

The Effectiveness of Psychosocial Interventions on Pediatric Oncology Patient

Outcomes

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HON 496

February 8, 2021

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Submitted in Partial Fulfillment of the Requirements for Graduation from the Malone

University Honors Program

Abstract

Purpose: The purpose of this integrative literature review was to determine the effectiveness of psychosocial interventions on psychosocial outcomes for pediatric oncology patients and their caregivers. **Method:** The Whittemore & Knafl (2005) methodology framework guided this review. This structure allowed for the inclusion of both qualitative and quantitative research through the inclusion of experimental, non-experimental, theoretical, and empirical data which yielded the most complete analysis of the information. **Results:** Art and play therapy interventions resulted in enhanced coping, communication, treatment tolerance and quality of life while decreasing anxiety and distress. Music therapy interventions resulted in enhanced religious activity participation, courageous coping, social integration, and family environment with decreased distress levels. The hypnosis based intervention resulted in improved coping strategy development and emotional regulation. Cognitive behavioral therapy also resulted in reduced levels of distress. The Make-A-Wish intervention resulted in significant decreases in general distress, depression, and anxiety symptoms, improved health related quality of life, hope, and positive affect. The Advance care planning intervention resulted in improved spiritual well-being with decreased anxiety and depression. **Conclusion:** Implementing psychosocial interventions for pediatric oncology patients can reduce procedural anxiety, overall anxiety, distress, depression, and pain while improving quality of life, coping skills, communication, spiritual well being, hope, and social and family functioning.

Acknowledgments

I would like to thank everyone who had a part in helping me with this project. I would not have been able to do it without the constant assistance and input of my adviser and committee members for whom I am extremely grateful. Also, I want to thank my parents especially for always supporting me and encouraging me in every aspect of my life. I would not be where I am today without their love and guidance.

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The Effectiveness of Psychosocial Interventions on Pediatric Oncology Patient

Outcomes

As holistic caregivers, pediatric nurses strive to alleviate suffering by providing high quality healthcare for children and their caregivers. This care is particularly important in the treatment of pediatric oncology patients as they face an emotional and life altering situation. There are an estimated 15,980 children in the United States living with cancer each year which equates to approximately one in every 285 American children (Aquilar, 2017). Even with recent improvement in survival rates, cancer is still the leading cause of death by disease for children in the United States. Implementing a holistic and individualized care plan that addresses both physical and psychosocial needs may be the most effective way to help pediatric oncology patients and their caregivers through their diagnosis and treatment. For this reason, it is of the utmost importance to have evidence-based recommendations that guide care to provide the best outcomes for the patient.

Current evidence shows that even after being deemed cured these patients and their caregivers may suffer from post-traumatic stress disorder (PTSD) and live with the fear of the cancer returning. Findings demonstrate that at least 25% of these patients developed a significant mental health illness such as anxiety, major depressive disorder, or PTSD. Furthermore, at least half of this patient population will experience symptoms of significant depression (Coughtrey et al., 2017). Similarly, parents commonly suffer from psychosocial issues such as anxiety, depression, anger, loss of faith, and post-traumatic stress (Gunter & Duke, 2018). Therefore, it is crucial that time is taken to

discover more effective ways to reduce these symptoms while supporting mental well-being among these children and their caregivers.

Background

Receiving a cancer diagnosis at any stage in life can be incredibly stressful and difficult to manage, but it may be most difficult when the patient being diagnosed is a child. Katzman and John (2018) describe the significant physical, mental, emotional, and developmental challenges that put children diagnosed with cancer at a heightened risk for mental distress. Physical complications such as increased blood pressure, cholesterol, and cortisol levels are often associated with a cancer diagnosis due to the chronic stress of the disease. Psychological findings demonstrate children diagnosed with cancer are at a higher risk of experiencing functional impairment and symptoms related to PTSD. Social relationships with friends and other acquaintances can be affected by interruptions in school. Ultimately, most children who survive cancer seem to adjust well, but there remain significant reports of increased psychological distress in this population.

As the patient struggles with a new cancer diagnosis, it is also important to assess the effects it has on the caregivers. Caregivers of children diagnosed with cancer have an important role in their care. For instance, they are responsible for making treatment-related decisions and managing financial implications of the diagnosis and treatment; these responsibilities in addition to their daily responsibilities prior to the diagnosis. Research indicates that upon diagnosis, common parental responses include uncertainty, anxiety, depression, anger, loss of faith, and post-traumatic stress (Gunter & Duke, 2018). The cancer diagnosis, coupled with the patient population receiving it,

makes it important to remember that delicate care should be provided not only to the patient, but to their caregivers, as well.

Coping Strategies

There is an immense amount of stress put on the patients and caregivers upon the diagnosis of cancer, so successful coping strategies must be implemented. Coping may be defined as, “the cognitive and behavioral efforts a person employs to manage a stressful situation” (Wenninger et al., 2013, p. 855). Unfortunately, there are few known coping strategies that children implement on their own that are effective. Aside from simply trying to maintain their sense of normalcy by keeping up with friends and school, the research data available is limited (Zebrack et al., 2013). As a result, children can often be withdrawn from their normal activities and isolate themselves physically and emotionally. Furthermore, the patients may lack enthusiasm about treatment and develop a lack of hope and quality of life throughout the disease process.

In the same regard, positive adaptation by the caregivers is also incredibly difficult due to the trauma of the child’s cancer diagnosis. As children are dependent on their caregivers, their coping ability is often reflective of how their caregivers cope. Unfortunately, it is not uncommon for parents to cope by increasing alcohol intake or developing a chemical dependency (Gunter & Duke, 2018). This may be due to a seemingly significant lack of positive coping mechanisms available. Either way, negative coping methods such as these may later result in complications like PTSD and depression. However, if the parents are able to maintain a positive mindset and seek education about the disease and treatment, they will have less stress and uncertainty.

