



Introduction

Patients living with organ dysfunction and transplants face a complex array of stressors and challenges. Managing complex chronic health problems is emotionally demanding and time-intensive, and it is not surprising that anxiety, depression, and insomnia are prevalent in the transplant population. Even patients who have fully successful transplants must cope with adverse side effects of medications and potentially new complications. As discussed throughout this textbook, these stressors may overwhelm psychological functioning and lead to distress and suffering. Poor psychological functioning may present in a variety of ways: lower quality of life, increased nonadherence, and poor engagement in medical care.

Interventions to reduce symptoms of stress and improve quality of life after transplantation are necessary and, at times, drug-free strategies may be preferred due to the complexity of transplant medication regimens or as an adjunctive treatment.

At its heart, psychotherapy is aimed at mitigating the distress of the life cycle of transplantation from organ dysfunction to the post-transplantation period. Ultimately, through treatment with a mental health professional, patients can gain new techniques to cope with ongoing life stressors.

Goals may include enhancing coping strategies, facilitating adjustment to living with a new organ, increasing social supports, or simply improving a patient's sense of purpose and self-esteem. Additional goals may include improving adherence to risk reduction and medical care.

Supportive and Problem-Solving Approaches

Adjusting to illness and the long-term challenges of transplantation can affect the patient's quality of life and mood. Healthcare professionals play a key role in assisting with a patient's adjustment. Supportive psychotherapy is founded in transitional psychoanalysis and is based heavily on a positive relationship between clinician and patient. It is particularly useful in two groups of patients: (1) previously well-functioning patients who are psychologically destabilized by one or more life events or (2) patients with a chronic or recurrent disability. The aim of treatment is to support the patient's more mature or adaptive defenses. The clinician aims to optimize the patient's competence in coping with current circumstances. Therapy may be complemented with psychopharmacology and education. For example, a clinician may be able to alleviate fear and uncertainty by providing clear information and education on their disease process [1].

Literature on supportive psychotherapy specifically in transplant patients is limited. One small observational study noted that almost half of all patients listed for heart transplantation, on a ventricular assist device (VAD), or successfully bridged from VAD to transplant, utilized psychological services when offered. The study suggests that this patient population experiences enough emotional distress to warrant access to and benefit from psychotherapeutic support [2].

Generally supportive therapy should focus on empowering the patient and helping them feel less vulnerable. Supportive therapy may include a substantial amount of psychoeducation and education on their medical problems in a

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jargon-free manner. Thus, the mental health clinician's familiarity with medical processes, prognosis, complications, and medication side effects is helpful to offer the utmost support to the patient.

Relational Therapies

Psychodynamic psychotherapy (PDT) is a briefer form of psychoanalytically based treatment, involving analyzing and interpreting psychological mechanisms held outside of the patient's awareness so as to resolve unconscious conflicts and achieve resolution of physical and psychological symptoms. Treatment sessions often occur one to two times per week, lasting a few weeks to a few years [3]. Whereas past research has focused on addressing specific psychodynamic components of onset of disease, patients' reactions to disease, and transference-countertransference issues [4], others have discussed the focus on affect expression, attempts to avoid distressing thoughts and feelings, identification of recurrent themes, past experiences, interpersonal relations, and fantasy life [3, 5]. For the medically ill, especially those with end-stage organ disease with need for transplantation, PDT may be beneficial due to patient concerns about fears of death, abandonment, physical incapacity, or demoralization when placed in the sick role within the foreign and depersonalized hospital milieu [6].

While past research has examined the role of PDT among cancer patients [7, 8], the overarching commonality of PDT among both cancer and transplant disease models point to the importance of addressing perceived psychosocial burden in the context of resilience factors [9]: favorable coping skills, self-efficacy, sense of coherence, optimism, and social support. This is particularly relevant as 50% of transplant patients were found to have a need for psychological care, especially for affective and anxiety disorders [10]. Poor transplant outcomes have been associated with weak or absent support systems, history of nonadherence, active psychiatric pathology, significant cognitive impairment, and personality disorders with impulsivity [11]. Studies among the transplant population have sought to address these issues. In fact, an intensive psychodynamically oriented interview was found to be a useful approach for bone marrow transplant candidates [12], whereas a psychodynamically based dreamwork was helpful in aiding transplant patients adjust to their new organ [13].

