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Mitigating Depression In Intensive Care Unit (ICU) Patients: A Review of the Literature

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MITIGATING DEPRESSION IN INTENSIVE CARE UNIT (ICU) PATIENTS: A REVIEW OF THE LITERATURE

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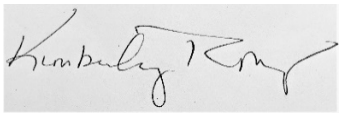
Project Advisor Signature: 

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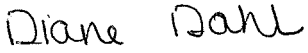
Dean/Chief of Nursing Administrator Signature: 

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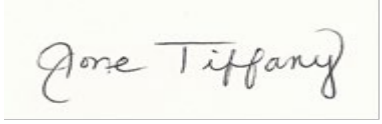
Director of Nurse Educator Program Signature: 

Abstract for Critical Review of the Literature

Background: Many patients who become critically ill spend an extended period of time in the intensive care unit (ICU). Oftentimes, patients experience depression as they navigate the healing process. Experiencing these symptoms may influence the road to recovery and life after critical illness.

Purpose: The prevalence of symptoms of depression can range from 10 to 30% in ICU survivors (Myhren, Ekeberg, Tøien, Karlsson, & Stokland, 2010; Peris et al., 2011). Strategies to prevent and manage symptoms of depression are some of the current trends in critical care research. Therefore, a literature review of the interventions was conducted in order to answer two fundamental driving questions. What strategies are used for adult ICU patients to mitigate or manage symptoms of depression? Which strategies are most effective at improving patient outcomes in this area?

Results: Eighteen articles were reviewed and evaluated for level and quality of evidence based on the Johns Hopkins Evidence Appraisal Tool (Dang & Dearholt, 2018). The literature revealed many strategies, which included involvement of a mental health specialist, a care bundle, a pharmacist, ICU diaries, ICU clinics, addressing ICU experiences, and adding spiritual care to the care team. These may offer opportunities to mitigate and manage symptoms of depression following an ICU stay. Commonalities among the strategies were found throughout the literature. Though deemed as beneficial, the generalizability of effectiveness of the strategies should be considered, as there are a vast number of variables to each patient situation.

Conclusion: Strategies that seemed to be most effective were involving mental health specialists in the care team, utilizing a pharmacist for medication management, implementing

ICU diaries, developing ICU clinics, and addressing spiritual care needs. Further research is needed surrounding these strategies among others.

Implications for Research and Practice: Experimental research on which specific interventions will decrease the prevalence of symptoms of depression in this population needs to be conducted. In addition, further studies surrounding issues such as baseline mental health, influence of social interactions, personality traits, along with disease processes should all be considered. Finally, awareness of the issue of depression in ICU patients is vital to nursing practice. Utilizing the nursing license to its fullest through implementing interventions like those identified here may impact patient outcomes.

Keywords: adult, intensive care, critical care, intensive care unit, ICU, adjustment disorders, depression, situational depression, mental health, ICU diaries, ICU clinics, care bundle, psychiatry, psychology, pharmacy

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Chapter 1: Introduction

Admission to the intensive care unit (ICU) can be a stressful time for patients since oftentimes they are fighting for their lives. Many of the patients admitted to the ICU stay for an extended period of time. In addition to healing from the illness that brought the patient to the hospital, newly acquired muscle weakness, anxiety, depression, post-traumatic stress disorder (PTSD), delirium, and even cognitive deficits can also accompany lengthy ICU stays (Davidson & Harvey, 2016; Hoffman & Guttendorf, 2015).

With patients experiencing such challenges, it is no wonder that care providers recognize symptoms of depression in many of those who spend time in the ICU. Depression manifests in feelings of sadness, depressed mood, changes in appetite, trouble sleeping or too much sleep, fatigue, loss of energy, either increased unnecessary activity (fidgeting) or slowed movements and speech, feeling worthless or guilty, trouble thinking, concentrating, and/or making decisions, along with thoughts of death or suicide (American Psychiatric Association, 2018).

Purpose

Depression is a mood disorder that impacts a person's emotions and ability to sleep, eat, think, and work. Depression can be diagnosed after only two weeks of experiencing symptoms (National Institute of Mental Health, 2018). Some patients are affected enough they are diagnosed with clinical depression. However, many patients do not meet the diagnostic criteria, but they experience symptoms of depression that are debilitating (APA, 2015). Since many of the additional challenges patients face in the ICU are related to mental health and well-being, the primary interest of this review is to focus on the symptoms of depression that patients experience. There are two fundamental driving questions of this review. What strategies are

used for adult ICU patients to mitigate or manage symptoms of depression? Which strategies are most effective at improving patient outcomes in this area?

Evidence of Need for Critical Review

Symptoms of depression range anywhere from 10 to 30% in ICU survivors (Myhren, Ekeberg, Tøien, Karlsson, & Stokland, 2010; Peris et al., 2011). Those symptoms along with the physical deconditioning, cognitive impairments, and other mental health concerns that follow an ICU stay can impact a variety of aspects of a patient's life including physical independence, memory and recall challenges that mimic Alzheimer's disease, and relational and financial stress due to the inability to return to work (Davidson & Harvey, 2016: Huggins et al., 2016). Some risk factors for these issues include heavy sedation, immobility, and delirium while in the ICU; thus, intervening early is key to preventing the long-term complications related to ICU stays (Davidson, Harvey, Schuller, & Black, 2013).

Symptoms of depression may reach into life after the return home altering relationships and creating monetary challenges. According to Davidson & Harvey (2016), "One year after discharge, less than 10% of patients who required more than 4 days of mechanical ventilation are alive and independent" (p. 184). Though this does not reflect all patients who stay in the ICU, it does depict the story of many. These circumstances require time in the ICU and in many cases, the stay extends beyond four days creating opportunity for the development of depression or its symptoms. The outcomes following an ICU stay indicate a lack of autonomy and inability to manage one's self after the return home. Circumstances like these may strain relationships at home as the spouse or child becomes provider and caregiver. Financial obligations may be extended as employing a caregiver may be necessary so that the support person can maintain a full-time job. The combined toll of these stressors ripens the opportunity for depression to

continue or worsen at home. Therefore, it is important to further research interventions that have the potential to improve patient outcomes.

Significance to Nursing

As described earlier, the American Psychiatric Association describes varied manifestations of depression that influence emotions, mentation, and behavior (2018). Symptoms of depression can last for months and even years after discharge from the ICU, influencing socioeconomic status through inability to return to work and dependence on the provision of care from others (Davidson & Harvey, 2016). Though the repercussions of these issues are most notable after an ICU stay, it is important to remember that they begin in the ICU.

Nurses play the role of supporter and cheerleader as patients recover from severe illness. Because of this, a patient's attitude and approach to recovery and rehabilitation can alter their dependence on the bedside nurse for support. Furthermore, a pessimistic attitude often predicts the presence of post-ICU stay depression (Myhren et al, 2010). An attitude like this may determine a patient's willingness to participate in rehabilitation efforts ultimately impacting their return to baseline. If a patient is not pursuing recovery and actively participating in therapies, the nurse is the one who assumes that responsibility for the patient. Nurses often push patients into participation through bargaining, bribing, or rescheduling appointments. To complicate matters, depending on the physiologic status of the patient, rehabilitation may be set aside due to more urgent needs such as physiologic instability. Furthermore, not all nurses possess the experience or motivation needed to prioritize the recovery and rehabilitation needs of the patient. However, because of the unique position and knowledge of patient needs and behavior, nursing has the power to advocate for patients at the beginning signs of depression by discussing concerns, such

as a pessimistic attitude, with the attending provider. A nurse taking actions like these may be the first step to impacting a patient's mental health for the better.

Theoretical Framework

The Theory of Unpleasant Symptoms (TOUS) is a middle range theory developed by Dr. Elizabeth Lenz and her colleagues "to improve understanding of the symptom experience in various contexts and to provide information useful for designing effective means to prevent, ameliorate, or manage unpleasant symptoms and their negative effects" (Lenz & Pugh, 2008, p. 160). The TOUS responded to a need identified through conversation among colleagues about their individual research projects. The developers identified commonalities among the symptoms they were studying and partnered with Dr. Lenz to create a middle range theory. Initial publication of the TOUS took place in the journal *Advances in Nursing Science* in 1995 with subsequent revisions in the same journal in 1997 (Lenz & Pugh, 2008).

There are three parts to the TOUS: the symptom itself, factors influencing the symptom, and consequences on performance due to experiencing the symptom. Description of the symptom should include duration, intensity, distress, and quality while influencing factors can be physiologic, psychologic, or situational in nature. Consequences can affect performance in cognition and physical functioning as well as functional status (McEwen & Wills, 2014). The purpose of the theory is to understand symptoms in light of the contexts in which they are experienced in order to improve the experiences and decrease the resulting negative effects. It is designed to help nurses understand the relationship between outside factors and symptoms along with how symptoms influence each other (Lenz & Pugh, 2008; McEwen & Wills, 2014). Nurses can then approach their patients with a deeper understanding of the issues(s) being faced and apply accurate interventions to alleviate the symptom(s). Visualizing the patient in this

framework allows for identification of areas nurses can support the patient autonomously as well as knowing when to seek support from the medical team on the patient's behalf.

The TOUS is cyclical in nature. The influencing factors (physiologic, psychologic, and situational) are all interrelated and describe the predisposition to and manifestation of one or more symptoms. The theory looks at both the individual and additive effects of influencing factors on the symptom experience. The symptom(s) experience (described in terms of duration, intensity, distress, and quality) is a result of the influencing factors and can be felt one at a time or in groups or clusters (although the model does not depict the symptoms in the traditional way for the term "cluster"). The symptom(s) then impacts performance (whether functional, cognitive, or physical) both in the short and long term. Performance feeds back to the influencing factors beginning the cycle again (Lenz & Pugh, 2008; McEwen & Wills, 2014).

The TOUS is one theory relevant to the depression experienced by ICU patients. In this framework, symptoms of depression are the symptoms experienced with influencing factors of delirium with agitation or hallucinations with the inability to sleep, muscle deconditioning from extended immobility, physiologic processes of the disease such as trouble breathing related to respiratory distress, or the lack of a support network during a frightening hospitalization. Manifestations of depression such as sadness, depressed mood, loss of energy, or trouble thinking or concentrating sway the desire and/or ability to heal and rehabilitate (the performance piece of the theory). The inability to heal and rehabilitate perpetuate the beginning factors by remaining immobile, furthering delirium, and withdrawing from one's support network. As these symptoms go unmanaged, discharging a patient home while still experiencing them is possible, which puts the patient at risk for decreased quality of life, poor socioeconomic status, inability to return to work, and lack of independence (Davidson & Harvey, 2016).

Through the TOUS, one can see the depth of influence depression has over the healing process. This theory offers a holistic perspective to view patients experiencing depression. The symptoms are often influenced by many compounding factors, which can either improve or worsen a patient's depression. Paying attention to factors such as social support, spirituality, personality traits, disease process, and physical deconditioning allows a nurse to support a patient from several angles. Nursing interventions can be geared towards the specific needs of the patient allowing for personalized care.

