare settings can significantly impact cancer patients' psychological well-being. Factors such as restrictions in supply flexibility, unpredictability in external environments, and rapid fluctuations in procurement cycles create conditions that patients perceive as affecting their clinical care [47]. These perceptions, even when based on subtle cues, influence emotional responses and can negatively impact psychological well-being. For individuals facing the inherent uncertainty of cancer, additional system-level instability may amplify feelings of fear, diminish trust, and disrupt their sense of control [48].

From a psycho-oncology perspective, the visibility of stable resources and consistent processes is critical for emotional reassurance. When healthcare institutions ensure predictable access to materials, communicate clearly, and demonstrate organizational preparedness, patients often report decreased anxiety and an enhanced sense of safety [49]. The constructs illustrated in **Figure 2** and summarized in **Table 2** illustrate how Transaction Cost Theory applies to clinical experiences related to safety, predictability, and trust. Recognizing these connections lays the groundwork for developing institutional strategies that bolster both practical and psychological resilience during health crises, including pandemics [50].

5. Case illustration: Epidemic prevention material assurance practices

5.1. Organisational coordination and maintenance of system stability

Jiangsu Province provides a clear example of how coordinated organizational structures can stabilize the supply of epidemic prevention materials during periods of crisis. The provincial medical materials procurement and supply platform operates through a unified command system that consolidates procurement, settlement, storage, and logistics across multiple administrative units. This system-level integration reduces redundancy and mitigates delays that typically arise when agencies function independently. By strengthening the coherence of information flow and centralizing

operational responsibility, the platform supports continuous access to essential protective materials within clinical environments [51].

For patients undergoing cancer treatment, these operational characteristics translate into psychological reassurance. The visibility of stable routines, consistent protective equipment usage, and uninterrupted clinical processes can reinforce trust in institutional preparedness. This perception of order and predictability contributes to emotional stability and may reduce anxiety triggered by epidemic-related uncertainty [21]. Cancer patients are at a higher risk of anxiety and depression due to various factors, including the reaction to their diagnosis and the ongoing uncertainty regarding their health [21]. Furthermore, the need for psychological support and coping strategies in oncology care has been highlighted during the pandemic, indicating that such measures can alleviate worries and anxiety in patients [52].

5.2. Reserve and storage systems providing predictability

The reserve system established by Jiangsu Province is composed of physical reserves and agreement reserves designed to buffer demand surges and maintain supply continuity. Physical reserves consist of materials stored in dedicated warehouses that follow strict technical standards for environmental control, quality preservation, and inventory rotation. Agreement reserves involve contractual arrangements with selected manufacturers who commit to rapid production initiation once reserve triggers are activated. Together, these mechanisms ensure that consumption fluctuations do not translate into visible shortages within healthcare institutions.

Table 3. Annual reserve expenditure structure (A, physical; B: agreement) for epidemic prevention materials (Jiangsu Province) in 2022

A. Physical reserve expenditures, 2022

Item	Quantity (<i>N</i>)	Unit Price (<i>P</i>), yuan	Expense Ratio (<i>R</i>)	Total Cost ($T = N \times P \times R$)
Medical surgical mask	N_1	P_1	R_1	T_1
Medical protective mask	N_2	P_2	R_2	T_2
Medical protective clothing (including shoe covers)	N_3	P_3	R_3	T_3
Total	—	—	—	$T_1 + T_2 + T_3$

B. Agreement Reserve Expenditures, 2022

Item	Quantity (<i>n</i>)	Unit Price (<i>p</i>), yuan	Expense Ratio (<i>r</i>)	Total Cost ($t = n \times p \times r$)
Medical surgical mask	n_1	p_1	r_1	t_1
Medical protective mask	n_2	p_2	r_2	t_2
Medical protective clothing (including shoe covers)	n_3	p_3	r_3	t_3
Inspection and testing reagents	n_4	p_4	r_4	t_4
Alpha interferon	n_5	p_5	r_5	t_5
Abidol tablets	n_6	p_6	r_6	t_6
Total	—	—	—	$t_1 + t_2 + t_3 + t_4 + t_5 + t_6$

Notes: Quantity refers to the five-day reserve requirements stipulated by national guidance. Unit prices reflect the lowest negotiated market values at the time of procurement. Expense ratios include interest subsidy and management fees for physical reserves and management fees for agreement reserves. Total annual expenditure is settled by provincial finance authorities.

The structural features of this reserve system are presented in **Table 3**, which outlines the expenditure components for both physical and agreement reserves. The inclusion of essential items such as medical protective equipment, antiviral medications, and diagnostic reagents demonstrates the breadth of materials considered integral to epidemic preparedness. The expenditure structure reflects both the financial commitment required to sustain a functional reserve and the governance strategies that regulate its operation.