Medically ill patients experience a wide array of core emotions: anger, anxiety, guilt, fright, shame, sadness, happiness, envy, relief, and hope [14]. Moreover, patients may express these emotions in different ways to cope with stress and illness, depending on one's temperament, attachment, developmental experiences, and personality style. Seven personality styles were historically identified in the medical set-

ting [15]: (1) dependent with fears of abandonment and need for care, (2) obsessive and detail-oriented, (3) narcissistic with feelings of superiority and need to feel invulnerable, (4) masochistic with worthlessness and help-rejecting, (5) paranoid and distrustful, (6) histrionic with over dramatization and need for attention, and (7) schizoid with loneliness and avoidance of care. Understanding the different personality styles is crucial in helping patients cope with stress and fostering the patient-doctor therapeutic alliance. For instance, a transplant patient with perceived lack of symptom improvement may engage in help-rejecting behaviors to fulfill an unconscious need to assume the sick role and to avoid fear of abandonment. The physician who recognizes this personality style may improve the therapeutic alliance through setting realistic treatment expectations and emphasizing continued medical care beyond the hospital encounter.

In addition to the multitude of physical, psychological, affective, behavioral, and cognitive challenges involved in the transplant process, patients suffering from end-organ failure are faced with the prospect of a limited life expectancy, wherein fear of death, inner conflicts, and the ambiguity of a timely and successful transplant come to the fore in one's quality of life [9]. Thus, the goals of PDT may extend beyond symptom remission, facilitating an open exploration of one's fears, desires, dreams, and fantasies, all of which influence how the patient views the self and others, interprets or makes sense of experience, avoids aspects of experience, or interferes with the potential capacity of finding joy and meaning in life [3].

When faced with the onset and progression of illness, transplant patients may find it additionally difficult to face stressors akin to what Strain and Grossman describe as types of stress hospitalized patients experience [16]:

- 1) Threat to narcissistic integrity. By accepting the "sick role," the patient may experience a narcissistic injury when faced with pain and suffering that may occur before and after transplantation. A diminution of function, vitality, and locus of control may be heightened by complications of post-transplant delirium, increased hospital length of stay, neurotoxicity of immunosuppressive medications, graft rejection, retransplantation, or death [9, 10, 17].
- 2) Fear of strangers. The hospital environment is often stressful for patients, particularly when one's well-being is dependent on the care of others. There are often changes in hospital staff day-to-day which can be quite stressful. There are multiple members on physician teams and these teams change. Frequently, patients find multiple hospital staff walk into their rooms at all times of day: multiple physicians from primary and consulting teams, social workers, dieticians, nurses, assistants, radiology technicians, and others. For those with history of trauma

or paranoia, patients may find it difficult to trust others whose actions may in fact be benign and beneficial [18]. Ego-supportive therapy may be helpful in further providing support, reassurance, and encouragement with the goal of both achieving symptom alleviation and fostering a positive transference [7].

- 3) Separation anxiety. Patients might experience separation anxiety, given the new and often changing environment of the hospital setting, which can instill unfamiliarity, disruption, and lack of structure. While in the hospital, patients are separated from their homes and extended families, their routines, and daily structures. Some are required to move closer to the transplant center to await the surgery and for an extended time after the transplantation. Some patients might need to go to rehabilitation or skilled nursing facilities after the immediate transplant hospitalization, and it might not be apparent when they are safe to return home. Patients may develop anxiety when their capacity to adapt to change is tested, which may be further complicated by post-transplant delirium and cognitive deficits.
- 4) Fear of loss of love and approval. Physical changes and adaptation of the sick role can sometimes instill within patients feelings of disapproval and loss of love from their physicians, nurses, and family members. Transplant patients may develop chronic worries about retransplantation, serious comorbidities, and death [19]. These feelings may be even more distressing when one feels ongoing suffering along with limited perception of recovery, exposing underlying fantasies of past failed attachments and dependency conflicts.
- 5) Fear of loss of control of developmentally achieved functions. Given the multitude of physical changes and expectations for recovery within the post-transplant period, patients may find it challenging and frustrating to regain these physical and mental functions that were once under one's control. From difficulties in regaining abilities to breathe on their own after a ventilator, to speak and vocalize on one's behalf, to urinate and defecate, to adhering to one's complex medication regimen and new lifestyle recommendations, or to returning to work or other meaningful activities—all these may threaten self-esteem and ability to tolerate loss of control [18].
- 6) Fear of loss or injury to body parts. This fear can be analogous to castration anxiety, or the fear of not only losing one's body part, but also to one's ability to function in society. Moreover both occupational and sexual function deficits persist after transplantation [20] which may be threatening to one's physical vulnerability, symbolic sense of empowerment, and basic safety needs [18].
- 7) Reactivation of feelings of guilt and shame and fears of retaliation for previous transgressions. Patients may question their illness or even their decision to pursue