(Gunter & Duke, 2018). The short term and long term effects of negative coping strategies are undesirable, so appropriate interventions must be implemented by the healthcare team to increase the likelihood of patients and their caregivers developing healthy coping strategies.

Psychosocial Interventions

Through efforts to improve and increase healthy coping, psychosocial interventions have demonstrated the capability of improving the overall well-being of patients and caregivers alike. One study revealed significant evidence that the psychosocial intervention of art therapy resulted in patients increasing their communication about their emotions, anxiety, and fears related to their diagnosis (Aguilar, 2017). Increased communication is a desired outcome as it allows for improved care from the healthcare team and support from the caregivers and families. Implementation of video games in the patient's care plan resulted in a significant improvement in self-efficacy, treatment adherence, cancer related knowledge, and a minor improvement in quality of life (Coughtrey et al, 2017). Additionally, a study was done in an attempt to gauge the effects of therapeutic music videos on adolescents receiving stem cell transplants, which is a treatment option for children with bone cancers. The trial group who participated in the music video therapy showed significant improvement in courageous coping, social interaction, and family environment. Moderate improvement in spiritual perspective and self-transcendence was also demonstrated (Robb et al., 2014). Each of these examples show the potential psychosocial interventions have to improve the coping and mental health status of the patient.

Interventions targeted towards caregivers, as well as patients, are crucial given the significance of their involvement in their child's care. As a child, adolescent, or young adult, it is likely that the family, especially the caregivers, will play a major role in determining the course of action for treatment. For this reason, a study was completed to examine the psychological effects of family-centered advanced care planning for adolescents with cancer. The trial included three sessions that the patient and family took part in to discuss subjects such as limiting burdensome medical treatments and completing advanced directives. The results showed significant improvement in the patients' anxiety levels and demonstrated that 100% of the families found the sessions to be helpful and greatly valued the opportunities to discuss the topics with their children (Lyon et al., 2013).

Similarly, the caregivers of a pediatric oncology patient are often heavily burdened with medical bills and other financial struggles. Due to these financial struggles, they are not able to provide extra gifts for their children, as much as they wish they could during this traumatic time. For this reason, institutions exist that are sometimes able to provide these children with a specific "wish." A study was done to examine the effects that the Make-A-Wish intervention has on the patient's psychiatric well being and quality of life. The study results indicated that the patients who participated had an increased level of hope in regards to their future, increased positive emotions, improved quality of life, and a lower incidence of depression and anxiety (Shoshani et al., 2015).

The stress and weight of a cancer diagnosis on a child and their caregivers can result in significant negative outcomes, so the importance of healthy and effective coping is of the highest degree. There have been collections of studies done on the psychological effects of art, video game, cognitive behavioral, family, music, and wish granting therapies that will be further explored and analyzed. The art, video game, and music therapies may prove to be more effective for distraction techniques during treatment while the family and wishing granting therapies may aim to improve the overall happiness of the patients and their caregivers. While these are some of the more prominent psychological interventions, there are more to examine and explore. Further analysis will be required to accurately assess the therapeutic effects these interventions have. Ultimately, including these interventions may lead to improved treatment plans and give a heightened sense of confidence and relief to the patients and their caregivers.

Research Aim

Providing holistic care and high-quality treatment is the main goal of the healthcare team. Therefore, it is important for nurses to understand which interventions are most effective and able to be applied to the care planning of pediatric oncology patients. As described previously, numerous psychosocial interventions have been written about. As caregivers play a significant role in the care of a child, it is crucial that interventions include them as well as the child. Furthermore, cancer is known to not only cause immediate harm at the onset of diagnosis through emotional and mental pain, but also long term negative outcomes manifesting through physical, mental, and emotional forms. For this reason, an integrative literature review of the current research was

completed to evaluate the impact of psychosocial interventions on pediatric oncology patients and their caregivers during and after treatment. The following research question was used to guide this study: how do psychosocial interventions impact the psychosocial outcomes of pediatric oncology patients and their caregivers during and after treatment?

Research Methodology

An integrative literature review was completed to evaluate the research available related to psychosocial interventions for pediatric oncology patients and their caregivers and how these interventions affect psychosocial outcomes. Integrative literature reviews present the state of the science, aid in theory development, and directly apply to practice and policy (Whittemore & Knafl, 2005). Integrative reviews also allow for the inclusion of both qualitative and quantitative research through the inclusion of experimental, non-experimental, theoretical, and empirical data which yields the most complete analysis of the information. Gauging the effectiveness of psychosocial interventions involves a great deal of qualitative data; therefore, this type of review is ideal compared to those that limit sources to only quantitative data. The Whittemore & Knafl (2005) framework was used to guide this review through the five stages which include: problem identification, literature search, data evaluation, data analysis, and presentation of findings. This structure provides a clear and efficient method of gathering, analyzing, and interpreting data that yields results and answers to the topic of examination.

Problem Identification

The problem has been identified, and described above, as the effects of psychosocial interventions on psychosocial outcomes for pediatric oncology patients and

their caregivers. A preliminary literature review was completed to confirm the appropriateness of the problem statement and research question. A satisfactory amount of both quantitative and qualitative primary research was identified. The findings of the preliminary literature review supported the scope of the problem statement and the appropriateness of an integrative literature review process to identify themes regarding the effectiveness of psychosocial interventions.

Literature Search Strategy

A formal literature search was completed utilizing the CINAHL, Health Source, Medline, PSYCinfo, and Psychology and Behavioral Sciences Collection databases. Inclusion criteria consisted of: (1) sources describe primary research with a focus on psychosocial interventions and/or outcomes; and (2) psychosocial interventions and/or outcomes studies were oriented around pediatric oncology patients. The following search terms were entered into the databases: “pediatric oncology or pediatric cancer or childhood cancer”, “psychosocial”, and “coping strategies or coping skills or coping or cope”. The results of the search were limited to (1) publication from the year 2014 to 2020; (2) published in English; (3) average age 18 or under.

