

**WORK STRESS IN NURSING OF CHILDREN WITH
CANCER: CAUSES AND COPING METHODS**

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In this research the main focus was made on the on the factors causing stress among nurses as health care professionals in pediatric oncological nursing. Also the common coping methods were pointed out.

The purpose of this research was to find out and describe the most common challenges and stressors for nurses dealing with underage cancer patients and their families, plus the coping strategies that can be applied for nurses as workers.

The method of the following research was the literature review. Professional books about pediatric cancer care and main aspects in nursing care of cancer patients, as well as previous studies done about challenges and working stress that nurses come across on the job in that sphere were reviewed.

Most common stress factors in pediatric oncology were: heavy workload and organizational conflicts, such as resource shortages; interaction and communication issues with patients, caregivers and members of the health care multidisciplinary team; experience in nursing and lack of training; private life factors. Sharing difficult experiences and knowledge, receiving emotional support, discussing patient issues, valuing one's contribution were found out to be factors that help pediatric oncology nurses to cope with stress. Other big part of possible stress managing strategies was found to be healthy lifestyle.

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1 INTRODUCTION

According to National Cancer Institute of USA (NCI), cancer can be defined as a disease which includes abnormal division of cells and their invasion into other tissues. There are more than 100 different types of cancer (NCI, 2014.) In children of 0-15 years old, the incidence of the disease is usually between 70 and 160 per one million. Childhood cancers differ from adult cancers by the site or location of the malignant tumor growth and tissues affected (Stiller 2008, 28-40.) Even though with modern advanced medical technologies over 83% of children diagnosed today with cancer will be long-term survivors, it is still considered to be a life-threatening illness (Jones 2012, 218). USA mortality rate among children under the age of 14 with diagnosis of cancer in years 2007-2011 was 2,2 per 100000 (SEER 2011, Table 28.9). Although nowadays the vast majority of childhood cancer cases are cured, treatment of some types of cancer involves palliative care, which is psychologically hard for every human being, since it generally refers to a non-curative care administered to the dying or to patients terminally ill with an incurable disease (Jalanko, 2012; Segen's Medical Dictionary, 2012).

Pediatric nurses spend more time with little cancer patients than any other health care professional. They are in a unique situation of facing needs of patients with life-threatening illness and their families. In this situation pediatric nurses come across lots of spiritual, social, ethical, legal, psychological and physical demands and challenges at work. And according to previous studies, pediatric nurses are hardly prepared to handle those (Stayer 2012, 350–356.)

After a number of tutoring and supervising sessions on performing the Bachelor's Thesis I have chosen the topic of working stress in nursing children with cancer. Since cancer among children is not a very common disease, not many researches were done previously about the stress among health care staff dealing with earlier mentioned category of patients, and even less attention have been paid to methods for coping with stress (Happell et.al.2013, 195; Nahm et.al.2012, 24; Zander et.al.2010, 95). Furthermore, the coping methods are of a big help in health care professions due to the fact, that stress has an important impact on the health of health care professionals and that affects the quality of care provided.

The purpose of my research is to explore the evidence on the topic and to create awareness

about the stress that nurses come across during their work in the field of pediatric cancer care. The aim of my research was to create a clear and simple outline of the factors causing stress and advice possible coping methods for nurses working in the field of pediatric oncology.

My research consists of literature review of the books, articles and previous studies performed using data collected in EU and USA in years from 2000 to nowadays about working stress among health care professionals, specifically nurses dealing with pediatric cancer patients. Through computer and manual library and databases searches, the online journal articles and books were found, filtered, critically reviewed and summarized to provide answers to the research questions.

2 CANCER CARE OF PEDIATRIC PATIENTS

2.1 Cancer as a disease

Cancer is a disease which mainly assumes mutations in cells that veer from the normal routes of cellular reproduction, move to neighboring normal tissues, and end develop into secondary tumors (metastases) on locations different from the initial origin. In human beings, cancer refers to at least 100 versions of a disease that can develop in almost any tissue in the body (Masoudi-Nejad et.al.2014, 3.) The amount of people diagnosed with cancer each year will almost double to 21 million cases by the year 2030 all around the world due to the fact that population is aging. Over 90% of adult cancers are proven to be due to carcinogenic chemicals and radiation. This is where the pediatric cancers are different from adult cancers: most children cancers are due to genetic factors (Parker 2014, 449-465.) Cancers in children under 15 years of age are different from those in older people. Incidence is usually between 70 and 160 per one million (Stiller 2008, 28-40). In Finland at average around 130-150 children are diagnosed with cancer each year (Jalanko, 2012). According to SEER 74,3% of children aged 0-14 survive for at least ten (10) years after the diagnosis of cancer (SEER 2011, Table 28.1 & 28.9). Besides factors causing the disease, diversity also consists of histological characteristics and nature (NIH, 2014).