transplantation in the first place. The experience of guilt toward the donor, for instance, after one has accepted a new organ, may arise and increase stress and nonadherence with treatment and recovery. This phenomenon occurs in the context of the psychodynamic conceptualization of organ integration or the psychological process of experiencing the transplanted organ as part of the patient's self and not as part of the donor or as a foreign, external object [21]. The transplantation process may evoke strong doubts of one's identity and meaning of life. This is especially the case when guilt is unconsciously enacted as a masochistic punishment for accepting and failing to successfully integrate an organ from a deceased donor; rather, instead of viewing the new organ as part of one's identity, it is viewed as "foreign" [21].

Related to personality attributes and coping styles utilized in the context of illness is the theory of attachment, or the history of lifelong patterns of responding to threats in the environment that are learned in the interaction between infant and caregiver, especially during the first two years of life. Attachment insecurity may affect stress regulation, resulting in altered use of external regulators of affect (e.g., substance abuse, eating and sexual behaviors) or protective factors (e.g., treatment adherence, symptom reporting) [22]. For instance, in *secure* attachment, there is an internalized sense of worth, effectiveness in eliciting care when required, and self-efficacy in dealing with most stressors. Other patients may be in a *preoccupied* attachment, wherein they are likely to be excessively care-seeking, anxious, and dependent. In *dismissing* attachment, patients may be overly self-sufficient and avoidant of care when provided to them, which often leads to stress when confronted with being in the hospital during the transplant process. And lastly, *fearful* attachment characterizes those who are self-conscious, doubting, and suspicious [22, 23].

Furthermore, psychodynamic factors are inherent in the interactions between physicians and patients. Countertransference describes both the physician's unconscious and conscious total emotional reaction to a patient [24] with certain physician characteristics identified as most susceptible: those with senses of perfectionism, exaggerated sense of responsibility, and fantasies of rescue and omnipotence [25, 26]. These may subsequently lead to feelings of frustration, anger, helplessness, and behavioral enactments of avoidance and abandonment of both the patient and the environment, particularly if certain patient characteristics evoke these countertransference reactions: the "whining self-pitier," the suicidal patient [27], or the "hateful patient" [28].

Groves [28] identifies four styles of patients and qualities of dependent interactions with medical professionals: "dependent clingers" who might request constant support, "entitled demanders" who use intimidation and guilt induction to

obtain reassurance, “manipulative help rejectors” who exhaust medical providers by returning again and again with the perception that medical interventions have failed, and “self-destructive deniers” who frequently display behaviors that are contraindicated for their medical conditions (i.e., the recent cardiac transplant patient who is shoveling snow). From a practical point of view, physician awareness of these subtypes is helpful especially for those who service patients with end-stage organ disease and transplantation as these patients require frequent medical care that is both overwhelming and demanding. Staff and physicians may feel inundated by the requests that patients make and may themselves become exhausted by the care of these patients.

Through the process of exploring a patient’s overall attachment history, personality style, coping mechanisms, intrapsychic conflicts and transference reactions, as one journeys through the stages of transplantation, a life narrative can conceptualize and subsequently inform the patient-doctor relationship about the psychodynamic underpinnings of one’s experience with anger, despair, and anxiety in the face of chronic medical illness within the hospital and clinic setting. With the help of the clinician, the patient can begin to understand the role and meaning of illness in the overall context of one’s life narrative.

Existential Therapies

Existential Psychotherapy

Existential therapy derives from existentialism or the philosophical examination of the basic struggles of human existence. From Friedrich Nietzsche’s *the will to power* [29] to Viktor Frankl’s *self-transcendence* [30] – the individual, by virtue of one’s existence, or what Martin Heidegger referred to as *being-in-the-world* [31], seeks to satiate biological, psychological, and social needs to achieve the capacity to symbolize, imagine, and create personal meaning. Here, the individual’s existence is negotiated within one’s relationship to the self and others, both within the finite boundaries of life and death [32–34].