Such predictability holds significant psychological value for cancer patients. Continuous availability of masks, protective clothing, and diagnostic supplies signals that the clinical environment remains safe and under control. When patients observe consistency in material provision, they may infer those institutional systems are functioning reliably, which can reduce fear of infection and concern regarding treatment disruption. The reserve system therefore contributes to material stability and emotional security [53,54].

5.3. Supplier management strengthening reliability and trust

The supplier management mechanisms adopted by Jiangsu Province help reduce uncertainty in procurement processes and strengthen the reliability of epidemic material supply. The provincial platform evaluates suppliers according to production capacity, distribution capability, emergency responsiveness, quality performance, and pricing. Annual assessments determine inclusion on the approved supplier list, ensuring that procurement decisions are supported by transparent and evidence-based criteria.

Such governance arrangements minimize opportunistic behavior and reduce the risk of supply failure. When patients consistently observe uniform protective equipment and stable clinic protocols, they perceive the organization as capable and trustworthy. This perception is critical for cancer patients who rely on environmental stability to maintain emotional equilibrium during treatment. Trust in the supply system, therefore, becomes an indirect but meaningful contributor to psychological well-being [55,56].

5.4. Oversight and transparency mitigating patient fear

Oversight mechanisms, including digital inventory tracking, audit procedures, and verification of distribution patterns, reinforce the integrity of the material assurance system. These mechanisms allow early detection of irregularities and enable timely intervention before disruptions affect clinical practice. Transparent supervision also promotes accountability within procurement and supply entities, strengthening institutional credibility [57].

For oncology patients, consistency in material usage and infection control routines reduces perceptions of vulnerability. A visibly well-managed environment enhances feelings of safety and reduces fear related to potential shortages. The resulting sense of environmental order contributes to psychological stability, protects against uncertainty-driven distress, and supports the resilience required to navigate treatment during epidemic conditions. The literature suggests that disruptions in

healthcare due to public health crises exacerbate anxiety among patients, indicating the importance of maintaining a well-organized healthcare setting [58,59].

6. Psychological pathways linking material stability to mental health

6.1. Reduced fear of infection through stable environmental cues

Material stability within healthcare institutions functions as an essential psychological signal for cancer patients during epidemic conditions. When protective equipment, disinfectants, diagnostic materials, and treatment consumables are consistently available, patients perceive the environment as controlled and predictable. This impression of order reduces fear of infection, a dominant source of anxiety during epidemics. The routine presence of protective materials used by clinical staff reinforces the belief that risk is being effectively managed. As a consequence, emotional arousal diminishes and patients develop a stronger sense of safety while receiving treatment [60].

6.2. Continuity of cancer treatment supporting emotional stability

The preservation of treatment continuity is closely linked to emotional well-being in oncology populations. When stable material provision prevents postponement of diagnostic procedures and ensures uninterrupted delivery of therapy, patients maintain confidence in the integrity of their care. This sense of continuity helps sustain feelings of control, which are often compromised in crisis situations. Conversely, uncertainty about material availability may heighten anticipatory anxiety as patients worry that treatment interruptions could compromise outcomes. Continuity of treatment, therefore, serves as an important stabilizing force during challenging conditions, including conflicts and health crises [61].

6.3. Mitigation of uncertainty and cognitive overload

Epidemic environments introduce extensive uncertainty that may be challenging for cancer patients who are already managing complex treatment demands. Material stability reduces the cognitive burden associated with monitoring potential shortages or anticipating disruptions. When patients perceive reliable procurement systems and adequate reserves, they devote less psychological effort to evaluating environmental threats. This reduction in cognitive load is meaningful because persistent uncertainty can provoke rumination, irritability, and sleep disturbances [62,63]. A stable material environment limits the psychological strain associated with continuous threat appraisal [62,64].

6.4. Reinforcement of institutional trust and therapeutic alliance

Trust in the healthcare system is essential to psychological well-being among individuals receiving cancer care. Consistent availability of materials, predictable clinical routines, and visible infection control practices reinforce the perception that institutions are competent and prepared. Patients who trust the system report lower levels of distress and show greater engagement with treatment [65]. When material instability becomes visible, this trust may erode, intensifying fear and creating doubts

about safety [65]. Stable institutional practices therefore play a central role in maintaining emotional security [66].

6.5. Enhanced resilience through perceived control and predictability

Resilience is strengthened when patients perceive their environment as predictable and manageable. Stable supply chains contribute to this perception by demonstrating that essential systems continue to function despite external disruptions [67]. Predictability promotes a sense of control, which can support adaptive coping and emotional regulation [68]. Patients who feel that the treatment environment remains stable are better able to focus on therapeutic goals rather than external uncertainty. The interaction between system level stability, psychological mechanisms, and patient outcomes is summarised in **Table 4**.

Table 4. Conceptual mapping of material stability, psychological mechanisms, and mental health outcomes in cancer patients.