Conclusion

Considering the prevalence of depression in ICU survivors (up to 30%), the prognosis of survival to one-year post-ICU stay (<10%), the increased dependence on the bedside nurse to achieve rehabilitation goals, along with the power nursing has to change these numbers, it is imperative to look into methods of preventing, ameliorating, and managing depression in this population (Myhren et al., 2010; Peris et al., 2011; Davidson & Harvey, 2016). The Theory of Unpleasant Symptoms, which was developed by Dr. Lenz and her colleagues (Lenz & Pugh, 2008), offers a framework to understand the extent to which depression influences patient recovery from a physical, emotional, spiritual, and mental perspective. If this disorder was better understood within the ICU setting, how would the numbers change over time? Would patients not only survive but thrive after critical illness?

Chapter 2: Methods

The incidence of depression among intensive care unit (ICU) survivors along with the long-term ramifications of living with depression, such as the inability to return to work and dependence on others for activities of daily living, encouraged the discovery of methods that prevent, ameliorate, or manage symptoms of depression at their onset. A review of literature determined which strategies nursing could implement or advocate for while the patients are still in the ICU.

Search Strategies

An exploration of a variety of databases and search engines obtained a body of literature for review. CINAHL, PubMed MEDLINE, Cochrane Database of Systematic Reviews, Scopus, ScienceDirect, PsycINFO, and Google Scholar searched articles within the last 16 years (2003 to present) for key terms such as *situational depression*, *depression*, *mental health*, *adjustment disorders*, *intensive care unit*, *intensive care*, *critical care*, and *ICU*.

Inclusion & Exclusion Criteria

The eighteen articles chosen for review were published within the last 16 years and written in the English language. Quantitative and qualitative studies along with some non-experimental literature with varying level and quality provided a "big picture" perspective on this practice question. Consideration of all professional roles ensured a holistic perspective to the problem as no specific discipline possessed all the necessary interventions to improve patient symptoms although nursing's role took precedence. Articles selected pertained to the adult population that experienced the ICU. Any admitting diagnosis was allowed though often the articles referred to populations requiring mechanical ventilation. Articles included involved spiritual care, early rehabilitation, involvement of mental health specialists, post-intensive care

syndrome, medication management, influencing factors of ICU on depression, predisposition to depression, and emotional outcomes post-ICU stay.

Two exceptions to the inclusion criteria were made. An exception for the year selection was made for an article from 1987, which gave perspective to the longevity of this issue along with timeless interventions to utilize with patients to improve outcomes (Goldman & Kimball, 1987). The second exception allowed inclusion of an article related to palliative care as patients in the ICU are frequently in a similar position as a palliative care population in terms of their physiological symptoms, psychosocial battles, fighting for life, or even facing death (Bernard et al., 2017). Articles related to neonatal or pediatric ICU populations, not involving the intensive care, or not related to the transition out of ICU were excluded to limit data to adult patients with critical illness needs that required an ICU stay.

Summary and Evaluation of Research

Six quantitative studies, including a randomized control trial, a quasi-experimental study, two systematic reviews, and a cross-sectional study made up the eighteen articles chosen for this review. Additionally, the review included one qualitative article, two nonexperimental studies, one mixed methods design, seven literature reviews, and a quality improvement study. Studies were evaluated for level and quality of evidence using the Johns Hopkins Evidence Appraisal Tool (Dang & Dearholt, 2018).

According to the Johns Hopkins Evidence Appraisal Tool (2018), the levels of evidence range from I (strongest) to V (weakest). Experimental studies and reviews of experimental studies such as randomized control trials (RCTs) qualify as level I evidence. Level II evidence includes experimental research that lacked a control group or randomization such as quasi-experimental studies. Level III consists of non-experimental studies, qualitative studies, or

synthesis of those styles of studies. Guidelines from respected authorities and/or nationally recognized expert committees, or consensus panels/position statements based on scientific evidence encompass level IV evidence. Level V evidence is based on experiential and non-research evidence including integrative reviews, literature reviews, quality improvement, program or financial evaluation, case reports, and opinion of nationally recognized expert(s) based on experiential evidence (Dang & Dearholt, 2018).

Quality ratings are given ranks of A, B, or C, which equate to high, medium, or low respectively. For levels I through III, quality is determined by consistency and generalizability of results, which is judged by sample size, control, definition in conclusions, and recommendations based on evidence from literature review. Transparency surrounding the research process, evidence found, and bias from the researcher, also plays a role in quality rating. The more inconsistencies, issues with generalizability, and lack of transparency, the lower the rating (Dang & Dearholt, 2018).

For level IV evidence, quality is judged based on sponsorship from an organization or government agency supported by evidence that is congruent with many other well-designed studies, evaluation of evidence, conclusions offered, presence of national expertise, and currency of studies. The more support in these areas the higher the quality (Dang & Dearholt, 2018). For level V organizational experience, quality is ascertained through clarity of aims and objectives with consistency in results, exhaustiveness of conclusions, and consistency of recommendations. For the other types of level V evidence, high quality shows clear expertise, definitive conclusions with scientific rationale, and thought from leader(s) in the field. Lower quality shows credibility instead of expertise or major flaws in these areas (Dang & Dearholt, 2018).

Of the eighteen articles mentioned previously, there was one level I, quality B article (Jones, Skirrow, Griffiths, Humphris, Eddleston, Waldmann, & Gager, 2003), one level II, quality B article (Peris et al., 2011), eight level III articles of which four were quality A (Bernard et al., 2017; Davydow, Desai, Needham, & Bienvenu, 2008; Davydow, Gifford, Desai, Bienvenu, & Needham, 2009; Olsen, Nester, & Hansen, 2017) and four were quality B (Dowdy et al., 2009; Myhren et al., 2010; Rattray, Johnston, & Wildsmith, 2005; Wang et al., 2017), and, finally, eight level V articles of which four were quality A (Parker, Sricharoenchai, & Needham, 2013; Hoffman & Guttendorf, 2015; Goldman & Kimball, 1987; Davidson et al., 2013) and four were quality B (Davidson & Harvey, 2016; Fernandes, Schmitt Jaeger, & Chudow, 2019; Huggins et al., 2016; Merbitz, Westie, Dammeyer, Butt, & Schneider, 2016). Of the searches conducted, it was difficult to locate experimental research. It seems that this topic is challenging to research based on the numerous variabilities present in each ICU patient case. Furthermore, these variables influence patient experiences and interpretation of those experiences. In addition, eliciting randomization and/or control over those variables would pose a challenge.

Conclusion

After searching several engines for applicable information, seventeen articles regarding adult ICU patients dealing with depression along with one article in the palliative care setting were chosen for evaluation. These articles reviewed a variety of interventions from involving spiritual care to early rehabilitation to consulting mental health specialists. The evidence varied in level and quality (based on the Johns Hopkins Evidence Appraisal Tool) and though it held little experimental research, the evidence may be useful for guiding clinical practice and patient care.

Chapter 3: Literature Review and Analysis

The review of literature brought forth themes focusing on effective prevention, management, and influence on symptoms of depression in intensive care unit (ICU) patients. The matrix of studies (Table 1.1) provided the structure to present research and draw themes. Many of the studies published similar findings, some contained experimental research, and others provided recommendations for further research surrounding interventions.

Synthesis of Major Findings

The reviewed literature produced several themes, which contained opportunity for intervention and practice change along with continuing research. Through these themes, support for patients experiencing depression started in the ICU and extended well beyond the hospital stay. The efforts were holistic and covered many layers present in patient care. The heaviest amount of evidence found in the reviewed literature supported beginning interventions within the ICU in order to positively influence patients' long-term outcomes. The themes developed into groups of strategies, which included implementing a care bundle and ICU diaries within the ICU, involving specialists such as pharmacy, psychology, and psychiatry, minimizing distressing experiences, developing ICU clinics, and including spiritual care in the care team.

Strategies within the ICU.

Care Bundle. Some of the studies described a group of symptoms developed within the ICU, which consist of physical, cognitive, and mental health problems. This group of symptoms, termed Post-Intensive Care Syndrome (PICS), can be associated with the patient and the family (PICS-F) (Huggins et al., 2016). The mental health problems in PICS includes depression, anxiety, and post-traumatic stress disorder (PTSD) (Hoffman & Guttendorf, 2015).

Prevention of the depression associated with PICS (among the other aspects of PICS) included the implementation of a care bundle termed the "ABCDEFGH bundle." This bundle covered the beginning of the ICU stay all the way through to the transition home. "ABCDEFGH" stands for airway management, spontaneous breathing trials, coordination of care, delirium assessment and prevention, early mobility, follow-up, functional reconciliation, family, good hand-off, and hand the patient/family written information (Davidson & Harvey, 2016; Davidson et al., 2013). Implementation of these interventions progressed patients through their ICU stay earlier than without it. This early progression may have decreased the prevalence of PICS and therefore depression (Davidson & Harvey, 2016; Davidson et al., 2013; Hoffman & Guttendorf, 2015). However, this research is young and requires further study to fully understand the implications for patient outcomes (Davidson & Harvey, 2013; Hoffman & Guttendorf, 2015).

Diaries. ICU diaries are becoming a common topic in research and being introduced into nursing practice. Diaries can be as simple as a notebook that a family brings in; some hospitals design them in such a way to provide areas to keep records, write questions, color pictures, and have definitions of common words or phrases spoken in the ICU along with what PICS is and what to expect with it. In several studies, an ICU diary was a way for patients (if able), family, nurses, physicians, and other care team members to record the daily progress of a patient through the ICU stay (Davidson & Harvey, 2016; Olsen et al., 2017; Parker et al., 2013). Because of this record of events, patients had the opportunity to debrief and understand things that took place if/when they were sedated. These diaries effectively and inexpensively promoted mental healing following an ICU stay. Their utilization in conjunction with other things such as photos and remembering/processing promoted better mental health outcomes in patients both in the short

and long terms (Davidson & Harvey, 2016; Olsen et al., 2017; Parker et al., 2013). For example, in one study, the group given ICU diaries showed a statistically significant decrease in anxiety and depression. There was also a lower incidence of post-traumatic stress disorder in patients who received diaries (Parker et al., 2013).

Strategies utilizing specialists.

Pharmacy. With the multitudes of medications patients in the ICU receive, it may benefit patients to have pharmacy involved to help prevent the development of PICS. Fernandes et al. (2019) found that pharmacists made recommendations regarding glycemic control, pain, sedation, delirium management, home medications, and facilitated smooth transitions of care from a medication perspective. Because of their knowledge base, pharmacy involvement may have prevented inappropriate medication administration. They also properly identified at risk patients through validated tools and managed them with protocols. Limiting the number of medications and their inappropriate use throughout all phases of care was a strength this discipline offered, which may have influenced patient outcomes (Fernandes et al., 2019).