This initial search yielded a total of 286 sources. Then, a title review was completed to further assess for inclusion based on exclusion criteria such as duplicates, non-primary sources, and non-cancer population. This resulted in a narrowing of the list to 75 sources. Additional exclusion criteria was then applied during the abstract review which resulted in the exclusion of periodicals, editorials, and sources in which the

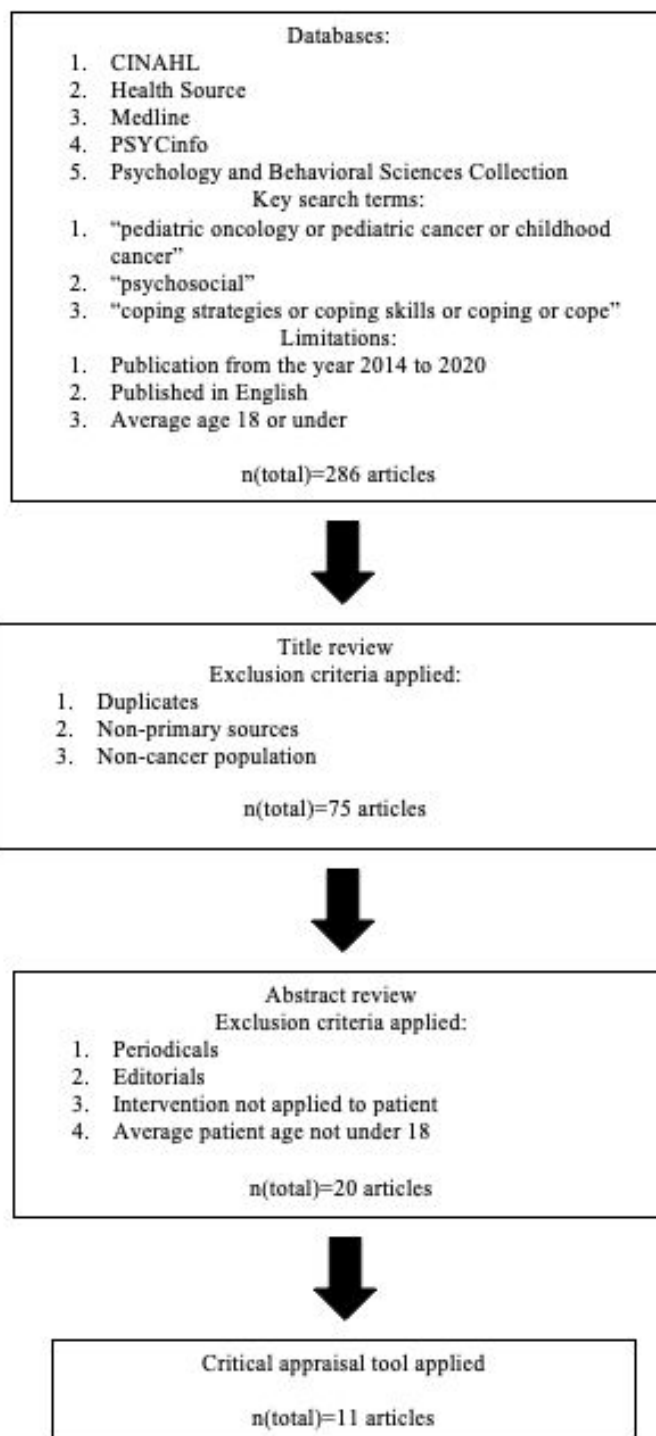
intervention was not applied to the patient or the average patient age was over 18. This reduced the potential source list to 20 (Figure 1).

Data Evaluation & Analysis

The remaining 20 articles from the literature search were read in their entirety by three separate reviewers to ensure they met inclusion criteria and to determine their quality. Data was pulled from the sources to be entered into a literature review chart that allowed for better comparison of sources and data evaluation. The data of focus consisted of research designs, population samples, validity, results, study strengths, and study weaknesses (Appendix). Organization of the data compiled into the chart allowed for more efficient source comparison and theme evaluation.

After compiling the information, the critical appraisal tool that guided the literature review chart construction was applied by reviewers to determine the overall quality of the sources and analyze them for rigor. The tool probed further into the methods, validity, and results of the articles. The application of the critical appraisal tool led to the dismissal of 9 sources and resulted in the final source list of 11 approved articles, as shown below in Figure 1. Final decisions and rationale for each article is included on the Literature Review Chart in the Appendix. Each of the included articles was then analyzed and examined below for common themes.

Figure 1

Literature Search Strategy

Presentation of Findings

A total of 402 participants took part in the 11 included studies. 315 were children or adolescents who were currently diagnosed with cancer or did have cancer as a child or adolescent. 72 were parents or family members of the child or adolescent. The final 15 were healthcare professionals. The aim of the studies was to examine the effects of different psychosocial interventions on psychosocial outcomes for pediatric oncology patients and their caregivers. The studies can be clustered based on intervention type. Studies with interventions based on play and activity included: art based therapy (n=3), therapeutic play (n=2), and music therapy (n=2). Studies with interventions based on cognitive therapies included: hypnosis therapy (n=1), and cognitive behavioral therapy (n=1). One study researched interventions reliant on external partnerships: Make-A-Wish intervention (n=1). Finally, one study researched the impact of advance care planning (n=1). Control groups from the intervention studies existed as standard treatment (n=9), waitlist (n=1), and alternative intervention (n=1). The included studies are summarized in Table 1.