Domain	Component	Operational description	Psychological impact
System Stability Factors	Stable supply of protective materials	Consistent availability of masks, disinfectants, diagnostic materials, and treatment consumables	Creates predictable environmental cues and reduces perceived threat
	Reliable treatment continuity	Uninterrupted access to chemotherapy, radiotherapy, and diagnostic services	Maintains sense of control and supports emotional stability
	Organisational preparedness	Coordinated procurement, oversight, and governance structures	Enhances confidence in institutional competence
Psychological Mechanisms	Perceived safety	Patients interpret stable resources as signals of effective infection control	Reduces fear of infection and prevents heightened vigilance
	Reduced uncertainty	Predictability in clinical routines limits cognitive burden	Diminishes worry, rumination, and mental fatigue
	Trust in the healthcare environment	Consistency in material provision reinforces institutional credibility	Strengthens therapeutic alliance and reduces anxiety
	Sense of control	Stable systems promote feelings of environmental manageability	Enhances resilience and supports adaptive coping
Patient Outcomes	Lower anxiety levels	Fear of infection and treatment instability is reduced	Improves emotional regulation and functioning
	Stronger coping capacity	Patients better manage stress during epidemic conditions	Supports psychological resilience
	Improved treatment adherence	Confidence in system stability promotes continued engagement with care	Enhances continuity of therapeutic processes
	Enhanced overall well being	Reduced distress contributes to better psychological adjustment	Improves quality of life during epidemics

7. Implications for psycho-oncology practice

Material stability in healthcare settings holds important implications for psycho-oncology practice. The emotional responses of cancer patients during epidemic conditions are shaped not only by personal vulnerability but also by their interpretation of environmental signals that reflect institutional reliability. Psycho-oncology clinicians should therefore remain attentive to distress that arises from perceived system instability, including fear triggered by visible material shortages, altered

clinical routines, or uncertainty about treatment continuity [1,69]. Screening approaches may be strengthened by including questions that assess perceived safety and confidence in the care environment [66,70].

Clear and consistent communication is particularly valuable. When institutions provide transparent explanations about material reserves, supply chain arrangements, and continuity plans, patients often report reduced uncertainty and greater trust [71]. Psycho-oncology professionals can support these efforts by assisting in the development of patient-centered messages that clarify the purpose of procedural adjustments and reinforce the stability of essential services [72]. The integration of psycho-oncology into emergency preparedness planning is equally important. Recognizing the psychological effects of system-level instability enables clinicians to advocate for practices that protect both operational and emotional continuity. Maintaining visible infection control measures and predictable treatment routines can help preserve patients' sense of control, thereby reducing anxiety [73].

The therapeutic alliance plays a central role in managing distress linked to environmental uncertainty. Clinicians who acknowledge patient concerns regarding material availability can strengthen trust and facilitate coping [74]. Through interdisciplinary collaboration with logistics, procurement, and administrative teams, psycho-oncology practice can contribute to healthcare environments that support both psychological resilience and treatment adherence during epidemic conditions [75].

8. Conclusion

This analysis demonstrates that material stability within healthcare systems plays a significant and often under recognised role in shaping the psychological experiences of cancer patients during epidemic conditions. While fear of infection and concern about treatment continuity are expected sources of emotional distress, this paper shows that the perception of system reliability exerts an equally important influence on patient wellbeing. When protective materials, diagnostic supplies, and treatment related resources remain consistently available, patients interpret these conditions as indications of safety and institutional competence. This interpretation reduces uncertainty, strengthens trust in the clinical environment, and supports the sense of control that is essential for emotional stability.

The application of Transaction Cost Theory provides a useful framework for understanding the structural factors that contribute to material stability or instability. Asset specificity, environmental uncertainty, and transaction frequency each shape the behaviour of supply chains, and these system level characteristics become perceptible to patients through everyday clinical cues. When instability is visible, patients may experience heightened anxiety even if clinical care remains intact. Conversely, well governed and clearly coordinated systems promote emotional reassurance and facilitate resilient coping.

The case of Jiangsu Province illustrates how thoughtful system design can translate into both operational and psychological benefits. Coordinated procurement structures, reserve mechanisms, reliable supplier management, and transparent oversight contribute to a clinical environment that patients perceive as orderly and safe.

These practices help maintain confidence during public health emergencies and protect against the erosion of trust that often accompanies rapidly changing conditions.

For psycho oncology practice, the findings emphasise the need to consider environmental and institutional factors as part of comprehensive supportive care. Psychological distress during epidemics is not generated solely by personal vulnerability or interpersonal dynamics but also by systemic signals embedded in the treatment environment. Recognising these influences can assist clinicians in identifying distress early, strengthening communication strategies, and collaborating with administrative teams to maintain visible stability. Ultimately, enhancing psychological wellbeing during epidemic conditions requires an integrated approach that acknowledges the interdependence of logistical preparedness and emotional support. By aligning psycho oncology principles with effective system level planning, healthcare institutions can safeguard both the physical and psychological resilience of cancer patients in times of uncertainty.

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