Psychology and psychiatry. Several studies described potential benefits of involving psychologists and psychiatrists in the care of ICU patients (Merbitz et al., 2016; Peris et al., 2011). These specialists provided strategies such as relaxation training, imagery, distraction, and cognitive-behavioral strategies to manage symptoms of depression. They helped facilitate the course of weaning ventilators by teaching the patient techniques for tolerating the process. Families may have also benefited from psychologist involvement as the specialist guided the family in managing stress and emotions, connecting them with psych-facilitated multiple-family groups (Merbitz et al., 2016). Finally, these professionals better facilitated patient transition

from ICU to rehabilitation centers through emotional and behavioral responses to therapy (Dowdy et al., 2009; Merbitz et al., 2016).

Beyond this, specialists helped identity depression sub-type, which allowed for more effective and personalized treatment achieved through simple interventions such as environmental changes including flexible visiting hours, photos of life prior to critical illness, frequent contact with the patient, and allowing for change in staff if the relationship did not work. Other methods used included psychotherapeutic maneuvers such as allowing the patient to speak about feelings, questions, concerns surrounding relationships, and conversing about the meaning of losses which may have alleviated symptoms. Without treatment, depression may have influenced the stability of physiological symptoms and therefore, depression's morbidity and mortality required consideration (Goldman & Kimball, 1987).

In order to utilize appropriate and individualized interventions, a specialist must diagnose depression. Some of the studies supported this by recommending that future studies validate questionnaires and screening tools through clinicians as their assessments found a greater prevalence of depression (Davydow et al., 2008; Davydow et al., 2009). This would influence the accuracy of prevalence rates among ICU patients. Further research is also needed to identify risk factors for depression such as ICU factors, personality, psychological/psychiatric health history, and factors of the disease process (Davydow et al., 2008; Davydow et al., 2009).

Strategies to minimize distressing experiences. Anxiety and depression have been associated with frightening memories and/or experiences along with difficulty remembering factual things from the ICU stay (Myhren et al., 2010), which may be influenced by disease, medications, dreams, and even conversations had at the patient's bedside (Rattray et al., 2005). Many memories recalled by patients were sensed as delusional (Jones et al., 2003) and

distressing (Myhren et al., 2010). These memories and experiences seemed to determine mental health issues long after an ICU stay. Patients who felt like they lacked control and remembered experiencing moments of distress during the ICU stay strongly predicted symptoms of PTSD, anxiety, and depression at the one-year follow-up appointment (Myhren et al., 2010). The cumulative result of unsettling memories, a variety of experiences, and the inability to recall factual events predisposed these patients to emotional distress (Rattray et al., 2005).

The way to manage these issues was through minimizing distressing experiences in the ICU as much as possible (Myhren et al., 2010). A rehabilitation program during ICU recovery may have also served the patients. One study developed a six-week rehabilitation program to determine its influence over physical and psychological well-being during ICU recovery. The study took place in the United Kingdom with 102 patients who were mechanically ventilated for more than 48 hours. The program showed a decrease in the occurrence of depression in those who received the rehabilitation package (intervention group). Those who participated in the program showed depression rates were cut in half at the eight-week evaluation versus the control group (those who received routine follow-up) who were on medications were likely to remain depressed at that time. With the improvements seen in this study, further research of rehabilitation programs is desperately needed for this population (Jones et al., 2003). With the predisposition to emotional distress, further research surrounding diagnosis of anxiety and depression as it relates to ICU experiences is also needed (Rattray et al., 2005).

ICU clinics. Extending care beyond the walls of an ICU may also benefit patients during their recovery process. In one study, a hospital developed a post-ICU clinic, which was run by an interdisciplinary team (much like the medical ICU of that facility). This clinic was dedicated to continuing the specialized care that patients received within the ICU from a team who

understood the disease processes the patient experienced and how that extends into the physical, cognitive, and mental health areas. This hospital found that this model was beneficial for patients although there needs to be further research surrounding quantitative data such as hospital readmission rates, medication review and outcomes, long-term psychological ailments from critical illness, and factors influencing clinic attendance (Huggins et al., 2016).

In support of ICU clinics staffed by a team similar to that present in the ICU, Davidson, Harvey, Schuller, and Black (2013), found that many ICU survivors had questions and concerns about recovery for intensive care providers as many as three to six months after discharge. Developing more ICU clinics in the United States may offer a solution to the many needs of survivors after their discharge from the ICU. Because ICU clinics are commonplace in locations like Canada, the United Kingdom, other northern European countries, in addition to the one discussed by Huggins et al. (2016), there are many examples from which to model clinic development (Davidson et al. 2013; Davidson & Harvey, 2016).

Spiritual care. A final consideration for this population revolved around spiritual well-being and its part in mental health. One of the studies provided evidence that spiritual well-being influenced psychological distress like depression and anxiety (Bernard et al., 2017). It found a negative relationship between spiritual well-being and depression and anxiety along with a desire to hasten death. Meaning, where spiritual well-being increased, depression and anxiety decreased. In addition, the study identified a negative relationship between meaning in life and depression and anxiety. Increased meaning in life equated to decreased depression and anxiety. However, a similar relationship between meaning in life and the desire to hasten death was not discovered. These findings showed that spirituality may have protected against depression and anxiety. These mental health issues impacted quality of life and the effects of psychotherapy

(better if used early) and pharmacological interventions only extended so far. Considering spiritual care in tandem with other therapies and interventions better supported these patients (Bernard et al., 2017).

Strengths and Weaknesses of Most Salient Studies

The randomized control trial (RCT) by Jones et al. (2003) was, according to the Johns Hopkins Evidence Appraisal Tool (Dang & Dearholt, 2018), the highest level of evidence among the studies. This study had a sample size of 102 patients from three hospitals. The researcher, physician, and assessor were all blinded to the process and steps were taken to account for skewed results. Many of the screening tools utilized in this study were also reliable and valid for measuring psychological well-being. This produced accurate results that recommend further research. Limitations to this study consisted of a sample size smaller than required and potential cross-contamination through participants meeting each other during recruitment or follow-up, though efforts were taken to guard against this. Finally, baseline mental health data was obtained through recall, which could be skewed by recent experiences. In addition, patients may not have been honest about their history.

A quasi-experimental study performed by Peris et al. (2011) had a large sample of 209 patients (86 control, 123 intervention) from a 10 bed ICU over a four-year period (control for first two years and intervention for the last two years). In this study, the instruments that measured mental health and quality of life were valid and reliable, which determined that the intervention group experienced some benefits, though further research was needed to confirm findings. This study was rated as a level II quality B based on the Johns Hopkins Evidence Appraisal Tool (Dang & Dearholt, 2018). Though it appraised well, limitations for this study included narrowed statistics on depression and anxiety due to sample size along with variability

in sedation levels, which may have influenced results. In addition, potential for interviewer bias also existed due to awareness of change in standard of care though the interviewer lacked knowledge of the study. The study did not account for pre-existing depression and anxiety in patients or predictors of PTSD, which may have swayed results. Finally, not all patients participated in follow-up (though that number was similar in both groups) also influencing accuracy of outcomes.

Bernard et al. (2017) was a cross-sectional study of 206 participants who were 18 years of age or older with less than six months life expectancy. The tools utilized, which were previously validated, measured spiritual well-being, mental health issues, meaning in life, and desire to hasten death, and noted relationships between variables and recommended further research around these and other variables. The study was rated as a level III quality A according to the Johns Hopkins Evidence Appraisal Tool (Dang & Dearholt, 2018). Though the study was useful, it had limitations including the screening, which was not systematic. The participants only had a life expectancy of six months and more than half of the patients met inclusion criteria but were unable to participate due to frailty. Influencing factors such as self-esteem, optimism, and social or familial support were not considered, which may change the understanding of results. Finally, the tool used to measure quality of life was too narrow and the design of the study did not allow for in-depth study of relationships between the topics.

A qualitative study by Olsen, Nester, and Hansen (2017) rated level III quality A evidence according to the Johns Hopkins Evidence Appraisal Tool (Dang & Dearholt, 2018). This study was of 29 ICU patients from a 14-bed mixed ICU who were interviewed in a semi-structured fashion immediately after transferring from the ICU to the ward and then again three months post-hospital discharge. The interviews elicited strong testimonials from fresh

experiences that were honest and raw in their content. The results showed that family kept diaries were useful in debriefing, which mirrored results from similar studies (Davidson & Harvey, 2016; Parker et al., 2013). However, this study was limited to a single center. The data cannot be generalized because it only depicts the experiences of those interviewed. Variability in interviewers was also possible since there were three of them. Finally, the evaluation was too soon after experiences to assess the recovery.

Davidson, Harvey, Schuller, and Black performed a level V quality A, based on Johns Hopkins Evidence Appraisal Tool (Dang & Dearholt, 2018), literature review in 2013 that sampled 16 references. This review found evidence that supported the "ABCDEFGH bundle" may progress patients faster in the ICU and support them following their stay, which may decrease the long-term effects of the ICU stay. This bundle honored the guidelines specified by the Society of Critical Care Medicine. The review found results that were repeated over a few years in larger literature reviews (Davidson & Harvey, 2016; Hoffman & Guttendorf, 2015). The limitation of this study is that search terms and methodologies were not identified.

Conclusion

There are many new interventions being used in patient care that may improve patient outcomes within the ICU. The interventions are diverse and cover many aspects of a patient including spiritual needs, psychological care, implementation of a bundle of care measures, ICU diaries, adding a pharmacist to the care team, providing care after the ICU in ICU clinics, and managing the experiences when in the ICU. The strengths and weaknesses noted for the most salient studies were those of the most highly rated within the literature review. The challenge of this topic is the minimal experimental research available, which is the largest general limitation of the content reviewed. Much of the data is qualitative in nature alongside several literature

reviews. This area clearly desires more experimental research to assess the effectiveness of all the potentially beneficial interventions discussed in this chapter.

Table 1.1
Evidence Synthesis Matrix

<table>
<tr><td colspan="4">Source: Bernard, M., Strasser, F., Gamondi, C., Braunschweig, G., Forster, M., Kaspers-Elekes, K., Dipl-Pad, Veri, S. W., & Borasio, G. D., & the SMILE consortium team. (2017). Relationship between spirituality, meaning in life, psychological distress, wish for hastened death, and their influence on quality of life in palliative care patients. Journal of Pain and Symptom Management, 54(4), 514-522. Retrieved from https://doi.org/10.1016/j.jpainsymman.2017.07.019.</td></tr>
<tr><td>Purpose/Sample</td><td>Design (Method/Instruments)</td><td>Results</td><td>Strengths/Limitations</td></tr>
<tr><td>Purpose:
Determine how spirituality influences anxiety & depression. How spirituality influences quality of life. If these differences transcend diversity in geography and language.