Table 1

Included Study Descriptions

Study	Participants	Intervention	Main outcome measures
Altay, Kilicaslan-Toruner, & Sari, 2017	30 children between the ages of 9 and 16 who received at least two courses of chemotherapy.	A drawing and writing combination intervention taking place over a 5-day period.	Anxiety levels.
Linder, Bratton, Nguyen, Parker, & Wawrzynski, 2018	27 children between the ages of 6 and 12 receiving treatment for cancer.	A draw and tell interview intervention.	Coping ability.
Bultas, Saini, Marty, & Hendricks-Ferguson, 2017	1, 11-year old child undergoing treatment for neuroblastoma.	The heirloom art making (HEART) intervention taking place over a 2-4 week period.	Treatment related coping and pain distraction.
Holm, Russ, Quitmann, Ring, Zyga, Hansson, Ljungman, & Hoglund, 2020	5 children between the ages of 4 and 10 with a cancer diagnosis who were engaged in active treatment.	A pretend play intervention consisting of 6-8 sessions lasting 25-35 minutes each.	Self-efficacy and quality of life.
Witt, Escherich, Rutkowski, Kappelhoff, Foreigner-Holm, Russ, Bullinger, & Quitmann, 2019	15 pediatric oncology health professionals and 13 parents of children with leukemia.	A pretend play intervention consisting of individual sessions with 3-4 guide stories each.	Parent and professional perception of patient coping ability and quality of life.
Robb, Burns, Stegenga, Haut, Monahan, Meza, Stump, Cherven, Docherty, Hendricks-Ferguson, Kintner, Haight, Wall, & Haase, 2014	113 adolescents/ young adults between the ages of 11 and 24 receiving hematopoietic stem cell transplants.	A therapeutic music video intervention consisting of 6 sessions taking place over a 3-week period.	Illness related distress, social integration, spiritual perspective, family environment, coping, hope derived meaning, and resilience.
Robb, Haase, Perkins, Haut, Henley, Knafl, & Tong, 2017	16 Children between the ages of 3 and 8 receiving chemotherapy for a cancer diagnosis.	A parent delivered music engagement intervention consisting of 3 sessions taking place over a 3-day period.	Patient and parent emotional distress levels.
Gregoire, Chantrain, Faymonville, Marini, & Bragard, 2019	9 children between 11 and 17 years old who have cancer and 13 of their parents.	A hypnosis based group intervention consisting of 6, 2-hour monthly sessions.	Patient and parent quality of life, distress, fatigue, and coping ability.
Hsiao, Chen, Jaing, Yang, Chang, Li, Chiu, & Huang, 2019	18 children between the ages of 3 and 11 who received a lumbar puncture and bone marrow aspiration for cancer treatment.	A cognitive behavioral therapy (CBT) intervention consisting of daily 1 hour sessions taking place 2-3 hours prior to bone marrow aspiration and lumbar puncture.	Procedural related distress.
Shoshani, Mifano, & Czamanski, 2016	66 children between the ages of 5 and 12 with life threatening cancer.	A make-a-wish intervention consisting of 1 wish fulfillment event taking place 5-6 months after wish making.	Distress, depression, anxiety, quality of life, and hope levels.
Lyon, Jacobs, Briggs, Cheng, & Wang, 2014	30 adolescents between the ages of 14 and 21 with a cancer diagnosis and 30 family members at least 21 years of age.	An advance care planning intervention taking place over 5 sessions.	Anxiety, depression, spiritual well-being, and quality of life.

Play and Activity Interventions

Art Based Therapy

One of the studies that implemented an art based therapy had the goal of examining the effects of drawing and writing techniques on the anxiety levels of pediatric oncology patients undergoing treatment in the hospital (Altay et al., 2017). Thirty children between the ages of 9 and 16 years old who had received at least two courses of chemotherapy participated in the study. A five day program was implemented in which the children were initially administered the State Anxiety Inventory, asked to draw a picture of a child in the hospital, and then asked to write about what they drew. This allowed for the children to express their emotions nonverbally and was done on the first and third day. On the second and fourth day, a story telling technique was used to allow the child to tell a story that was linked to their drawing. Then, the nurse administering the intervention would tell another story with constructive qualities to promote positive feelings towards the child's situation. After that, one of the researchers would speak to the child and develop a mutual story for the child's drawing. Finally, the State Anxiety Inventory was administered again on the fifth day to assess the participants' anxiety levels post-intervention. The mean score of the State Anxiety Inventory decreased from (42.63 ± 4.64) pre-intervention to (38.63 ± 4.38) post-intervention which demonstrated statistically significant evidence that the intervention reduced the anxiety levels of the participants.

Another art based study with a similar intervention attempted to examine how school aged children with a cancer diagnosis perceive and represent their symptoms

through draw-and-tell interviews (Linder et al., 2018). Twenty-seven children between the ages of 6 and 12 who were receiving treatment for cancer participated in the study. The participants, accompanied by their parents, were asked to draw pictures of themselves that represented how they felt during days they felt sick and on days when they felt good. Then researchers interviewed the children to have them explain the pictures and talk about symptoms represented in them and how they coped with them. This occurred during an inpatient admission or at an outpatient clinic. Qualitative analysis of the content and a coding scheme were then used to organize the symptoms and self management techniques into categories. The results and data gathered from the study proved to be beneficial in increasing understanding of the symptoms that the participants experienced and how they coped with them. Children are limited in their abilities to verbally express the symptoms they experience and how they manage them, so the implementation of an intervention that allows for nonverbal expression was shown to provide further insight to the healthcare team.

The final study in this category was a case study that explored the use of art making interventions to help reduce perceived pain and anxiety in children undergoing cancer treatments (Bultas et al., 2017). The subject of the study was Ari, an 11 year old girl who was receiving treatment for neuroblastoma. The specific art making intervention that was implemented is called the HEART intervention and it involves the child and parent choosing a meaningful photograph that gets transferred to canvas as a “paint by number” project. The child then completes the project over a 2 to 4 week period and can work on it during their inpatient or outpatient treatment. At the completion of the project,

Ari and her mother both shared their thoughts on the HEART intervention. Ari claimed that working on the project made her feel happier and that all aspects of the project were helpful. Her mother stated that it was a positive activity and it was something they looked forward to when going in for treatment. The consensus between both of them was that the HEART intervention helped distract Ari from the pain brought on by the treatment and that the painting provided them with a special memory.