Cancer is a rare disease among children, and most of cancers that might be common among adults do not occur among children at all (Jalanko, 2012). The most common children's cancers include leukemia, lymphoma, soft tissue sarcoma and malignant brain

tumors (NIH, 2014; see also Jalanko, 2012). Leukemia is the most common type of cancer among children. It refers to a condition when division (multiplication) of white blood cells becomes spontaneous, goes out of control. Main adverse effect of that disease is anemia, or in other words lack of red blood cells. Children's leukemia is generally well taken care of and most of the patients suffering from the disease get cured during at average two years of continuous treatment. Lymphoma is a cancer of lymphocytes, which causes malignant tumors in lymph nodes and other organs of the human body, which are growing at rapid paces. Many lymphomas are nowadays medically curable with help of drugs. As for malignant brain tumors, there are lots of types of them. All of the brain tumors usually cause adverse effects, such as disturbances of normal growth, vision and mobility; also problems with swallowing, paralysis and major convulsions. Malignant brain tumors can be treated through surgical invasion, chemo- and radiotherapy and progress of the disease nowadays is proven to be reasonably good (Jalanko, 2012.)

Oncological problems are considered to be life-threatening due to the complications that the tumor itself or the cancer treatment results into (Williams & Asquith 2000, 298). The agents used in the treatment are strong and toxic enough to cause serious chronic complications which may be severe or even life-threatening in 30% of cases and which obstruct regular everyday life of the patients undergoing the treatment (Skinner 2012, 248). Children and adolescents with cancer report that fatigue is a near-universal experience and one of the most distressing treatment related symptoms. It interferes with normal developmental experiences and compromises overall quality of life (Hooke et.al.2014.) Other complications include cardiac complications, mucositis (inflammation of the surface of the mucous membrane), xerostomia (dry mouth resulting from reduced or absent saliva flow), nausea and vomiting, impairment of neuropsychological, metabolic and immunological function, growth and quality of life (NHC, 2012; Segen's Medical Dictionary; Schiffa & Ben-Aryec 2011, 13-14; Skinner 2012, 248).

2.2 Challenges of cancer for patients and their caregivers

Child cancer provides little patients and their families with loads of challenges and experiences. For children cancer is, no doubt, a traumatic experience. Once they survived it, cancer treatment procedures still have made the impact on patient's psychological and physiological state. Children are less able to adjust to new unfamiliar environment

compared to adults. Child is exposed to separation from family members, plus painful treatment. Children find presence of their family members very comforting, and that mutually increases their coping ability (Cox, 2009.)

When we talk about nursing of a child, it is important to understand, that patient's family and caregivers are an essential part of nursing process. Family members of the children - their parent caregivers and siblings, - eventually do adjust and cope with cancer situation, but majority experiences post-traumatic stress syndrome. In other words, the cancer diagnosis is experienced as trauma and may even have a negative effect on family structure and well-being (Foster et. al.2010, 206.)

"Fear, uncertainty, chaos, and loneliness replace what was safe, secure and well-known." (Foster et.al.2010, 206)

Family members experience fundamental changes in the daily life (Foster et.al.2010, 206). However, despite high rates of distress, families also show adjustment, optimism and positive view to the future (Jones 2012, 218).

2.3 Treatment of pediatric cancer patients

Childhood cancer care as a whole nowadays is quite intensive. Absolute majority of care is performed in oncological and hematological wards, as well as in the wards taking care of patients with stem cell transplantations. Care of the pediatric cancer patients is provided in pediatric intensive care unit (PICU). The administration of care includes cancer treatment, direct control of complications, treatments and prevention of infections, fluid therapy control and general support of the diseased child (Ranta et.al.2003, 89; Williams & Asquith 2000, 298.) Cancer treatment refers to chemotherapy and radiation as the two of the major methods used to treat cancer (Deutsch & Deangelis 2014, 591–609).