Sample/Setting:
206 participants
>/= 18 yrs age, treated at by palliative care team, <6 months life expectancy

Johns Hopkins Evidence Appraisal

Level of Evidence:
Level III
Quality:
Quality A</td><td>Method:
Cross-sectional

Instruments:
Structured face-to-face interviews
SMILE (Schedule for Meaning in Life Evaluation)
FACIT-Sp (Functional Assessment of Chronic Illness Therapy-Spiritual well-being scale) questionnaire
IIR (Idler Index of Religiosity)
HADS (Hospital Anxiety and Depression scale)
Likert scale
SAHD (Schedule of Attitudes toward Hastened Death) questionnaire
SQOLS (Single-Item Quality of Life Scale)</td><td>Negative relationship between spiritual well-being and depression & anxiety.
Negative relationship between spiritual well-being and desire to hasten death.
Negative relationship between meaning in life and depression and anxiety but not with desire to hasten death.
Spirituality and depression predict quality of life in this population.
Conclusion:
Spirituality may offer protection against depression and anxiety.
Depression is a big influencing factor over quality of life. Rx and psychotherapy have limited effect.
Psychotherapy is better if used early.</td><td>Strengths:
Large sample size.
Measurement tools validated through previous studies.

Limitations:
Screening not systematic.
All participants only had six months to live.
More than half the patients met the criteria but could not participate due to frailty.
Did not consider self-esteem, optimism, social, or familial support.
Tool to measure quality of life too narrow.
Study design did not allow for in-depth study of relationships between topics.</td></tr>
<tr><td colspan="4">Author Recommendations: Further study on topic while considering other aspects that influence research areas such as self-esteem, optimism, social support, familial support.</td></tr>
<tr><td colspan="4">Implications: Spiritual well-being can greatly influence psychological distress like depression and anxiety. Depression can significantly impact quality of life. Consider spiritual care in conjunction with other therapies to care for these patients.</td></tr>
</table>

Source: Davidson, J. E., & Harvey, M. A. (2016). Patient and family post-intensive care syndrome. *AACN Advanced Critical Care, 27*(2), 184-186. http://dx.doi.org/10.4037/aacnacc2016132.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: Introduce and define PICS (post-intensive care syndrome) and PICS-F (post-intensive care syndrome family). **Sample/Setting:** 26 references **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level V **Quality:** Quality B	**Methods:** Literature review **Instruments:** No search terms identified; no search methods noted. Sources appear to be a mix of journals and organizational websites (such as Society of Critical Care Medicine).	-ABCEDFGH bundle minimizes PICS through managing immobility, delirium, sedation, and length of mechanical ventilation. -ICU diaries used in other countries show effectiveness. -Post-ICU clinics may help the recovery process. -Peer-to-peer support programs may also improve outcomes of survivors. **Conclusion:** -More need to know about PICS and implement interventions to improve outcomes. A few methods are mentioned here.	**Strengths:** -Mentions a variety of methods to improve PICS. Though new, there is potential in them. -Interventions are in line with organizational guidelines. -Interventions are supported by evidence in other countries. **Limitations:** -Evidence is young and needs further investigation. -No information on search terms/methodologies.

Author Recommendations: Now is the time to implement these strategies to improve patient outcomes. Even though the evidence is young and needs further studying, there is promise as seen in current literature.

Implications: The "ABCDEFGH" bundle, ICU diaries, post-ICU clinics, and peer-to-peer support groups have promising influence on patient outcomes.

Source: Davidson, J. E., Harvey, M. A., Schuller, J., & Black, G. (2013). Post-intensive care syndrome: What it is and how to prevent it. *American Nurse Today, 8*(5), 32-37. Retrieved from https://web-a-ebscohost-com.ezproxy.bethel.edu/ehost/pdfviewer/pdfviewer?vid=6&sid=5e2f2a29-55f6-4037-bf21-1f6875e11eb4%40sdc-v-sessmgr06.			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: Introduce PICS (post-intensive care syndrome) and prevention strategies. **Sample/Setting:** 16 references **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level V **Quality:** Quality A	**Methods:** Literature review **Instruments:** No search terms identified; no search methods noted. Sources appear to be journals.	"ABCDEFGH" stands for airway management, spontaneous breathing trials, coordination of care, delirium assessment and prevention, early mobility, follow-up, functional reconciliation, family, good hand-off communication, and hand the patient/family written information. **Conclusion:** This bundle may help patients progress faster in the ICU and support them following the ICU stay. Utilizing the bundle is one way to mitigate PICS.	**Strengths:** -Bundle addresses sedation levels, which is associated with delirium and cognitive/mental health issues later. -Delirium is assessed and mobility is utilized to manage it. -Holisitc care through coordinating transition periods from ICU to other units and then home. Also includes family in the care. -Bundle honors guidelines specified by the Society of Critical Care Medicine. **Limitations:** -No information on search terms/methodologies.
Author Recommendations: Consider follow-up phone calls, creating post-ICU clinics, and implement ICU diaries. Devoting time to managing PICS will improve long-term outcomes.			
Implications: Implementing the ABCDEFGH bundle keeps the issue of PICS at the forefront of critical care. Using this bundle with each patient every time has the potential to progress patients sooner and decrease the long-term effects of the ICU. Doing this requires participation from many disciplines.			

Source: Davydow, D. S., Desai, S. V., Needham, D. M., & Bienvenu, O. J. (2008). Psychiatric morbidity in survivors of the acute respiratory distress syndrome: A systematic review. *Psychosomatic Medicine, 70,* 512-519. Retrieved from https://journals.lww.com/psychosomaticmedicine/Abstract/2008/05000/Psychiatric_Morbidity_in_Survivors_of_the_Acute.19.aspx.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To review the prevalence of mental health syndromes in acute lung injury (ALI)/acute respiratory distress syndrome (ARDS) survivors. **Sample/Setting:** 10 articles: six retrospective cohort, two prospective cohort, two cross-sectional **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level III **Quality:** Quality A	**Method:** Systematic Review – utilized a variety of databases and key terms but articles were English and adult populations. **Instruments:** -Some used questionnaires, some in person interviews, one telephone interview. -Two studies had diagnostic interviews completed by a psychiatrist.	**Results:** -Clinically significant symptoms of depression ranged from 7-43% (median 28%). -Clinically significant PTSD (post-traumatic stress disorder) symptoms ranged from 21-35% (median 28%). -Anxiety 23-48% (median 24%). **Conclusion:** -Median prevalence of psychiatric syndromes was >20%. -Length of sedation, mechanical ventilation, and stay may be risk factors for post-ICU psychiatric syndromes. -These syndromes are seen with lower quality of life.	**Strengths:** -Wide database search -Variety of key terms -Patient sample >250 -Some studies conducted by psychiatrist **Limitations:** -Most studies rely on questionnaires to assess psychiatric symptoms, which are screening in nature, not diagnostic. -Not all questionnaires are validated for this population. Some may lack specificity. -Some results may be understated due to screening tools used. -Unsure if results mirror ALI/ARDS patients or ICU patients. -Confidence in results due to unassessed risk factors should be controlled. -Eligible studies may have been filtered out.

Author Recommendations: Use of clinicians would be beneficial in future studies to validate questionnaires, hold diagnostic interviews, and obtain accurate prevalence rates. Further research to determine risk factors for psychopathology including ICU factors, personality, psychological history, and disease process factors.

Implications: This population has high prevalence of and clinically significant psychiatric symptoms related to depression, anxiety, and PTSD. Length of stay, sedation, and mechanical ventilation may influence these symptoms. More research is needed to determine cause of these symptoms.

Source: Davydow, D. S., Gifford, J. M., Desai, S. V., Bienvenu, O. J., & Needham, D. M. (2009). Depression in general intensive care unit survivors: A systematic review. *Intensive Care Medicine, 35*(5), 769-809. Retrieved from https://link.springer.com/article/10.1007/s00134-009-1396-5.			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To determine prevalence of depression, risk factors for developing symptoms, and relationship between those symptoms and quality of life. **Sample/Setting:** 14 articles: eight prospective cohorts, one retrospective cohort, three cross-sectional, one case study. **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level III **Quality:** Quality A	**Method:** Systematic review **Instruments:** -Several studies performed in person assessments. -Two mailed out questionnaires. -Two did a combination of telephone and in person assessments. -One used clinician diagnosis; the rest used questionnaires (Hospital Anxiety and Depression Scale or HADS; Center for Epidemiologic Studies Depression Scale or CES-D).	**Results:** -Median point prevalence of clinically significant symptoms of depression by questionnaire was 28%. -Median point prevalence of symptoms of depression of clinician diagnosis was 33% at two months (similar to acute lung injury or ALI/acute respiratory distress syndrome or ARDS population). -Some studies saw a significant decrease in scores over time. **Conclusion:** -Early post-ICU depression symptoms were related to greater risk of later symptoms of depression. -Sex, age, severity of illness at admission were not risk factors. -Length of sedation and stay were not associated with symptoms in this review.	**Strengths:** -Variety of sources (including locations, several countries). -Clinician assessment and diagnosis in one study. -Use of validated measuring tool. **Limitations:** -Percentages of prevalence may be underrepresented due to exclusion criteria of studies. -Selection bias due to participant qualification. -Strong use of questionnaires (only CES-D scale validated).
Author Recommendations: Future studies should utilize clinicians to diagnose, determine prevalence, and validate screening tools. More research should be performed to assess risk factors including psychiatric health pre-ICU, personality, and ICU factors.			
Implications: Clinician assessment finds greater prevalence of depression. Time may allow symptoms to diminish. Factors found associated with symptoms of depression in some studies were not found in this one. Further research is needed.			

Source: Dowdy, D. W., Bienvenu, J., Dinglas, V. D., Mendez-Tellez, P. A., Sevransky, J., Shanholtz, C., & Needham, D. M. (2009). Are intensive care factors associated with depressive symptoms six months after acute lung injury? *Critical Care Medicine, 37*(5), 1702-1707. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2769249/.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To determine how ICU factors influence symptoms of depression after ICU exposure. **Sample/Setting:** -13 ICUs in four hospitals -160 patients **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level III **Quality:** Quality B	**Method:** Prospective cohort **Instrument:** -Symptoms of depression measured using the depression scale subset of the Hospital Anxiety and Depression Scale (HADS) -Primary analysis used score of >/= 11; in secondary analysis the binary measure was >/= 8.	**Results:** -Using a cut-off score of eight, found 26% prevalence for depression. Using a cut-off of 11, prevalence came down to 11%. -Surgical ICU, high benzodiazepine dosing, and max organ dysfunction score of >10 were significantly associated with greater symptoms of depression. **Conclusion:** -Type of ICU, max organ dysfunction score, and greater benzo dose associated with greater symptoms of depression. -26% had a positive screening at six months, which is far higher than the average adult population percentage. -Some had a positive screen at six months but not at three months. Recovery process may influence the development of symptoms of depression.	**Strengths:** -Inclusion/exclusion criteria for participants. -Confidence interval of findings always 95%. -Largest study of mental health related to acute lung injury to date. -HADS is a validated measuring tool. **Limitations:** -Positive screen is not a diagnosis. -Instrument does not account for physical symptoms and could therefore filter out patients who do have symptoms. -Psychiatric history of participants is unknown. -Did not consider other psychiatric disturbances like PTSD (post-traumatic stress disorder).