Therapeutic Play

One of the studies that tested a therapeutic play technique was completed to evaluate the feasibility and acceptability of an adult facilitated pretend play intervention for children with cancer that aimed to improve patient participation, independence, and well being (Frygner-Holm et al., 2020). Five children between the ages of 4 and 10 with a cancer diagnosis participated in the study. The intervention itself consisted of six to eight sessions that lasted around 25-35 minutes each and occurred in the child's home or in the hospital. During the sessions, the child was provided with toys and instructed to make up stories based on provided story stems. The first was based on imagination, the second was based on affect, and the third consisted of medical play that related to situations commonly experienced by children undergoing cancer treatment. Once the child appeared comfortable, the play facilitator would incorporate coping strategies and problem solving skills for the toys in the situation. Post-intervention questionnaires were provided to assess the effectiveness and feasibility of the intervention. Results of the study indicated small improvements regarding self-efficacy, equal or increased quality of

life in the participants, and no adverse effects or increased worrying caused by the intervention.

The second study regarding therapeutic play examined the points of view of parents of pediatric oncology patients and their team of healthcare professionals (Witt et al., 2019). The goals of this study were twofold. First, the authors sought to gain knowledge of parents' and professionals' perceptions on resources, burdens, and ability to pretend play of pediatric oncology patients. The second goal was to prepare a pretend play intervention that addressed the needs of the children and included parents' and professionals' feedback. Thirteen parents of children diagnosed with Leukemia and fifteen professionals in the field of pediatric oncology participated in the study to form a total sample size of 28. The pretend play intervention involved providing a child with toys and having a moderator initiate stories for the child to act out with the toys. The child used the toys to express the feelings of the figures in stories based on imagination, affect, medical play, and a story of the child's own choosing. Post-intervention interviews were then conducted with the parents and professionals that participated in the study to assess their opinions. Results of the interviews showed that both parents and professionals believed that pretend play interventions could be beneficial in multiple ways for pediatric oncology patients. They expressed beliefs that it could improve well being and coping, strengthen adaptive mechanisms, and enhance quality of life.

Music Therapy

The next study type involved music based therapies. The first of which was intended to test the effects of a therapeutic music video intervention on resilience

outcomes for adolescents and young adults receiving hematopoietic stem cell transplant, which is a treatment sometimes used in cancer patients (Robb et al., 2014). One hundred thirteen adolescents and young adults between the ages of 11 and 24 with an average age of 17.3 participated in the study. The study took place with six sessions over a three week period. Baseline measures were taken to gauge the participants' illness related distress, social integration, spiritual perspective, family environment, coping, hope derived meaning, and resilience. Sessions one through three involved singing, brainstorming, lyric writing, discussion, and song recording. Sessions four and five used the song lyrics to develop a foundation for selecting video visual content. Then, in session six, participants got to view their completed video and show guests, if they chose to. Results were measured 100 days post-intervention and showed significant improvements in religious activity participation, courageous coping, social integration, and family environment (Robb et al., 2014).

The second music based study involved examining the feasibility and acceptability of a parent delivered music engagement intervention for pediatric oncology patients and their parents (Robb et al., 2017). Sixteen children between the ages of 3 and 8 receiving chemotherapy, with a parent, participated in the study. The participants were randomized and nine child/parent duos were placed in the intervention group, while seven were put in the alternate low dose group. The intervention took place in three sessions over a three day period. The parent delivered active music engagement sessions lasted 45 minutes, while the control group sessions lasted 35 minutes. Over the three sessions, parents delivered active music engagement activities to their child and follow

up evaluations took place after session three and thirty days post-intervention to assess child distress, engagement, and parent implementation. Results indicated that the children in the intervention group had lower emotional distress levels and parents had no issues delivering the intervention. However, the parents in the intervention group did not receive the intended benefits and experienced greater distress than the control group parents. Findings indicated this was due to the parents' feelings of uncertainty and exhaustion from caregiving responsibility.

Cognitive Interventions

Hypnosis

The hypnosis based group intervention aimed to assess its feasibility and efficacy on improving quality of life, distress, fatigue, and coping for children with cancer and their parents (Gregoire et al., 2019). Nine children between the ages of 11 and 17 with a cancer diagnosis and thirteen of their parents participated in the study. It consisted of six, two hour monthly sessions in the hospital and was led by two physicians and a psychologist. During the sessions, participants would complete different tasks and keep a work related diary at home on how they managed their daily lives. They would observe their thoughts and actions and at the conclusion of the sessions, a short hypnosis exercise was conducted. Parents and children both reported the intervention helped them regulate their emotions and develop helpful coping strategies. All participants recommended the proposal of this intervention to families dealing with childhood cancer.

Cognitive Behavioral Therapy (CBT)

The cognitive behavioral therapy study examined the efficacy of a preparation and cognitive behavioral intervention to reduce distress in children with Leukemia during bone marrow aspiration (BMA) and lumbar puncture (LP) (Hsiao et al., 2019). Eighteen children between the ages of 3 and 11 who were diagnosed with acute lymphoblastic leukemia or acute myeloid leukemia participated in the study. The intervention consisted of daily one hour sessions, starting two to three hours before the BMA or LP procedure was scheduled. In the sessions before the procedure day, a certified child life specialist (CCLS) met with the patients and families to build a relationship, provide education on the procedure, explore concerns and coping strategies, and help participants gain a sense of control. On the day of the procedure, the CCLS accompanied the child to the treatment room and implemented the cognitive behavioral strategies such as positive thinking, breathing exercises, guided imagery, and story reading to distract from anticipatory anxiety. The Observational Scale of Behavioral Distress was administered to the participants and the control group before and after the procedure to assess for change. The mean score for the intervention group was 0.65 and 4.81 for the control group which showed statistically significant evidence that the preparation and cognitive behavioral intervention was effective in reducing distress for the participants.