Nursing in field of oncology requires extra professionalism. If we take a look from a medical point of view, in the treatment procedures mentioned earlier cytotoxic agents are used. These medications have to be handled with extra cautions. Gloves, aprons, goggles are used; spillage and contact with body surfaces have to be avoided. Treatment is performed according to the prescribed and documented instructions of the institution (Williams & Asquith 2000, 302.)

Patients are often conjointly septicemic. In other words, they often have a condition caused by pus-forming microorganisms in the blood (The Collins English Dictionary). Reasons for this state include the cancer itself and its impact on normal functioning of the bone marrow, chemotherapy's depressive effect on the bone marrow, high doses of cortisone, invasive procedures and foreign objects inside the tissues of the body, tissue damage (Ranta et.al.2003, 93). Due to that, cancer patients are generally immunosuppressed, which makes them dangerously exposed to all kinds of infections, including the ones that do not cause problems in non-immunocompromised individuals (Williams & Asquith 2000, 302). If the patient falls to some infection while being immunosuppressed due to cancer, slippage of the condition of the patient is highly probable despite the treatment being provided (Ranta et.al.2003, 93). To prevent such a scenario, patients depend on specific requirements. General nursing hygiene, strict hand hygiene before and after procedures has to be performed in accordance with high nursing standards. Main point is to reduce and avoid the risk of contamination of patients with foreign organisms. Hygiene of patients is also performed according to high nursing standards (Williams & Asquith 2000, 302.)

Oncological condition may often require the use of blood products, such as red blood cells (erythrocytes), thrombocytes (platelets), white blood cells (leukocytes) and ice plasma, because other cancer treatments or the disease itself temporarily paralyzes the normal bone marrow function. Red blood cells are given to the patient due to the hemoglobin level, which has to be kept above 100 during the course of radiotherapy, or 110-120 in case of acute bleeding or blood loss from melena or ulcer. Thrombocytes are used to prevent thrombocytopenia – platelets, an important coagulation factor of our blood, can scale down in case of bleedings or due to the disease itself. White blood cells are prescribed in singular cases, which are handled individually in a patient-centered manner, and decisions about prescription are made by the responsible oncologist. Indications for ice plasma include lack of one or several blood factors at the same time. Ice plasma for children has an ABO-blood group classification (Ranta et.al.2003, 88-89.)

Pediatric intensive cancer care also involves thorough attention to the nutritional state of the patient, which happens to be an often neglected problem (Williams & Asquith 2000, 298). Every child with cancer has specific nutritional needs, but generally children with

cancer have an increased need for protein, carbohydrates, and healthy fats. Proteins are used by our body to grow and repair tissues, as well as restore the immune system. Getting enough protein can help the child heal faster from the effects of radiation and chemotherapy, while also helping to prevent infections. Foods like cheese, eggs, milk, yogurt, lean meats, poultry, fish, beans, peanut butter, nuts, lentils, and soy are all good sources of protein. Carbohydrates are the body's fuel, providing energy for cells and helping to maintain organ function. Good sources of carbs are breads, pasta, potatoes, rice, cereals, fruits, corn, and beans. They add fiber, which helps kids feel fuller longer and prevents constipation as a common side effect of cancer treatment. Fats help the body store energy, defend body tissues, and carry certain vitamins throughout the bloodstream. Fats also are dense in calories, which is important to a child who might be losing weight during treatment. Unsaturated fats that are found in fish, nuts, olive oil, and vegetables like avocados are much healthier than saturated fats and trans-fats that are found in red meats and greasy, fried foods (Nemours, 2014.)

2.4 Care of pediatric cancer patients: holistic point of view

From a holistic point of view, there are ethical standards for any type of care. Main of them includes beneficence, non-maleficence and autonomy. Nurses are bound by these principles; they have a principled responsibility in building an atmosphere of moral respect, which is crucial for effectiveness of treatment (Foster et.al.2010, 212.) It is nurse's job to be able to understand, provide, meet and appreciate the needs of children with cancer, which is a life-limiting illness, and their families (Stayer 2012, 350–356). Care includes cultural and religious knowledge and understanding. Nurses must recognize, realize, explore and honor cultural ideas, differences and priorities for each child and family throughout the whole time of care (Foster et.al.2010, 207.) That could be done through communication with the child and the family members. Communication is the basis of human relationship. Nurses as well and other health care professionals are supposed to productively communicate with ill children of distinct ages, cultures and situations, but communication efforts do not always go steadily well. Beale, in the Journal of Clinical Oncology, suggests the "Six Es of Communication" as a communication guide, which generally includes main concepts of communicative interaction with the ill child. These include discovering and taking into account child's emotions, convenient timing, encouraging child with presence, explaining information on treatment, create positive

communication (Beale et.al.2005; Foster et.al.2010.) Asking and listening nurse determines child's and family's reality helps to implement different approaches of care (Foster et.al.2010, 210).