Author Recommendations: Further research should focus on ICU factors along with history of psychopathology and circumstances after discharge that may affect mental health during recovery, which would help determine the process of developing these challenges.

Implications: Symptoms of depression occur often in this population and are influenced by ICU stay and associated factors.

Source: Fernandes, A., Schmitt Jaeger, M., & Chudow, M. (2019). Post-intensive care syndrome: A review of preventive strategies and follow-up care. *American Journal of Health-System Pharmacy, 76*(2), 119-122. http://dx.doi.org.ezproxy.bethel.edu/10.1093/ajhp/zxy009.			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: Review pharmacy related prevention strategies for PICS (Post-Intensive Care Syndrome). **Sample/Setting:** 32 references **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level V **Quality:** Quality B	**Method:** Literature review **Instruments:** No search terms identified; no search methods noted. Sources appear to be journals.	Opportunities for improved management in medications, glycemic control, pain, sedation, delirium, medications on admission and during transitions of care, PICS clinics, and education about PICS. **Conclusion:** Pharmacy involvement may prove useful throughout the management of PICS.	**Strengths:** -Pharmacy offers a unique perspective on care management. -Experts in medications and which may be most appropriate at certain intervals. -Recognizes multifaceted issues surrounding PICS. **Limitations:** -No information on search terms/methodologies. -Some sources are older than ten years.
Author Recommendations: Better medication management throughout hospital stay and transitions of care to limit the use of inappropriate medication administration. Proper identification of at risk patients through validated tools and managing them with protocols could also limit risk.			
Implications: Extending the interdisciplinary team to include pharmacy may offer opportunities to adjust medications to meet the patients need and limit the development of PICS. Pharmacy involvement in the patient's care throughout the course of hospitalization and during follow-up may add protective layer to the patient by decreasing the number of and inappropriate medications.			

Source: Goldman, L. S., & Kimball, C. P. (1987). Depression in intensive care units. *International Journal of Psychiatry in Medicine, 17*(3), 201-212. https://doi.org/10.2190/YAYV-U8XA-YEF2-8FM6.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To discuss depression diagnosis, differential diagnosis, and management of depression in ICUs. **Sample/Setting:** 38 references **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level V **Quality:** Quality A	**Method:** Literature review **Instruments:** No search terms identified, no search methods noted. Sources appear to be a combination of journals and books.	**Results:** N/A **Conclusion:** -Adjustment disorders (similar to grief reaction) can be managed well with psychotherapeutic maneuvers (express feelings, concerns about relationships, questions, explore and discuss losses and their meanings). -Keep in mind urgency of treatment and if treating depression may help stabilize physiologic symptoms. -Allow flexibility for visiting hours, use photos of life before this, keep in frequent contact with patient, allow for change in staff if relationship isn't working (may be quite beneficial with regression or cognitively impaired patients). -Schedule reinforcers, systematic desensitization, relaxation techniques for behavioral issues.	**Strengths:** -Timeless interventions are offered. -Easy to integrate into practice. -Identifies which interventions work best for each diagnosis. **Limitations:** -Older study -Not all information is still relevant (recommendations on benzodiazepines). -Does not review findings of experimental research. -Did not identify search terms or methodologies.

Author Recommendations: Identification of depression is important to treatment. Knowing sub-type will make choosing interventions easier and be more direct in treatment. Consider morbidity and mortality if leaving depression untreated.

Implications: Being aware of the sub-type of depression may allow treatment to be more effective and personalized to the patient. Simple interventions that influence the environment or allow a patient to speak about his/her feelings may offer therapeutic effect and alleviate symptoms. Depression may need to be addressed more urgently than other physiological concerns.

<table>
<tr><td colspan="4">Source: Hoffman, L. A., & Guttendorf, J. (2015). Post-intensive care syndrome: Risk factors and prevention strategies. Critical Care Alert, 22(12), 1-5. Retrieved from http://web.b.ebscohost.com.ezproxy.bethel.edu/ehost/pdfviewer/pdfviewervid=4&sid=00ebc4b5-3455-4ce3-adf8-49af525fb5ef%40sessionmgr4010.</td></tr>
<tr><td>Purpose/Sample</td><td>Design (Method/Instruments)</td><td>Results</td><td>Strengths/Limitations</td></tr>
<tr><td>Purpose: Identify risk factors and prevention strategies for PICS (post-intensive care syndrome).

Sample/Setting:
19 references

Johns Hopkins Evidence Appraisal

Level of Evidence:
Level V
Quality:
Quality A</td><td>Methods:
Literature review

Instruments: No search terms identified; no search methods noted. Sources appear to be journals.</td><td>-Pre-existing frailty was associated with longer ICU stays, greater mortality 12 months after admission, new functional dependence, and poorer quality of life.
-Prevention: ABCDE bundle (awakening, breathing, coordination with daily sedation interruption and ventilator weaning, delirium monitoring and management, early ambulation), ICU diaries, support groups, team building (involvement of nursing and families in rounds), awareness of PICS.
Conclusion:
Screening prior to ICU discharge and implementing these prevention strategies may allow for better management of symptoms and improve outcomes.</td><td>Strengths:
-Identifies multi-faceted strategies to improve outcomes.
-Holistic approach (caring for physical, mental, and emotional health) in strategies.
-Recognizes gaps in current research and makes recommendations for the future.
-Sources within last 5 years.

Limitations:
-No information on search terms/methodologies.</td></tr>
<tr><td colspan="4">Author Recommendations: Further studies on early mobilization and delirium prevention interventions, implementation of lighter sedation and earlier spontaneous breathing trials/extubation. Should study influences of purposeful physical recovery methods (such as physical/occupational therapies). Implement a multi-disciplinary rounds model to improve team building.</td></tr>
<tr><td colspan="4">Implications: These strategies may influence patient outcomes in the short and long term. Though more research is needed, improvements have been seen with these interventions.</td></tr>
</table>

Source: Huggins, E. L., Bloom, S. L., Stollings, J. L., Camp, M., Sevin, C. M., & Jackson, J. C. (2016). A clinic model: Post-intensive care syndrome and post-intensive care syndrome-family. *Advanced Critical Care, 27*(2), 204-211. Retrieved from https://web-a-ebscohost-com.ezproxy.bethel.edu/ehost/pdfviewer/pdfviewer?vid=3&sid=5e2f2a29-55f6-4037-bf21-1f6875e11eb4%40sdc-v-sessmgr06.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: How to take steps to implement and study the value of post-ICU clinics. **Sample/Setting:** Vanderbilt's ICU Recovery Center **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level V **Quality:** Quality B	**Method:** Quality improvement **Instrument:** Implemented a model for a post-ICU clinic.	-Multidisciplinary clinic team (modeled like that of the medical ICU team). -Referrals made by any care team member. -Screen for inclusion & exclusion criteria. -Dedicated appointment scheduler. -Initial visit: spirometry testing, six-minute walk test (if able), complete history & physical exam, cognitive screening and evaluation for impairment, PTSD, anxiety, & depression, and review of smoking status. **Conclusion:** Patients benefit from receiving care from ICU providers outside the ICU. This model is one way to do that.	**Strengths:** -Recognize need for further research on how to model these clinics and to determine their effectiveness. -Recognize that each clinic may need to look different. -May need to involve more providers. -State obstacles to implementing a clinic. **Limitations:** -Only anecdotal information. Unable to share quantitative data at this time. Recently received approval to begin the process of quantitative research.

Author Recommendations: Further research is needed especially in determining quantitative data surrounding this clinic. Hospital readmission rates, medication review and outcomes, long-term psychological ailments from critical illness, and factors influencing clinic attendance should be studied.

Implications: This model may work in other settings. It should be considered and studied.

Source: Jones, C., Skirrow, P., Griffiths, R. D., Humphris, G. H., Ingleby, S., Eddleston, J., Waldmann, C., & Gager, M. (2003). Rehabilitation after critical illness: A randomized, controlled trial. *Critical Care Medicine, 31*(10), 2456-2461. Retrieved from https://journals.lww.com/ccmjournal/Abstract/2003/10000/Rehabilitation_after_critical_illness__A.6.aspx.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To determine if a six-week rehab program can improve physical and psychological well-being during ICU recovery. **Sample/Setting:** -Three hospitals in the UK. Vented patients in the ICU >48 hours. -126 patients recruited, 102 completed study. **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level I **Quality:** Quality B	**Method:** Randomized controlled trial **Instrument:** -ICU patients vented for >48 hours. Could not have burn injury, challenges with physical or verbal communication, neurosurgery, history of psychotic illness, or terminal in prognosis. -Spielberger's State-Trait Anxiety Inventory -Norbeck Social Support Questionnaire -Hopsital Anxiety and Depression Scale (HADS) -Impact of Events Scale (IES) for PTSD (post-traumatic stress disorder) symptoms. -ICU Memory Tool for memory. -Short-Form Health Survey for physical function. -Blinded researcher used for follow-up. -Blinded physician and assessor for follow-up.	-Intervention patients: better physical function scores, lower incidence of depression (though not statistically significant until antidepressant treatment accounted for), no difference in social support, less PTSD symptoms. -Delusional memories influenced anxiety and PTSD symptom scores. **Conclusion:** -Rehab package and interventions may be useful to improve patients' recovery. -Delusional memories of ICU experiences due to withdrawal from benzodiazepines or opioids may influence mental health during recovery. -Depression reduced by half with the package at 8 weeks while control group on medications were likely to remain depressed at that time.	**Strengths:** -Blinded researcher, physician, and assessor. -Step(s) taken to account for skewed results. -Types of assessment tools. -Exclusion/inclusion criteria. **Limitations:** -Baseline mental health data determined by recall which could be skewed by recent experiences. Patients may not have been honest about history. -Potential cross-contamination through participants meeting each other either at recruitment or in follow-up, although every effort was made to avoid this. -Sample size smaller than required.

Author Recommendations: Greater screening to assess for delusional memories may be needed for a rehab program such as this. Those experiencing distress from memories may need further treatment/support. Further research on rehab process is desperately needed for this population.

Implications: Rehab program helped decrease the occurrence of depression in the intervention group during the recovery period. Delusional memories have the ability to greatly influence symptoms of PTSD and anxiety after ICU admission.