Within the transplant setting, patients may experience increasing and persistent stress, particularly when faced with the immediacy of disease onset and progression that may ultimately develop into an existential crisis, of which the extreme possibility is death [35]. For example, in hematological cell transplantation (HCT), over 90% of survivors experience at least one serious physical complication, with chronic graft-versus-host disease (cGVHD) representing one significant factor in quality of life [36]. Complex physical, emotional, and social challenges are faced, which may all continue well into the post-transplant recovery phase [37, 38]. For both the patient and one’s spouse or significant other, this

period may represent a “dynamic interaction” during which the transplant couple may face unpredictability as they put their “life on hold” [39]. Although family relationships return to “normal” [40] sometime after transplantation, these relationships may experience prolonged anxiety, decreased perceived quality of life, changes in role function, and marital distress [41–43]. Thus, clinicians may help patients and their family navigate through the transplant process by finding meaning in suffering, especially as this process can often generate unrelenting anxiety, lack of freedom, isolation, guilt, and hopelessness in the midst of physical pain, emotional angst, prospect of death, and the uncertainty of end of life [32, 44].

Existential psychotherapy provides an opportunity for patients to address questions about their existence and to understand and ease anxiety when facing questions about one’s mortality. Several philosophical principles underlie existential therapy: (a) humans need to find meaning and purpose in their lives; (b) humans have the capacity to freely choose and change values; (c) humans will face challenges in their life and function best when tackling these challenges; (d) all emotions (negative and positive) are essential to being human and are an opportunity for therapeutic work; and (e) relationships and interactions with one’s environment are fundamental to the human experience [45, 46].

The concept of organ transplantation, for instance, illustrates the founding ground of Heidegger’s *being-in-the-world*, particularly when a patient suffering from a failing organ undergoes the alien experience of feeling hurt, tired, and nauseated—sensations that may heighten not only anxiety at the prospect of a malfunctioning organ that may entail receiving a new organ but also obtrusive feelings of mortality and death [33]. For instance, candidates for heart transplant have been found to have high levels of psychological distress related to the possibility of an unavailable heart and the potential of life-threatening heart failure [47]. The finitude that a patient may experience when confronted with these possibilities embodies the limitations associated with the physicality of the body, all the while striving for self-transcendence in finding meaning in one’s life beyond physical and emotional suffering [47, 48].

Existential therapy can be valuable for transplant patients who are able to access emotional experiences or to overcome barriers that preclude a patient’s ability to cope with the transplantation process. As a “fellow traveler” through this process, the clinician supports the patient to confront anxiety in the setting of death, isolation, freedom, and emptiness inherent in one’s suffering [34]. The clinician then can elicit personal choices and encourage the patient to focus on responsibility in making one’s own decisions and to continually derive personal meaning [32, 34].

Dignity Therapy

Dignity therapy is a psychotherapeutic approach to patients who are nearing death that focuses on the production of a “generativity document” and aims to maximize the dignity conserving practices and perspectives of the patient. Dignity therapy was created by Dr. Harvey Max Chochinov based upon his work with patients with end-stage cancer. He was inspired to consider the impact and meaning of dignity at the end of life by the Dutch study on euthanasia and other medical decisions to end life (MDEL) published in 1991. This study found that “loss of dignity” was the most common reason given by physicians who had participated in hastening the death of their patient, cited in 57% of cases [49]. The intended targeted patients of dignity therapy are those facing a life-threatening illness or life-limiting circumstances. Many of the patients who have taken part in dignity therapy are patients with cancer diagnoses; the therapy has also been utilized for patients with other terminal diagnoses such as neurodegenerative disorders, end-stage renal disease, end-stage chronic obstructive pulmonary disease (COPD), and the frail elderly.

Traditionally, dignity therapy takes place over four sessions and is comprised of two main tasks: an interview with the patient in which she speaks about her life and the experiences that have been most important to her, and the creation of a “generativity document” which is an edited transcript of the interview. Dr. Chochinov suggests a question protocol that can be used to guide the interview, but generally the interviewer should allow and help the patient to speak about what is meaningful to her. The document can then be given to the patient’s family if she so desires. This process allows the patient approaching death to consider who she is and what she has felt throughout her life and to leave behind an enduring legacy for others.