External Partnership Interventions

Make A Wish

The purpose of the Make-A-Wish study was to evaluate the efficacy of the intervention for children with life threatening cancer and its effects on psychiatric

symptoms and health related quality of life (Shoshani et al., 2016). Sixty-six children aged 5 through 12 with an initial diagnosis of life threatening cancer participated in the study. The participants were randomized and 32 were assigned to the intervention group while 34 were assigned to a waitlist group. Prior to the intervention, participants' psychiatric symptoms were assessed using the Brief Symptom Inventory 18 and their health related quality of life was assessed using the Pediatric Quality of Life Inventory. The children were then interviewed and made an authentic "wish" that they wanted to come true. The wishes were made possible five to six months after the interview. This fueled anticipation and excitement for the event (Shoshani et al., 2016). Then, the children were reassessed five weeks after the wish was fulfilled. The results of the post-intervention assessment revealed a significant decrease in general distress, depression, and anxiety symptoms, improved health related quality of life, hope, and positive affect. Conversely, there was a decrease in positive affect and no significant changes in other measures for the control group.

Care Planning Interventions

Advance Care Planning

The advance care planning study was designed to examine the feasibility and acceptability of family centered advance care planning for teens with a cancer diagnosis (Lyon et al., 2014). Participants in the study included thirty adolescents with a cancer diagnosis between the ages of 14 and 21. The average age of the participants was 16.5. Thirty family members who were at least 21 years of age also participated. The study was conducted over five visits. The first visit consisted of a baseline assessment of the

participants using The Satisfaction Questionnaire, Five Wishes, The Beck Anxiety Inventory, The Beck Depression Inventory, The Pediatric Quality of Life Inventory, and The Spiritual Well Being Scale. Then, three weekly 60 minute sessions took place in which the interventions were implemented. The first visit utilized the Lyon Family-Centered Advance Care Planning Survey. The second implemented the Respecting Choices Disease Specific Advance Care Planning Interview and the third was the Five Wishes which serves to facilitate the expression of treatment preferences of adolescents under eighteen years of age. The final visit was three months post-intervention for follow up (Lyon et al., 2014). Results of the study showed no significant changes in quality of life scores, but 100% of participants reported the intervention to be worthwhile. Additionally, spiritual well being, anxiety, and depression scores significantly improved from the baseline assessment.

Discussion

Although the intervention types varied, several common themes emerged. First, the implementation of psychosocial interventions prior to or during treatment and procedures improves patient tolerance of treatment. Second, caregiver/parent involvement and support is crucial for achieving positive psychosocial outcomes. Third, psychosocial interventions should be implemented by professionals and not the parents or caregivers. Fourth, psychosocial interventions can reduce procedural anxiety, overall anxiety, distress, depression, and pain while improving quality of life, coping skills, communication, spiritual well being, hope, and social and family functioning. Fifth, pediatric oncology patients and their caregivers/parents are at an increased risk of

developing short and long term psychosocial issues when psychosocial interventions aren't implemented in the care plan.

A desired outcome from multiple study types was decreased anxiety through the improvement of communication and coping strategies. This was a common outcome seen in the art and pretend play therapies. For example, the use of art therapy allowed patients to portray their symptoms and how they viewed their situation. This expression added an aspect of non-verbal communication which is crucial in pediatric care. The additional insight into patient's perceptions resulted in the healthcare teams' ability to teach coping skills and ultimately reduce the anxiety of the patients (Altay et al., 2017; Linder et al., 2018). Enhanced communication also resulted from therapeutic play techniques that allowed the patient to express emotions and feelings, verbally or nonverbally, that they may not otherwise express (Witt et al., 2019). The pretend play scenarios were also used to instill ideas of positive coping mechanisms in the patients. Applying positive coping strategies in a pretend play story that represents the patients' own situation allows them to develop those coping mechanisms for their own use which also improves self-efficacy and quality of life (Frygner-Holm et al., 2020).

Reducing distress and improving emotional regulation were two other prevalent outcomes from the studies. Implementing cognitive behavioral therapy (CBT) exercises such as positive thinking, breathing exercises, and guided imagery techniques helped to eliminate anticipatory anxiety for treatment and resulted in an increased sense of control (Hsiao et al., 2019). Art therapy also improved treatment tolerance by providing something pleasant to look forward to during treatment (Bultas et al., 2017). Similar

effects were seen in the hypnosis intervention as both parents and patients agreed a hypnosis intervention could help with emotion regulation (Gregoire et al., 2019). Furthermore, music therapy helped reduce distress in pediatric oncology patients. However, the activities should be implemented by the healthcare professionals and not the parents or they may experience unintended stress and a feeling of burden (Robb et al., 2017).

These desired outcomes and a variety of others resulted from most of the studies. For instance, improvements in quality of life were seen in the play interventions as well as the Make-a-Wish activity. Spiritual well-being, religious activity participation, and improved family functioning also increased in the advance care planning study and with music therapy. (Robb et al., 2014; Lyon et al., 2014). Furthermore, Enhanced coping abilities were observed in nearly all of the studies. Ultimately, the significant improvement in psychosocial outcomes resulting from these interventions strengthens the argument for their implementation in the care of pediatric oncology patients.

Application of Evidence to Practice

Psychosocial researchers, psychiatrists, psychologists, and other physicians were involved in the implementation and evaluation of these intervention studies. This was necessary to determine their effectiveness and feasibility. However, after determining the positive psychosocial effects of the interventions, many can be implemented on a larger scale and more efficiently by nurses. This application to practice is of particular importance in allowing existing evidence to inform clinical decision-making and improve patient outcomes. Nurses are able to implement different art, music, play, and even CBT

interventions for the patients. The Make-a-Wish activity will require outside sources and advance care planning and hypnosis will require physicians, so they may not be utilized as frequently.