<table>
<tr><td colspan="4">Source: Merbitz, N. H., Westie, K., Dammeyer, J. A., Butt, L., & Schneider, J. (2016). After critical care: Challenges in the transition to inpatient rehabilitation. Rehabilitation Psychology, 61(2), 186-200. http://dx.doi.org/10.1037/rep0000072.</td></tr>
<tr><td>Purpose/Sample</td><td>Design (Method/Instruments)</td><td>Results</td><td>Strengths/Limitations</td></tr>
<tr><td>Purpose: To discuss a holistic perspective on challenges patients face when transitioning out of ICU to inpatient rehab facilities. Offer ways in which input from psychology may ease the transition and improve patient outcomes.
Sample/Setting:
145 references: 11 books, 134 articles

Johns Hopkins Evidence Appraisal

Level of Evidence:
Level V
Quality:
Quality B</td><td>Methods:
Clinical review

Instruments:
Keywords: post-intensive care syndrome, rehabilitation psychology, role identities, fundamental attribution error.
Search engines: not stated</td><td>Results: N/A
Conclusion:
-Early and frequent involvement of psychology can help transition to an inpatient rehab facility through influencing emotional and behavioral responses to therapy.
-Psychology can provide strategies such as relaxation training, imagery, distraction, and cognitive-behavioral strategies; can also help treat anxiety with vent weaning and teach techniques to tolerate the process.
-Psychology can help guide family to manage stress/emotions well through connecting them with psych-facilitated multiple-family group.</td><td>Strengths:
-Broad list of resources.
-Thorough analysis of psychological, emotional, and physical needs of patients.
-Identified easy to integrate ideas for management of needs.

Limitations:
-Did not identify levels or strength of studies utilized.
-Did not discuss search methodologies outside of key words.
-No indication of generalizability of findings though appears to be broad.</td></tr>
<tr><td colspan="4">Author Recommendations: The authors did not mention any recommendations of further research.</td></tr>
<tr><td colspan="4">Implications: Include psychology early in the transition period to promote patient outcomes. They offer strategies, techniques, and treatments that can be beneficial to both patients and families. Psychology can also educate staff on how to approach patient from a holistic perspective instead of mislabeling a behavior as the patient’s “normal.”</td></tr>
</table>

Source: Myhren, H., Ekeberg, Ø., Tøien, K., Karlsson, S., & Stokland, O. (2010). Posttraumatic stress, anxiety, and depression symptoms in patients during the first year post intensive care unit discharge. *Critical Care, 14*(14), 1-10. https://doi.org/10.1186/cc8870.			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To determine influencing factors in development of psychological distress symptoms at one-year post ICU discharge. **Sample/Setting:** 194 patients in 11 bed general ICU, six bed medical ICU, and three bed coronary unit **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level III **Quality:** Quality B	**Method:** Nonexperimental study **Instruments:** -ICU memory tool involving Likert scale. -Life Orientation Test to measure pessimism vs optimism. -Impact Event Scale to measure PTSD (post-traumatic stress disorder). -Hospital Anxiety and Depression scale. -Patients measured at 4-6 weeks after discharge and again at 3 and 12 months.	-Scores not significantly different between men and women. -No significant differences between medical, surgical, and trauma patients at 12-month mark. -16% showed delay of onset in symptoms at 1 year. -Patients lost to follow-up had higher anxiety scores at baseline but not depression. **Conclusion:** -1 in 4 patients experience PTSD at 1 year. -Pessimism is a predictor for PTSD, anxiety, and depression. -Some survivors develop clinically significant PTSD during the 1-year period.	**Strengths:** -Frequently used scales to assess psychological distress. -Validity and reliability of tests seems to be strong. -A variety of physiological issues were included in the study. -Fair sample size. **Limitations:** -Selection bias—lack of participation or loss of contact in follow-ups. -Concern for outside influence on responses with mailed questionnaires. -Self-report concern overestimation of level of distress. -Psychological health history unknown. -Some patients transferred out to other facilities making it difficult to monitor medications, sedation, and delirium during stay.
Author Recommendations: Patients who felt like they lacked control and remembered experiencing moments of distress during their ICU stay strongly predicted symptoms of PTSD, anxiety, and depression at one-year follow-up. Minimizing these experiences for patients is key to improving long-term outcomes.			
Implications: One in four patients may need treatment for PTSD during the year following discharge. Reason for admission did not influence scores on psychological symptom assessments. An attitude of pessimism predicts symptoms of psychological distress in patients. A delayed onset of symptoms can occur; providers should be mindful of this.			

Source: Olsen, K. D., Nester, M., & Hansen, B. S. (2017). Evaluating the past to improve the future – A qualitative study of ICU patients' experiences. *Intensive and Critical Care Nursing, 43,* 61-67. http://dx.doi.org.ezproxy.bethel.edu/10.1016/j.iccn.2017.06.008.			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: Investigate ICU stay and recovery period experiences. Usefulness of pamphlet. **Sample/Setting:** 29 ICU patients 14-bed mixed ICU **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level III **Quality:** Quality A	**Method:** Qualitative study **Instrument:** Semi-structured interviews with 3 open-ended questions (first interview post-discharge, on the ward; second 3 months post hospital discharge).	Themes: an unreal, strange journey and normalizing the abnormal. Sub-themes: floating between facts & delusions (nightmares & hallucinations), to understand & be understood (eye contact, language barriers, lip reading, continuity, sleep), valuing family (present, source of info, someone to process with), doing it my way (diaries, photos for remembering/processing), back to the future (forgetting the ICU, surviving). Pamphlet: feelings, symptoms not unique; knew what to expect; depicted feelings well. **Conclusion:** Results mirrored those found in other studies. Needs unique to each patient. Need continuity with competent nurses. Diaries/photos/pamphlet help coping. Family involvement is crucial.	**Strengths:** Strong testimonials from fresh experiences. Honest, raw responses from participants. **Limitations:** One center study. Unable to generalize data, only depicted experiences of interviewed patients. Three interviewers, styles may differ. Evaluation too soon after experience to assess recovery.
Author Recommendations: Family kept diary may provide improved debriefing than professionally kept diaries. Little research done on it though. Pamphlet dispersal difficult but if done well can provide strong support during rehab.			
Implications: Pamphlets may help in rehab process. Diaries and photos can help patients debrief. Not enough support after hospital discharge. Sharing pamphlet with primary provider may help them provide more personalized care to this population.			

<table>
<tr><td colspan="4">Source: Parker, A., Sricharoenchai, T., & Needham, D. M. (2013). Early rehabilitation in the intensive care unit: Preventing physical and mental health impairments. Current Physical Medicine Rehabilitation Reports, 1(4), 307-314. https://doi.org/10.1007/s40141-013-0027-9.</td></tr>
<tr><td>Purpose/Sample</td><td>Design (Method/Instruments)</td><td>Results</td><td>Strengths/Limitations</td></tr>
<tr><td>Purpose: To evaluate new research regarding early rehabilitation programs and their effects on physical and mental health impairments.

Sample/Setting:
59 references (all articles)

Johns Hopkins Evidence Appraisal

Level of Evidence:
Level V
Quality:
Quality A</td><td>Methods:
Literature review

Instruments:
Keywords: critical illness, rehabilitation, physical therapy modalities, mental health, muscle weakness, post-intensive care syndrome, mobility, ICU diary, post-traumatic stress disorder, anxiety, depression
Search engines: not stated, although 54 articles had a PubMed number (remaining 5 had no retrieval links.</td><td>-PTSD (post-traumatic stress syndrome) incidence lower in patients who received a diary when assessed.
-Statistically significant decrease in anxiety and depression in group given ICU diaries.
-Psychologist involvement in patient care showed a significant decrease in PTSD symptoms.
Anxiety and depression symptoms also diminished though not statistically significant.
-Telephone-based coping skills intervention may decrease these symptoms.
Conclusion:
-Early rehab may improve physical and mental health functioning.
-ICU diaries, psychology involvement, outpatient coping skills program may be beneficial.</td><td>Strengths:
-Most studies included were experimental (several randomized control trials).
-Similar findings among several sources.
-48 of 59 articles were in last five years.
-Thorough analysis of findings.
-Identified interventions that have been researched as safe and easy to implement.

Limitations:
-Did not identify level or quality of evidence found.
-Did not discuss search methodologies outside of key terms.</td></tr>
<tr><td colspan="4">Author Recommendations: Research is lacking in the mental health aspects of surviving the ICU. More research is needed regarding the outpatient telephone-based coping skills intervention to identify how well this progresses recovery.</td></tr>
<tr><td colspan="4">Implications: ICU diaries are effective and inexpensive ways to promote mental health healing in patients following an ICU stay. Psychologist involvement has been shown to significantly decrease PTSD symptoms and a decrease in anxiety and depression was trended though not significant. Opportunity for further improvement in symptoms may lie with outpatient programs post-discharge though more research is needed.</td></tr>
</table>

Source: Peris, A., Bonizzoli, M., Iozzelli, D., Migliaccio, M. L., Zagli, G., Bacchereti, A., Debolini, M., Vannini, E., Solaro, M., Balzi, I., Bendoni, E., Bacchi, I., Giovannini, V., & Belloni, L. (2011). Early intra-intensive care unit psychological intervention promotes recovery from post traumatic stress disorders, anxiety and depression symptoms in critically ill patients. *Critical Care, 15*(41), 1-8. https://doi.org/10.1186/cc10003.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To determine if psychological intervention could decrease occurrence of anxiety, depression, and PTSD (post-traumatic stress disorder) symptoms in trauma patients. **Sample/Setting:** -209 patients (86 control, 123 intervention) -10 bed ICU from 2005-2009 (control population until 2007, intervention population until 2009). **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level II **Quality:** Quality B	**Method:** Quasi-experimental **Instruments:** -Impact of Event Scale-revised for PTSD -Hospital Anxiety and Depression Scale for anxiety and depression -EQ5D for quality of life (rates mobility, self-care, usual activities, pain/discomfort and anxiety/depression). -Interventions from psychologist: education, counseling, stress management, psychological support, coping strategies, cognitive and emotional restructuring, promote family-centered decision-making.	**Results:** -Diagnosis of anxiety and depression decreased but not statistically significant. -Decrease in PTSD diagnosis was statistically significant. -Quality of life was significantly higher in the intervention group. -Control group patients almost 4x more likely to need medication to manage mental health issues post-ICU. **Conclusion:** -Psychological interventions may be helpful to patients in the ICU. -Needs further research.	**Strengths:** -Good sample size over long period of time. -Strong inclusion and exclusion criteria. -Intervention well defined. -Patients followed on wards after ICU stay. **Limitations:** -Statistics regarding anxiety/depression may be limited by sample size. -Sedation variability may have influenced results. -Patients who did not participate in follow-up (though similar number in both groups). -Potential interviewer bias due to awareness of change in standard of care though unaware of study. -Pre-existing depression and anxiety in patients. -Did not take into account predictors of PTSD.

Author Recommendations: Psychologist intervention does not have adverse effects due to involvement and thus should be considered for treatment. Further research is needed to verify findings.

Implications: Involving psychologists in the treatment team has the potential to help patients manage psychological issues that accompany critical illness. Though further research is needed to confirm this, their involvement does not have any negative effects on patients.