The efficacy of dignity therapy has been studied numerous times, both by Dr. Chochinov’s group and by others around the world. Dignity therapy has been found to improve quality of life and spiritual well-being and lessen sadness and depression. Dignity therapy has also been found helpful for the families of patients with terminal illnesses [50]. The efficacy of dignity therapy in different patient populations continues to be actively studied; at least seven studies were published in 2017 related to dignity therapy, including studies on its efficacy in patients with Huntington’s disease, as used by nursing staff, for loved ones, and in newly diagnosed cancer patients [51–53].

Given that dignity therapy is primarily intended for patients facing death, its use in a transplant population would be most efficacious and appropriate for those patients in potentially terminal situations, e.g., a patient in liver failure awaiting transplant but with little hope of making it off the waiting list, a patient following lung transplant with progres-

sive bronchiolitis obliterans, or a patient with end-stage organ disease who decided not to pursue transplant or was declined by the team. Generally patients should be more than 2 weeks away from death in order to have time to complete the process, and although insight into their prognosis is not necessary, it can be helpful to maximize the impact of the therapy. No literature has yet been published applying dignity therapy to transplant patients in particular.

Meaning-Centered Psychotherapy

Meaning-centered psychotherapy was developed by Dr. William Breitbart at Memorial Sloan Kettering Cancer Center in response to the need for an intervention for advanced cancer patients struggling with despair, hopelessness, and desire for hastened death, but not necessarily depressed [54]. The intervention was originally developed as a group therapy; later an individual form of the therapy was developed to address the difficulties of coordinating groups of very medically ill people. Meaning-centered psychotherapy was largely inspired by the work of Victor Frankl who wrote the book *Man’s Search for Meaning* in 1946 based on his experiences in a concentration camp during World War II [39].

This therapy is designed specifically for demoralized patients with a limited prognosis. The therapy aims to bring meaning to patients’ lives through encouraging them to consider their choice of attitudes toward life and death; their connection with life through love, art, humor, nature, and relationships; their engagement with life through creative pursuits; and their understanding of their own identity and legacy. Group meaning-centered psychotherapy takes place over eight sessions, and individual meaning-centered psychotherapy over seven sessions, with each session focusing on a slightly different aspect of meaning. Each session consists of some didactic instruction and some experiential exercises.

The efficacy of both group and individual meaning-centered psychotherapy has been studied extensively. In the first randomized controlled trial, patients with advanced cancer who participated in group meaning-centered psychotherapy were found to report significantly improved “meaning/peace” and “faith” and show a significant decrease in anxiety and desire for death as compared to patients who participated in supportive psychotherapy [55]. The first randomized controlled trial of individual meaning-centered psychotherapy in patients with cancer showed an improvement in spiritual well-being and overall quality of life, as well as a decrease in physical symptom distress, but the same decrease in anxiety and desire for death was not found.

There is no literature currently on the use of meaning-centered psychotherapy in transplant patients. Although

meaning-centered psychotherapy was designed for and has been studied in patients with cancer with a limited prognosis, its use to mitigate demoralization in patients with end-stage organ disease, facing transplant, or post-transplant could be significant. For example, one session of meaning-centered psychotherapy focuses on exploring the patient's identity before and after cancer; this exercise could easily be adapted for a patient with an illness requiring transplant or who is living with a transplanted organ.

Structured Therapies

Cognitive-Behavioral Therapy

Originally developed by Aaron Beck for depression, cognitive-behavioral therapy (CBT) has now been demonstrated to be an effective treatment for many psychiatric conditions. CBT relies on a cognitive model of psychological distress. CBT is based on the theory that emotion, behavior, and cognition are interconnected and psychological distress is due to problematic thinking patterns. Specific CBT approaches vary in emphasis but share the common underlying features of being problem-focused, goal-directed, and time-limited. With the help of a practitioner, patients learn to challenge and modify dysfunctional beliefs so that their distress can be alleviated [56].

Sensky [57] has described in detail how CBT has been adapted for use in people with physical illnesses. In the medical setting, an ideal starting point for cognitive therapy is to understand the patient's perception of his medical problems and explore any links between the physical and emotional states. An individual's thoughts and perceptions of their illness or their body sensations and how these thoughts influence their behaviors, physiology, and emotions are central to the cognitive model. For example, if even benign bodily sensations are regarded as being symptoms of disease, several consequences ensue: (1) the patient may become emotionally distressed, which may increase bodily sensations; (2) the patient will pay more attention to these symptoms and worry will increase; (3) the patient employs coping strategies that may exacerbate symptoms instead of relieving them; and (4) caretakers, including doctors, may respond to the patient in a way that intensifies the patient's concerns, attention to bodily sensations, and dysfunctional coping. Working closely with the patient and having the patient actively collaborate with their physician can restore a patient's sense of mastery or control over his illness. Overall, the aim is to help the patient examine the beliefs underlying his illness and understand how they affect his behavior.