The development of oncological disease may be associated with a wide range of emotional reactions, such as uncertainty, oppression, anxiety, fear, shame, guilt, anger. The patient should not be left alone with feelings. He or she should be encouraged to ask their own care-related issues and to bring out their own opinions, as well as be able to tell their own wishes. In turn, nurse should tell, instruct and inform about the practicalities applied in the treatment process: patient and his/her family need information about their disease and its treatment methods. It is also nurse's task to make sure that the patient is able to and does understand the information given to him/her and the caregivers. Active participation in the treatment can support the patient's experiences of his/her own life and control their own feelings. Additionally, it can promote the survival of cancer. The earlier stated aspects can be covered by the term "psychosocial support". Aim of the emotional and psychosocial support of the patient is to guide and help patients and their loved ones to cope with the new situation in life that includes cancer research, treatments and follow-ups (Ahonen et.al.2013, 162-164.)

2.5 Palliative care in nursing of pediatric cancers

Childhood cancer has been proven to be the second most common cause of death among children (Matziou et.al.2008, 210). SEER shows, that mortality rate in USA of children under 14 years of age with diagnosis of cancer is at the range of 2,2 per 100 000 (SEER 2007-2011, Table 28.9; see also attachment 1).

Palliative care is intended to improve the quality of life, by relieving pain and distressing symptoms and answers physical, emotional, social and spiritual requirements (Segen's Medical Dictionary, 2012). World Health Organization (WHO) provides the main characteristics of that type of care, which are stated further. Palliative care provides early identification and flawless treatment and assessment of pain and other afflicting symptoms, such as nausea, vomiting, bleedings, etc. It declares life and at the same time views death as a normal process. It also does not precipitate death neither suspends it, although palliative care itself might positively influence the progress of the disease.

Palliative care begins at the moment of the initial diagnosis and continues regardless of whether or not the treatment the child is directed to the disease (WHO, 2012.) Palliative care can last for days, weeks or even years. Patients use a variety of ways to adapt to the situation. When the disease has progressed to an advanced stage, the end of life can be accompanied by the fear of upcoming symptoms, such as shortness of breath and pain; and concern for the loved ones. It is possible that the patient is experiencing depression and fear at this point (Ahonen et.al.2013, 162.) Palliative care creates support systems for the patients and their family, aiming to help them cope in their bereavement. It also includes multidisciplinary counseling (WHO, 2012.) The care plan and its implementation are based on the clients' individual situation and needs (Ahonen et.al.2013).

3 STRESS

3.1 Stress in general

Now let us get a picture of what is stress, its nature, sources and consequences. Everyone feels stressed from time to time. Generally, stress is a part of the management and collaboration of all the systems in the human body, and can be generally defined as the brain's response to any demand. If we take a look from an anatomical point of view, when a person is excited, upset or under stress, powerful response is carried out by the so-called sympathetic nervous system. As part of the autonomic nervous system, the sympathetic nervous system prepares the body for stress by regulating involuntary functions, transmitting impulses to the internal organs and from them. The autonomic nervous system provides a clear regulation of body functions to maintain internal balance – homeostasis, in which normal life functions are performed. Maintaining homeostasis is the main task of the nervous system. Stress is able to break the dynamic equilibrium. It is an extreme situation in which physical or emotional needs of the body are sharply increased. When one faces a dangerous situation, the pulse quickens, blood pressure rises, digestion slows down, breathing fastens, muscles tense; brain requires and uses more oxygen and increases activity. Chemical reactions occur in the liver, resulting in increased blood glucose level. Physical or emotional stress causes one or more of the responses of the various components of the endocrine system. Thus, cortisol, secreted by the adrenal glands, helps to increase energetically valuable substances - glucose, fatty acids and amino acids; adrenaline secreted by the adrenal glands, is released into the blood under the influence of the sympathetic nervous system and elongates and strengthens the