Source: Rattray, J. E., Johnston, M., & Wildsmith, J. A. W. (2005). Predictors of emotional outcomes of intensive care. *Anaesthesia, 60,* 1085-1092. https://doi.org/10.1111/j.1365-2044.2005.04336.x.			
Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: To assess emotional outcomes following discharge from ICU (up to one year) including anxiety, depression, and PTSD (post-traumatic stress disorder). **Sample/Setting:** 80 patients from general ICU in one facility who spent >24 hours in the ICU (gathered over 16-month period). **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level III **Quality:** Quality B	**Method:** Mixed methods **Instruments:** -Intensive Care Experience Questionnaire (ICEQ) to assess subjective experiences. -Three structured interviews (at discharge, six months after, and 12 months after). -Hospital Anxiety and Depression Score (HADS) for depression and anxiety -Impact of Events Scale to assess PTSD.	**Results:** -Anxiety and depression decreased from discharge to six months. -PTSD scores did not change over time. -45% displayed symptoms of depression at 1 year. -Increasing age showed reduction in emotional strain in all areas but depression. **Conclusion:** -Difficult to isolate findings to ICU stay or if related to other factors. -Female and younger patients experienced higher anxiety. -Inability to remember factual events *may* put greater risk for anxiety and depression. -Frightening memories/experiences were seen with greater anxiety. -Without factual memories, patients are predisposed to emotional distress.	**Strengths:** -Reliability of ICEQ checked with Cronbach's α. -Findings mirrored those of other studies. -Used scales that have been used heavily in other studies. **Limitations:** -Experienced some attrition (started with 109 patients, 89 interviewed at 6 months, 80 at 12 months). -Potential for selection bias as younger patients did not participate. -Eligible participants unable to participate due to mortality or issues with consent. -Lack premorbid data. -Sample size indicates challenges faced with studying this population.
Author Recommendations: This study focused on perceptions of experiences which can be influenced by several things such as disease, medications, dreams, and conversations had at the patient's bedside. The tools used were screening in nature and could not diagnose participants. Replication of study is needed however, with diagnostic measures.			
Implications: Patients continue to face emotional challenges after discharge from the ICU. These findings should be used to determine interventions to implement that may improve patient symptoms.			

Source: Wang, S., Lasiter, S., Zarzaur, B., Campbell, T., Boustani, M., & Khan, B. (2017). Critical care recovery center: Can a geriatric model of care guide recovery for ICU survivors? *Best Practices In Mental Health, 13*(2), 50-60. Retrieved from https://web-a-ebscohost-com.ezproxy.bethel.edu/ehost/detail/detail?vid=0&sid=771877da-875e-42fb-945a-d724d8116740%40sessionmgr4006&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#AN=2017-45092-006&db=psyh.

Purpose/Sample	**Design (Method/Instruments)**	**Results**	**Strengths/Limitations**
Purpose: Develop a care center for ICU patients with cognitive and functioning impairments modeled after geriatric care methods. **Sample/Setting:** 51 participants, simultaneously participating in PMD trial. Excluded those with schizophrenia and bipolar disorder. **Johns Hopkins Evidence Appraisal** **Level of Evidence:** Level III **Quality:** Quality B	**Method:** Nonexperimental study **Instrument:** Questionnaires to assess cognitive & physical functioning prior to ICU admission (IQCODE, Kratz Index for ADL, Lawton IADL). On admission clinicians assessed with APACHE II to assess mortality, CAM-ICU for delirium, Anticholinergic Burden Score for medications, CERAD for Alzheimer's and University Token Test, GDS for depression, and MMSE for psychological battery. Neuropsychologist diagnosed patients based on findings from various assessments using the Peterson criteria.	Delirium affected cognitive and psychiatric symptoms: 88.2% had cognitive impairment, >50% experienced significant depression. Primary delirium was hypoactive followed by mixed. Exposed to psychotropic drugs with major impacts (potentially artificially elevated due to PMD trial). **Conclusion:** Able to model a care center after the needs of patients experiencing cognitive and functioning impairments and provide well-rounded care from an interdisciplinary approach.	**Strengths:** Face-to-face interviews Heavy use of screenings and questionnaires to obtain baseline. Neuropsychologist diagnosing. **Limitations:** Selection: all had delirium, which likely explains the presence of cognitive issues & depression. Participant: those with normal functioning, or severely impaired, may not have returned for follow-up.

Author Recommendations:
Further research on other mental health challenges faced with PICS such as anxiety and PTSD. Identification of PICS-F symptoms too.

Implications:
Current reports of mental health symptoms are self-reported through checklists and questionnaires. In depth interviews are the gold standard for diagnosis and could be more effective in managing patients coming from the ICU.

Chapter 4: Discussion, Implications, and Conclusion

This literature review aimed to answer two fundamental questions surrounding depression in adult intensive care unit (ICU) patients. What strategies are used for adult ICU patients to mitigate or manage symptoms of depression? Of them, which are most effective at improving patient outcomes in this area? In chapter three, the first question was answered. Many strategies were identified within that chapter and included strategies for utilizing specialists, strategies within the ICU, strategies for minimizing distressing experiences, ICU clinics, and spiritual care. Here in chapter four, the focus will be the effectiveness of these strategies and how that was determined. The literature included both subjective and objective measures of effectiveness on patient outcomes. The strategies were then analyzed through the lens of the Theory of Unpleasant Symptoms (TOUS) to gain insight into how deeply the issue of depression may affect a patient. The current trends in literature, though helpful, contained gaps that resulted in recommendations for future research. However, the information discovered also implied the gravity of situations patients face, which indicates a need for change in nursing practice and education.

Effectiveness of Strategies

There are many aspects of mental health during and after critical illness that make it difficult to fully measure a patient's condition. Because of this, many of the studies utilized a variety of methods to measure strategy effectiveness such as questionnaires and Likert scales, in addition to either structured or semi-structured interviews. The questionnaires and scales offered quantitative data while the interviews provided more qualitative information. As the issue of mental health in ICU survivors is complex, using a variety of methods to determine improvement in symptoms seems the most appropriate and will tell the story of a patient's health more fully.

The strategies described throughout this review provide a base to begin working on the complex issue of depression in ICU patients.

Strategies within the ICU.

Care bundle. The care bundle was implemented to decrease the prevalence of PICS and PICS-F, which includes depression. The bundle's strategies focused on progressing the patient early through ventilator weaning, minimizing medications that promote or prolong immobility so that activity can be done early, care coordination, family involvement, good hand-off communication, and handouts of information. These interventions empowered the patient and their support system through effective communication and teaching surrounding patient progress and PICS. As the measurement of effectiveness seems to be subjective here, the recommendations are for further investigation into the care bundle's interventions. According to these literature reviews, the research around this care bundle is young but shows promise in patient outcomes through early progression in the ICU. The care bundle keeps PICS at the forefront of critical care and reminds the care team of long-term patient outcomes (Davidson & Harvey, 2016; Davidson et al., 2013; Hoffman & Guttendorf, 2015).

Diaries. Diaries were a multi-disciplinary effort to support how a patient mentally and emotionally processed the critical illness and provided a record of events the patient lived through. The record gave patients understanding of their situation and filled in memory gaps through entries written about events, sights, or sounds that took place around the patient (Davidson & Harvey, 2016; Olsen et al., 2017; Parker et al., 2013). The effectiveness of diaries was determined through semi-structured patient interviews at different intervals post-ICU stay and through use of HADS. The interviews told of patient experiences and how the diaries

improved their coping (Olsen et al., 2017) while the HADS scores showed a decrease in prevalence of anxiety and depression symptoms (Parker et al., 2013).

Strategies utilizing specialists.

Pharmacy. Pharmacists offered another layer of medication support to the patients through making recommendations to the care team regarding duplicate therapies, more ideal medications, or risks/benefits catered to each patient, which offered opportunities to decrease the prevalence of PICS. This was achieved through more appropriate dosing and medication choices for both pain and sedation. Pharmacists were able to identify medications that may lessen the risk for developing PICS along with managing symptoms such as delirium if/when it developed. Determining these opportunities was achieved through subjective measures (Fernandes et al., 2019).

Psychology and psychiatry. When psychiatrists were a part of the care teams, clinician assessments identified a greater prevalence of symptoms of depression with a median point prevalence of 33% compared to questionnaires such as the HADS and Center for Epidemiologic Studies Depression Scale (CES-D), which showed a median point prevalence of 28%. Furthermore, structured interviews conducted by non-clinicians only recognized a one-year prevalence of 7% (Davydow et al., 2009). Because clinicians performed the interviews, patients were diagnosed, which allowed for better management and treatment of depression as interventions were personalized to the patient. A combination of psychotherapeutic maneuvers such as expressing feelings, behavioral modifiers such as relaxation techniques, and environmental allowances such as altering visiting hours seemed to be effective methods for managing symptoms of depression and were easily adjusted to meet the patient's need (Goldman & Kimball, 1987).

Strategies to minimize distressing experiences. Depression was strongly associated with a sense of lack of control and recall of moments of distress. Some things contributed to the distress such as medications, disease, dreams, and conversations taking place around the patient. Through managing the disease process, limiting the negative effects of medications (such as delirium) by choosing more appropriate medications, and being considerate of what is discussed over the patient may help protect the patient from depression (Myhren et al., 2010; Rattray et al., 2005). Beyond this, allowing the patient to communicate their experiences may also prove helpful (Jones et al., 2003; Myhren et al., 2010). These outcomes were determined through Spielberger's State-Trait Anxiety Inventory, Norbeck Social Support Questionnaire, ICU Memory Tool (Jones et al., 2003), Life Orientation Test to measure pessimism versus optimism (Myhren et al., 2010), Intensive Care Experience Questionnaire (ICEQ) to assess subjective experiences (Rattray et al., 2005), HADS, and Impact of Events Scale (IES) for PTSD (Jones et al., 2003; Myhren et al., 2010; Rattray et al., 2005).

ICU clinics. ICU clinics were used as the patient left the ICU and were designed to offer the detailed support the patient received within the ICU from a team that understood the condition(s) and path to recovery. ICU clinics allowed more detailed support in the recovery phase, which created better management long-term and was determined by ongoing evaluation in the clinic. However, the research was ongoing in this study at the time of printing and approval for publishing quantitative results was still being obtained (Huggins et al., 2016).

Spiritual care. Finally, spiritual well-being may provide protection from depression and can be easily supported by adding spiritual care to the care team. The relationships between spiritual well-being and psychological distress were determined by structured face-to-face interviews and a variety of validated questionnaires and Likert scales such as Schedule for

Meaning in Life Evaluation (SMILE), Functional Assessment of Chronic Illness Therapy-Spiritual well-being scale questionnaire (FACIT-Sp), Idler Index of Religiosity (IIR), Hospital Anxiety and Depression Scale (HADS), Schedule of Attitudes toward Hastened Death questionnaire (SAHD), and Single-Item Quality of Life Scale (SQOLS). These assessment tools showed that both greater spiritual well-being and meaning in life were associated with decreased psychological distress thus potentially providing a protection against depression (Bernard et al., 2017).