Despite extensive empirical evidence of CBT utility in a vast number of medical problems such as HIV, cardiovascular diseases, insomnia, and renal failure [58–66], there are no

studies to examine its effect on quality of life or depression in patients with or awaiting transplantation. Given its proven efficacy for depression and anxiety, one might imagine that CBT is a very helpful non-pharmacological approach to psychotherapy in patients who are pre- or post-transplant.

Acceptance and Commitment Therapy

Similar to cognitive-behavioral therapy, acceptance and commitment therapy (ACT) focuses on increasing psychological flexibility by using acceptance and mindfulness strategies. Developed by Steven Hayes in 1982, ACT is founded on the idea that suffering is normal but can be made manageable through the development of cognitive flexibility. This is achieved through the three pillars of ACT: (1) being *present* in the moment and maintaining awareness of what one is feeling, (2) observing and being open to emotions as they evolve, and (3) clarification of a patient's personal values and what is meaningful to his life. With these three pillars in mind, practitioners and patients are able to create an action plan to more effectively handle painful thoughts and feelings. Over time, patients gain mastery in tolerating and accepting negative feelings. Further, they are able to create action plans that help them engage in behaviors that align best with their value systems [67].

ACT has been empirically tested and demonstrated promise for the treatment of depression and anxiety, as well as chronic medical conditions [68, 69]. ACT has also become popular in behavioral medicine for a variety of chronic illnesses and conditions that require changes in health behaviors, such as diabetes and smoking cessation [70, 71]. ACT has been shown to reduce distress and improve functioning among people living with chronic medical conditions such as patients with cancer, migraines, and chronic pain [70, 72, 73].

In patients with transplant and organ dysfunction, ACT may be particularly well-suited as it offers a model of healthy adaptation to patients' often challenging medical and psychosocial realities and encourages patients to be present in the moment, open, and focused on what matters to them. While no empirical studies have analyzed the efficacy of ACT for people with organ dysfunction and transplant, the foundations of ACT and effectiveness in other chronic medical conditions suggest that ACT would likely be helpful in patients undergoing transplant.

Mindfulness-Based Cognitive Therapy and Mindfulness-Based Stress Reduction

Mindfulness training is a method for self-regulation of attention. Mindfulness increases awareness of inner thoughts, emotions, and bodily sensations while fostering an attitude

of acceptance. Using breathing meditation and yoga stretches, it helps participants become more aware of the present moment and be aware of changes in the body and mind [74].

Programs that rely on the tradition of meditation are mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT). Both are highly structured, educational, patient-focused interventions with formal training in mindfulness meditation. MBSR was developed by Jon Kabat-Zinn and aims to help patients manage physical and emotional pain [75]. MBSR programs generally consist of 60–90 min sessions over 7–10 weekly group sessions. Mindfulness-based cognitive therapy (MBCT) has been adapted from mindfulness-based stress reduction approaches as a treatment for depression [76]. While both rely on the tradition of meditation, MBCT also includes several techniques from cognitive therapy focusing on the links between thinking and feeling and participants to effectively respond when depression threatens to overwhelm them.

With training patients learn to perceive emotional and physical states as they are and let thoughts come and go in awareness with no attempts to change, suppress, or elaborate on them. MBSR was developed to help individuals with chronic health conditions cope with difficult physical symptoms not improving with standard medical care, with the early work focusing on chronic pain [75]. MCBT encourages participants to “let go” of thoughts in order to interrupt the link between low mood and negative thoughts. With this skill, patients are able to tolerate distressing thoughts, moods, and bodily sensations. They are encouraged to stay in the present moment and not focus on the past or future.

The practice of mindfulness is associated with distinct physiological effects including an increase in parasympathetic nervous system activation [77], which may lead to the reduction of distressing physical symptoms. MBSR has been demonstrated to help patients with a variety of illnesses adjust and improve their quality of life [62, 63, 78]. For example, cancer patients practicing mindfulness experience reduced stress, pain, and fatigue, as well as improved sleep [79, 80]. The benefits of mindfulness practice with MBSR may contribute to the overall improvement in parasympathetic nervous system activation, such as reduced sinus arrhythmia [77, 81] and long-term decreased cortisol, proinflammatory cytokines, and blood pressure in cancer patients.