Teaching improved coping skills and enhancing communication through art and play therapy is within the scope of practice for an RN with the proper psychosocial training. Nurses can provide art supplies and toys to patients and utilize them to encourage the patients to express their feelings and emotions and build on that. Nurses can also provide methods for the patients to listen to music to relieve stress and treatment related anxiety. They may even have a role in cognitive behavioral therapy, although it's more likely for child life specialists and professionals trained in psychology to implement them (Hsiao et al., 2019). Ultimately, most of the interventions can be implemented by nurses on a regular basis if they're put into the care plan.

Limitations

Although the 11 studies included in this literature review were critically appraised and determined to be valid; there were still different types of limitations. Firstly, the resource pool of 11 studies may be considered a relatively small sample size. Also, of the 11 individual studies; 10 consisted of what may be considered relatively small sample sizes with participant groups ranging from 1 to 66. This does not call for the dismissal of their results, as they produced statistically significant evidence, but the validity would improve with more participants. Additionally, 2 of the studies only utilized descriptive measures to collect results and used no statistical tools to analyze the data produced. This limited the validity of the studies as it inhibited the expression of quantifiable clinically

significant results. Lastly, 4 of the studies included adolescents and teenage patients who could be considered to be at a difficult time in their emotional development. This could have impacted the measurements on their psychosocial outcomes and added an independent variable to the study as compared to their younger counterparts.

Areas for Future Study

These studies showed the potential for different psychosocial interventions to positively impact psychosocial outcomes in pediatric oncology patients and their caregivers and provides direction for areas of future study. For example, the studies that only used descriptive measurements to analyze their results could implement a quantitative analysis tool to improve the validity of the studies. Also, the studies all focused on how one intervention such as pretend play, music therapy, art therapy or others affected different psychosocial outcomes but none of them combined the interventions. Future research could be used to determine if utilizing multiple psychosocial interventions in the care plan would yield additional positive outcomes. Another potential area for future study could be researching which psychosocial interventions provide the best outcomes in specific sub-populations of pediatric oncology patients. The included interventions may have varying levels of success depending on patient age, cancer type, treatment length, and other variables related to the patient. Further research could potentially lead to improved patient outcomes.

Conclusion

The pediatric oncology patient population and their caregivers are at a heightened risk of developing short and long term psychosocial issues due to a cancer diagnosis.

Findings demonstrate that at least 25% of these patients will develop a significant mental health illness such as anxiety, major depressive disorder, or PTSD. Furthermore, at least half of this patient population will experience symptoms of significant depression (Coughtrey et al., 2017). Similarly, parents commonly suffer from psychosocial issues such as anxiety, depression, anger, loss of faith, and post-traumatic stress (Gunter & Duke, 2018). This is why research to determine the effectiveness of psychosocial interventions on psychosocial outcomes for pediatric oncology patients and their caregivers is crucial to providing holistic health care. Through the integrative literature review, findings have determined that psychosocial interventions can reduce procedural anxiety, overall anxiety, distress, depression, and pain while improving quality of life, coping skills, communication, spiritual well being, hope, and social and family functioning. For these reasons, it's of the utmost importance to allow the existing evidence about these interventions to inform clinical decision-making and ultimately improve patient outcomes.

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Appendix

Evaluated Study Descriptions

Author	Step 1: Abstract review; Y/N	Step 2: Review of quality research; research design	Population and sample	Validity	Results	Study strengths	Study weaknesses	Fit with research question?	Include Y/N	Exclusion rationale
Maureen E. Lyon	Y	Randomized controlled trial	30 adolescents between the ages of 14 and 21 with a cancer diagnosis and 30 family members at least 21 years of age.	Study valid for my patient population and research question.	Significant improvement in spiritual well being, anxiety, and depression scores with no significant changes in quality of life scores. Furthermore, 100% of participants reported the intervention to be worthwhile.	The study was feasible, effective, and included both patients and their parents which fosters more holistic care.	The study consisted of a small sample group.	Y	Y	N/A
Elsabeth M. van Dijke-Lokkart	Y	Randomized controlled trial	30 children between the ages of 12 and 18 with a cancer diagnosis.	Study valid for my patient population and research question.	Most patients rated the interventions as useful and did not view them as a burden.	Study uses qualified psychologists to implement psychosocial interventions for children with cancer and yields positive results.	Small sample size and some patients found that interventions not age appropriate.	Y	N	The interventions did not seem age appropriate.
Margaret W. Bullas	Y	Case study	1, 11 year old child undergoing treatment for neuroblastoma.	Study valid for my patient population and research question.	The intervention distracted the participant from treatment pain and provided her and her mother with something to look forward to during treatment.	The intervention is feasible and the results provided support for further studies to examine its effectiveness.	Only 1 participant took part in the study.	Y	Y	N/A
Katja I. Braam	Y	Randomized controlled trial	68 children between the ages of 8 and 18 with a cancer diagnosis.	Study focused mainly on physical interventions and outcomes, so not valid for my research.	Positive physical outcomes, but insignificant psychosocial outcomes.	Large sample size with adequate follow up and positive physical outcomes.	Primary focus on physical interventions and outcomes.	N	N	The focus was mainly on physical interventions and outcomes, rather than psychosocial.