Current Trends

The interventions noted throughout the reviewed literature were both supportive and preventive in nature. The interventions aimed at both managing symptoms (through spiritual care, psychiatry and psychology involvement, and ICU clinics) and at mitigating them (through the care bundle, pharmacist involvement, and diaries). All interventions were examined independently of each other; none were researched in the same study. However, some authors who investigated one intervention in one study later completed another study on a different intervention. None of the studies reported adverse effects from implementing the interventions, but the clarity of how well they work needs to be determined through further research. Finally, the theme across the studies reported the need for further investigation into mental health issues in ICU patients with greater rigor.

Gaps in Literature

Few definitive conclusions could be drawn from the research except for the need for further investigation of interventions. There is potential in all these interventions to improve patient outcomes both in the short and long-terms but there is no guarantee. With the lack of experimental research in this area, the effectiveness of the strategies identified in this review

cannot be generalized to all ICU patients. The challenge with determining effectiveness is related to the vast number of variables, which can be difficult to account for including personality traits, baseline of spiritual well-being, predisposition to depression or other mental health issues, in addition to the variety of ways patients progress through critical illness. Furthermore, it is difficult, at best, to create control over these and achieve true randomization of interventions; at the worst, it may be inappropriate or even unethical to do so. A patient's road to recovery is so unique to each that what one intervention may do for one patient it will not achieve in another. Further research is needed in many areas to determine what specific intervention(s) will decrease the occurrence of depression in ICU patients. However, as they are not associated with negatively impacting a patient, the interventions in the reviewed literature provide opportunity to improve outcomes.

Integration and Application of the Theory of Unpleasant Symptoms

As described in Chapter 1, the parts of TOUS create a cyclical pattern if the symptom(s) go unmanaged (Lenz & Pugh, 2008; McEwen & Wills, 2014). Symptoms of depression (the symptom) may impact how a patient rehabilitates (performance), which further aggravates the influencing factors of immobility, physiologic process of the disease, and the support system. Visualizing depression within this framework can foster a better understanding of the multiple facets of this issue as well as encourage nurses to act autonomously when able or communicate patient needs to the medical team. In addition, TOUS gives nurses opportunity to see where interventions fit and how utilizing multiple interventions with each aimed at a different aspect of depression can promote better outcomes. Thus, taking the understanding of TOUS and applying the studied interventions discussed at length previously can direct how and where to use them to make them most useful in mitigating and managing depression in ICU patients.

The interventions reviewed in the literature encompass a holistic approach as they seek to support the patient spiritually through spiritual care involvement (Bernard et al., 2017), mentally through psychologist and psychiatrist involvement (Davydow et al., 2008; Davydow et al., 2009; Dowdy et al., 2009; Goldman & Kimball, 1987; Merbitz et al., 2016; Peris et al., 2011), delirium assessment/prevention, written information (Davidson & Harvey, 2016; Davidson et al., 2013; Hoffman &Guttendorf, 2015), and ICU diaries (Davidson & Harvey, 2016; Olsen et al., 2017; Parker et al., 2013), emotionally through prevention of distressing experiences, ICU diaries (Davidson & Harvey, 2016; Jones et al., 2003; Myhren et al., 2010; Olsen et al., 2017; Parker et al., 2013; Rattray et al., 2005), and family involvement (Davidson & Harvey, 2016; Davidson et al., 2013; Hoffman &Guttendorf, 2015), and physically through ventilator weaning, early mobility, and delirium assessment/prevention (Davidson & Harvey, 2016; Davidson et al., 2013; Hoffman &Guttendorf, 2015). Much like how the interventions are designed, depression manifests itself emotionally through feelings of sadness, worthlessness, or guilt, mentally through trouble thinking, concentrating, and/or making decisions, spiritually through thoughts of death and/or suicide, and physically through too much sleep, fatigue, decreased energy, unnecessary movement like fidgeting, and slowed movement or speech (American Psychiatric Association, 2018). Applying the appropriately aimed interventions to the area(s) depression manifests, may allow for prevention, mitigation, and/or management.

Aiming interventions at specific aspects of TOUS can be seen in the example of physical deconditioning (influencing factor) as it can influence how one feels by stimulating a sense of sadness or worthlessness (symptom). These feelings may impact the other manifestations of depression such as trouble concentrating on physical activity such as sitting or walking. Then it could further extend into physical manifestations like slowed movement, which may eventually

affect spiritual aspects such as thoughts of death or suicide. Ultimately, a change occurs in the ability to rehabilitate (performance). That changed ability then returns to the original factor of deconditioning. The relationships between manifestations are not concrete as they may translate to one but not another or may be completely intertwined. Intervening at the influencing factor of physical deconditioning by decreasing sedation allows the patient to mobilize early whether that is through fine motor exercises such as extending and flexing fingers or large muscle group exercises such as sitting on the side of the bed with physical or occupational therapies. This intervention, which may progress patients earlier thereby managing or even mitigating depression, is geared towards a specific influencing factor. Because of their understanding of TOUS and the application of interventions, nurses can work with the medical team to minimize the amount of sedation a patient receives along with identify an appropriate level of alertness for a patient to maintain, which allows for participation therapies.

This same process of aiming interventions at specific aspects of TOUS can be applied to the situational factor of a poor or lack of a support system, which may promote feelings of sadness, worthlessness, or guilt. Using interventions such as consulting spiritual care may allow for communication of feelings or spiritual well-being. A support network may be built as a result and thereby decrease the sense of sadness. With both physical deconditioning and poor social support influencing sadness, intervening at both levels has additive effects as two sources of that symptom are addressed. Through their license, nurses have the power to consult spiritual care without a physician order making this intervention nurse driven. Understanding depression, with the TOUS as a framework, empowers nurses to see where and how they can apply appropriate interventions to improve patient outcomes.

Utilizing TOUS to understand depression in ICU patients opens the door to understanding where to apply interventions, why they may be effective, and to what extent they may improve a patient's condition. With understanding depression as a whole and how it impacts physiologic, psychologic, and situational factors, one can see where and how the interventions break the cycle. The break may take place before the cycle starts by following a care bundle in order to progress a patient as soon as possible or it may take place after depression has set in through involving a psychiatrist or psychologist who can teach the patient cognitive-behavioral techniques that change the approach to rehabilitation. Regardless of how breaking the cycle is achieved, it is important for nurses to see when each intervention will be most powerful and how multiple interventions may have additive effects. With TOUS as the framework, nurses can recognize the complexity of a patient situation along with how to use their role to achieve better outcomes whether that is done autonomously or through communicating patient needs with the medical team.

Recommendations for Nursing Research

Though it may be difficult, there is a great need for more experimental research to take place. The interventions described above need more high-level evidence to determine their effectiveness on depression and allow for generalization of findings. Further research surrounding other influencing factors such as self-esteem, optimism, social support, and familial support should be considered as these may play a role in the development of depression (Bernard et al., 2017). Performing studies where clinicians are utilized to validate questionnaires and obtain accurate prevalence rates should also occur. In addition, risk factors for depression such as psychopathology include ICU factors, personality, psychological history, and disease process factors should be investigated (Davydow et al., 2008; Davydow et al., 2009; Dowdy et al., 2009).

Much like furthering understanding of influencing and risk factors on development of depression, circumstances after discharge may affect mental health during the recovery process, which also begs for more research (Dowdy et al., 2009). Further evidence supporting a care bundle, along with early implementation of physical and occupational therapies, is needed (Hoffman & Guttendorf, 2015). ICU clinics need quantitative data to determine effectiveness of this intervention and should include hospital readmission rates, medication review and outcomes, long-term psychological ailments from critical illness, and factors influencing clinic attendance (Huggins et al., 2016). Rehabilitation programs seem to offer hope but require further investigation to determine generalizable influence over depression (Jones et al., 2003).

Another way to strengthen evidence surrounding depression in ICU patients is through studying psychiatrist and psychologist involvement. They did not have adverse effects on patients, however, further investigation into what specific positive impacts exist is needed (Peris et al., 2011). More research is also needed on how symptoms of depression develop in this population along with what else can be done to intervene whether that is handouts (Olsen et al., 2017) or phone calls from healthcare professionals (Parker et al., 2013). Finally, ascertaining what other mental health issues could be taking place (Wang et al., 2017) and why the ICU stay determines the development of these issues should also be investigated (Rattray et al., 2005).

Implications for Practice and Nursing Education

Understanding depression in ICU patients is an ongoing process. Many critically ill patients face obstacles to recovery and rehabilitation after the disease processes they experience. Because of the intensity of illness these patients experience, they are at risk for developing depression. Nursing staff caring for these patients need to have a keen sense of awareness to alert providers to the onset of symptoms of depression. Some of the interventions reviewed in

the literature can be performed autonomously by the bedside nurse. Placing a consult to spiritual care along with the initiation of an ICU diary, providing written information about the ICU and healing process, and preventing potentially distressing experiences are within nursing's scope of practice.

Other interventions that nursing cannot fulfill alone truly require an interdisciplinary effort. Bedside nurses can initiate conversations with the care team to determine an appropriate level of sedation, when it is safe to mobilize a patient, and when to wean mechanical ventilation (Davidson & Harvey, 2016; Davidson et al., 2013; Hoffman & Guttendorf, 2015). In addition, evidence-based practice changes such as those included within this literature review are things that bedside nurses can present to a unit council, clinical nurse-specialist, or others in leadership. Encouraging unit or hospital wide practice change along with implementing it into personal practice may impact the mental health of those for which nurses provide care.

Taking the interventions described throughout this literature review to current licensed nurses is one place to start but bringing evidence-based practice like this into the classroom shows students the power they have in influencing patient outcomes. Teaching content such as this in the classroom allows the next wave of nurses to adopt what should be (if it is not already) current practice. The students will then enter the workforce knowing the standard of care patients should receive surrounding depression in the ICU.

Regardless of where these students work, they may encounter a patient who has survived a critical illness. This could happen in the ICU, on one of the wards, in a rehabilitation center, or in a clinic. Teaching nursing students about the life-long implications of critical illness allows them to provide more effective, personalized care to this population. Adequately preparing students with information such as this has the power to influence patient outcomes. Carrying

information like the interventions discussed in this review into the classroom may give a sense of urgency to implementing evidence-based practice following licensure.

Conclusion

Based on the content reviewed in the literature, there are several new strategies being studied to determine their impact on symptoms of depression in adult ICU patients such as involvement of mental health specialists and spiritual care, implementation of a care bundle, and ICU diaries. The studies conducted are newer and focus on the long-term effects of critical illness on patients, although the interventions will require further investigation to determine just how well they mitigate or manage depression. Strategies implementing use of ICU diaries, involving psychology and psychiatry, and minimizing distressing experiences showed the strongest evidence for effectiveness. The other strategies mentioned give way for opportunities of supporting patients more fully and should be studied further. Ultimately, it is crucial to identify the complexity of depression and the multiple factors that impact a patient's ability to cope with critical illness. Nursing students and staff may bear witness to depression's effects on patients and, therefore, need to be educated on the depth of this issue and how it extends beyond the walls of the ICU. As more patients survive critical illness, they will begin to be seen in the wards of the hospital and eventually the clinics in the community, which requires all nurses to know the longevity of depression in the ICU and how to properly support their patients.

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