Transplant patients often have to live with difficult physical symptoms and medication side effects. Even with excellent function of the transplanted organs, immunosuppressive medications generate adverse effects and cause new complications.

In the first randomized control trial of MBSR in patients with solid organ transplant, it was found that patients who had 8 weeks of MBSR training had lower depression rating scores and better sleep. At 1 year, anxiety, depression, qual-

ity of life, and sleep remained improved from baseline in those who received MBSR compared to those with only psychoeducation [82].

Therapies Aimed at Adherence

A significant part of a patient’s candidacy for organ transplantation is medication adherence, which has been associated with improved outcomes among solid organ transplant candidates [83]. Individuals with chronic kidney disease, for example, experience complex and dynamic physical and emotional lifestyle changes, all of which may affect patients’ motivation to manage their illness [84]. Nonadherence, varying in incidence from 19% to 25% per year, with vital and lifelong post-transplant immunosuppressants, has been associated with significant complications, including graft rejection, increased health-care costs, lower quality of life, and mortality [85, 86]. For transplant recipients, the ability to follow recommended treatment may be complicated by not only the complex medication regimens, but also by the burden of experiencing cognitive barriers (e.g., forgetfulness), need to attend frequent medical visits, undergoing laboratory tests, and adjusting to lifestyle modifications [87]. This may result in diminished motivation and disengagement of patients from their clinicians.

Originally developed within the field of addiction as an alternative to the confrontational approach of treating substance use disorders, motivational interviewing (MI) is a collaborative, goal-oriented approach that builds intrinsic personal motivation and growth as a result of the exploration of a patient’s conflict between ambivalence and need to change [88]. Although few have tested MI among the transplant population, Dobbels and colleagues have shown that MI, in addition to other multicomponent behavioral interventions based on social cognitive theory, increased adherence to tacrolimus among post-transplant heart, liver, and lung recipients, sustainable even at 5 years post-intervention [89, 90]. MI has been an effective method of encouraging patients with chronic kidney disease in self-managing their care [91]. For instance, among a randomized sample of 793 patients with chronic kidney disease in 9 different Dutch hospitals, those patients who were coached MI by a nurse practitioner had increased adherence rates with improvement in self-management over the course of 5 years and corresponding decrease of cardiovascular comorbidity and mortality, all-cause mortality, renal function, vascular damage, and improvement of quality of life [92].

Although MI is typically thought of as a brief intervention, it can also be conceptualized as a communication style to enhance intrinsic motivation to change while exploring and resolving ambivalence. Four principles underlie this collaborative approach [93]:

Engaging The process of establishing a helpful connection and working relationship inherent in the therapeutic alliance between the patient and clinician.

Focusing The process by which a patient develops and maintains a direction in the conversation about change and the movement toward a specific goal.

Evoking The process of eliciting the patient's own motivations for change, which represents the heart of MI, rather than from a solely paternalistic approach or "righting reflex." This may be problematic if advice put forth by the clinician is incongruent with the patient's own personal values.

Planning The process that encompasses the patient both developing commitment to change and formulating a concrete plan of action, all the while promoting patient autonomy in decision-making and eliciting change talk.

Related to these four principles are core interviewing skills that are flexibly utilized in order to invite change talk and to explore resistance to change [93]:

Open-Ended Questions Encourage the patient to reflect and elaborate on motivations for change.

Affirmations The clinician comments on the patient's strengths, abilities, good intentions, and efforts as a way to promote acceptance and support of the patient as well as self-efficacy.

Reflective Listening The process by which the clinician restates empathetically one's understanding of what the patient had said and to encourage the patient to discuss more about one's ambivalence and motivation for change.

Summarizing A clinician's best understanding of the patient's experience with ambivalence and motivation for change, while further collecting change talk statements and linking discrepancies underlying resistance to change. This allows the clinician to paint a "whole picture" for the patient to negotiate ambivalence with one's desire, ability, reason, need, and commitment to change behavior.

MI is an effective and empirically based intervention and communication style that cuts across several disciplines to address behavioral problems wherein ambivalence and motivation to change are salient. For the transplant patient, treatment nonadherence, especially with immunosuppressants (and the risks associated with rejection and graft loss), highlights the importance of MI as a behavioral intervention that informs the way in which the clinician collaboratively works with the patient to strengthen one's own motivation and commitment to change and sustain a good quality of life.