Stefanie Witt	Y	Pilot study (qualitative design)	15 pediatric oncology health professionals and 13 parents of children with leukemia.	Study valid for my patient population and research question.	Both the parents and professionals expressed beliefs that the intervention could improve well being and strengthen adaptive mechanisms, and enhance quality of life for the patients.	The study is feasible and showed the potential of the intervention to improve patient outcomes.	Small sample size and risk of bias due to differences in treatment duration, time passed since diagnosis, and child age.	Y	Y	N/A
Elisabeth M. van Dijk-Lokkart	Y	Randomized controlled trial	68 children between the ages of 11 and 18 with a cancer diagnosis.	Study valid for my patient population and research question.	No significant physical or psychosocial difference between control group and intervention group.	Large sample size and adequate follow up.	Burdensome for patients to participate in intervention.	Y	N	Physical exercise combination made the intervention burdensome for patients.
Sanne L. Nijhof	Y	None	Children with chronic illness.	Not a research study, but a valid article.	Play interventions can significantly reduce stress for children with chronic illness.	N/A	N/A	Y	N	The article was non-experimental.
Stephanie Lichtor	Y	None	Children with cancer.	Not a research study, but a valid article.	Trauma oriented psychosocial interventions can help inhibit the development of YPTSD.	N/A	N/A	Y	N	The article was non-experimental.
Zeynep Kisecek Sengul	Y	Randomized controlled trial	Children between the ages of 9 and 18 with a cancer diagnosis	Study valid for my patient population and research question.	A technology based psychosocial intervention can help decrease stress and improve quality of life and coping skills.	Study address both patients and their parents.	May not be feasible if access to technology is limited for patients.	Y	N	The article covers a trial design that has not yet been implemented.
Miriam Douma	Y	Randomized controlled trial	Children between the ages of 12 and	Study valid for my patient	N/A	Easy for patients to	Not disease specific.	Y	N	The article covers a trial

Sheri L. Robb	Y	Randomized controlled trial	18 with chronic illness and their parents. 16 Children between the ages of 3 and 8 receiving chemotherapy for a cancer diagnosis.	population and research question. Study valid for my patient population and research question.	Children in the intervention group had lower emotional distress levels and parents had no issues delivering the intervention. However, the parents in the intervention group did not receive the intended benefits and experienced greater distress than the control group parents.	participate because of the online format. The study addresses both their parents which encompasses a more holistic approach to care.	The study consisted of a small sample group. measurements of child distress were limited to one behavioral indicator, and parents were asked to recall use of the intervention over a 30 day period which could have affected the accuracy.	Y	Y	design and isn't cancer specific.
Sara Frygner-Holm	Y	Pilot study (mixed method design)	5 children between the ages of 4 and 10 with a cancer diagnosis who were engaged in active treatment.	Study valid for my patient population and research question.	Small improvements in self efficacy and quality of life with no adverse effects or increased worrying due to the intervention.	The study is safe, feasible, and promotes patient communication and participation in their care.	The study consisted of a small sample group who all suffered from the same type of cancer (Acute lymphoblastic leukemia). Also, only descriptive data measurements were presented.	Y	Y	N/A
Marci Mechtel	Y	None	Children with cancer undergoing surgical treatment.	Study valid for my patient population and research question.	Surgical interventions can cause much additional stress and anxiety for this patient population.	N/A	N/A	Y	N	The article was non-experimental.
Hsin Ju Hsiao	Y	Randomized controlled trial	18 children between the ages of 3 and 11 who received a lumbar puncture and bone marrow aspiration	Study valid for my patient population and research question.	Significant reduction in distress and fear related to lumbar puncture and	The study focuses on distress caused by common cancer treatments and	The study consisted of a small sample group who were all recruited	Y	Y	N/A

for cancer treatment.	113 adolescents/young adults between the ages of 11 and 24 receiving hematopoietic stem cell transplants.	Study valid for my patient population and research question.	bone marrow aspiration treatments.	shows the potential of the interventions and their effectiveness.	from the same facility.			
	Randomized controlled trial	Y	Significant improvements in religious activity participation, courageous coping, social integration, and family environment.	The study consists of a large sample group from 8 different institutions and demonstrated the feasibility and effectiveness of the intervention.	Y	Y	N/A	
	41 survivors of childhood cancer between the ages of 13 and 21.	Study valid for my patient population and research question.	No significant signs of psychosocial distress due to quality psychosocial support during treatment.	Provides quality information on lasting psychosocial effects of childhood cancer.	Small sample size.	Y	N	The article covered psychosocial outcomes, but no interventions.
	27 children between the ages of 6 and 12 receiving treatment for cancer.	Study valid for my patient population and research question.	The intervention increased understanding of the symptoms that the participants experienced and how they coped with them through non-verbal communication.	Showed the potential of this intervention to enhance patient communication and understanding of patient symptoms by the healthcare team.	Small heterogeneous participant group with little diversity from a single institution.	Y	Y	N/A
	30 children between the ages of 9 and 16 who received at least two courses of chemotherapy.	Study valid for my patient population and research question.	Significant reduction in anxiety post-intervention as compared to pre-intervention.	The intervention is feasible and the results showed its potential for reducing anxiety in the patient population.	The study consisted of a small sample size and the results may not generalize to other populations and could change based on the individual	Y	Y	N/A
	Quasi-experimental design	Y						
Sheri L. Robb								
Carmina Castellano-Tejedor								
Lauri A. Linder								
Naime Altay								

Anat Shoshani	Y	Randomized controlled trial	66 children between the ages of 5 and 12 with life threatening cancer.	Study valid for my patient population and research question.	Decreased stress, depression, and anxiety while improving quality of life and hope.	The study allowed the patients to choose their intervention which increased their participation in their care.	participants and their cultures. The study consisted of a small sample group, participants could not be blind to their group assignment, and it was a one time intervention.	Y	Y	N/A
Charlotte Gregoire	Y	Quasi-experimental design	9 children between 11 and 17 years old who have cancer and 13 of their parents.	Study valid for my patient population and research question.	Children developed useful strategies for coping with negative emotions, relaxing, being more assertive, and respecting themselves. Furthermore, Parents and children both reported the intervention helped them regulate their emotions and develop helpful coping strategies.	The study includes both patients and their parents and showed the potential of the intervention for further implementation.	The study consisted of a small sample group, no objective measures were used to gauge satisfaction or change, and the patient population could be considered to be at a challenging developmental level.	Y	Y	N/A