Caregiver Support

Transplantation is a family affair. The whole family is necessary to support the patient through the evaluation, waiting list, and actual transplantation process. It is no surprise that family members play a key role in providing support and as a result have increased distress, anxiety, and depressive symptoms themselves. The rates of depression and anxiety-related disorders in caregivers for transplant patients exceed those found in other caregiver populations. In one study with 3-year follow-up, the rates of psychiatric disorders in transplant recipient caregivers were major depressive disorder (MDD), 31.6%; adjustment disorders, 35.4% (29.4% with anxious mood); post-traumatic stress disorder related to the transplant (PTSD-T), 22.5%; generalized anxiety disorder, 7.3%; and any assessed disorder, 56.3%. Thus, focus on caregiver support is essential when caring for a patient who is considering and undergoing transplant.

In small studies of caregivers of transplant recipients, MBSR led to lower scores of perceived stress and anxiety [94]. Caregivers can also benefit from stress reduction techniques.

Group Therapy

Transplant patients have many shared experiences and concerns. Transplant patients face special issues: lack of community knowledge regarding transplant, concerns about source of their donor, lifelong needs for immunosuppression and resultant risks of infection, and changes in physical appearance [95]. Given this shared experience, one might conjecture that patients can benefit from hearing from others' experiences. In a brief open group therapy program for renal transplant patients, Buchanan noted that patients benefited from learning to cope by observing others in the group. Further, by spending time together, patients developed a sense of community and develop realistic expectations of the future [96]. Structured programs that address both pre-transplant and post-transplant experiences have been outlined and have the potential to be effective in alleviating patients' and families' concerns in a resource-efficient manner [95].

Conclusions

The psychological needs of transplant and end-stage organ disease patients are complex and require a multidisciplinary approach. Improving patients' access to resources is essential in developing more structured and evidence-based treatments. While more research needs to be done in the field of psychotherapy and non-pharmacological interventions for mood disorders in transplant patients, we might extrapolate the benefits of these interventions from other chronically ill patient populations.

Despite the limitations in evidence and research, there is support that a variety of treatment modalities are useful non-pharmacological options for this vulnerable population. Supportive and psychodynamic psychotherapies are effective in bolstering the patient's preexisting resilient or adaptive coping mechanisms. Existential and meaning-centered psychotherapy can be helpful in patients questioning meaning in the face of challenges related to organ transplantation. CBT and ACT may help patients with distorted perceptions of their illness or those who are particularly struggling with physical symptoms. Dignity therapy is useful for patients nearing the end of life, and motivational interviewing is helpful for patients struggling with adherence to treatment recommendations. In addition, caregivers for transplant patients require support and would also likely benefit from interventions such as dignity therapy.

Further research is required to assist providers identifying characteristics of patients that might be most suited for particular interventions. For now, we depend on the skill of mental health providers and patient's principal caretakers to identify interventions that may alleviate a patient's distress and improve their quality of life.

Resources for therapy	
Supportive and problem-solving approaches	<i>Textbook of Psychotherapeutic Treatments</i> Edited by Glen O. Gabbard [24].
Psychodynamic psychotherapy	<i>Brief Psychotherapy at the Bedside: Countering Demoralization from Medical Illness</i> by James Griffith and Lynne Gaby [97] <i>Existential Psychotherapy</i> by Irvin Yalom [34]
Cognitive-behavioral therapy	<i>Coping with Chronic Illness: A Cognitive-Behavioral Therapy Approach for Adherence and Depression</i> by Steven Safren, Jeffrey Gonzalez, Nafisseh Soroudi [98]
Acceptance and commitment therapy	<i>Acceptance and Change: Content and Context in Psychotherapy</i> by Steven Hayes [99]
Mindfulness-based cognitive-behavioral therapy	<i>Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness</i> by Jon Kabat-Zinn [100]
Dignity therapy	<i>Dignity Therapy: Final Words for Final Days</i> by Harvey Chochinov [101]
Meaning-centered psychotherapy	<i>Meaning-Centered Group Psychotherapy for Patients with Advanced Cancer: A Treatment Manual</i> by Breitbart, William Poppito, Shannon R [102].
Motivational interviewing	<i>Motivational Interviewing: Helping People Change</i> by William miller and Stephen Rollnick [93]

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