physiological protective response; vasopressin, secreted by the hypothalamus, raises blood pressure and is involved in water retention in the body; glucagon, secreted by the pancreas, increases blood glucose levels; aldosterone, a hormone of the adrenal glands, promotes water retention in the body, thereby helping to increase blood pressure. Depending on the circumstances, a person may experience tremor, sweating and dry mouth. Feelings of stress are caused by the body's so-called instinct for self-defense - psychological condition that results in the maximum boost of all organs and systems. All activities are aimed at survival. In the short term, it can even boost all the systems of a human body in a good way, e.g. immune system (NIH, 2014; McMillan 2007, 72-73.)

In a continuous condition of stress, also called chronic stress, some people can adapt to changing conditions. However, the violation of physiological and chemical equilibrium may have a negative impact on one's health. It causes both physical and mental disturbances, damages mainly the cardiovascular, gastrointestinal and immune system. In other words, the impact is called stress-related health problems. Some people experience problems with gastro-intestinal system, such as ulcer and gastritis; others may have headaches, sleeplessness, depressed mood, anger, and irritability. Chronic stress puts people into risk groups for a variety of diseases. People under chronic stress get more frequent and severe viral infections, while vaccines, such as the flu shot, are less effective for them. Exhaust of adrenal glands can result in endocrine disorders, which in turn can lead to severe hypoglycemia and sustained hypotension, as well as life-threatening heart rhythm disorders. It is interesting that in relatively equal other circumstances, eager and ambitious people repeatedly experiencing stress have increased risk of heart attack; also, some researchers believe that individuals recently gone through serious stress have increased risk of cancer due to the weakening of the immune system (NIH, 2014; Isikhan et.al.2004; McMillan 2007, 90-91.)

3.2 Stress in nursing

Nurses are responsive and forbearing caregivers, and they have to battle with a diversity of occupational stressors, many of which result in less than effective emotional responses. Nurses come across the reality that health care is a stressful occupation on an everyday basis. A complicated specialized workplace requires a lot of coping with changes in technology and professional development. It is a variegated and rapidly changing

combination of circumstances and surroundings. In such an environment, there are many practicable aspects causing stress. Nurses do not have an overall proportionate control over their surroundings at work. Encountered in nursing profession and combined with a high degree of liability and low degree of autonomy, a number of factors lead to a serious degree of occupational stress (Littlejohn 2012, 360-363; McGrath et.al.2003, 556; Kath et.al.2013, 1475.)

Professional relationships in-between colleagues in the multidisciplinary team are often mentioned as major stressors, especially in relation to the aspects of nurse-doctor interactions in decision makings on patient care. Conflicting views regarding the provision of care, and approaches to care are complicated. They demand compromising with different philosophies of care and opinions on how to go on with the care process. Lack of autonomy, powerlessness to make a difference in an upsetting situation, weaker positions in decision making are said to be inadequate compared to the professional training that nurses have in their background (Gulati et.al.2014, 9; McGrath et.al.2003, 557-563.)

Another stressful aspect pointed out in literature is the role confusion and overlap. Gulati suggests that overlap in roles occurs time after time, because families were not always familiar with work-related tasks of the members of the health care team. Hence, they would ask the wrong staff member or more than one for assistance, so the work-related activities might even duplicate (Gulati et.al.2014, 10.)

Disrespectful and out-of-order behavior among health care professionals can act as a major threat to patient safety and overall quality of care. Through effective promotion of open communication, mutual respect and shared decision-making in inter-professional teams, good quality patient care is achieved. To learn to increase the coping repertoires Littlejohn, P. suggests these possible coping and stress-reducing methods: apply quality thinking on the events of the day and then ask counsel from a trusted friend; write down the reflections and feelings about what has happened at work; take a few deep breaths and visualize yourself speaking calmly and slowly; and take a few minutes to center oneself by meditating. In relation to the application of the described strategies, Littlejohn raises the term "Emotional Intelligence" as a major factor determining coping abilities. Emotional intelligence identifies three factors: emotional clarity, emotional repair, and emotional attention. Emotional clarity refers to an individual mindset to differentiate own emotions and moods; emotional repair refers to an individual's ability to control and regulate their

own feelings; emotional attention shows an individual's capacity to observe and think about their own feelings and moods. The term "emotional intelligence" does not inevitably refer to proneness, accomplishments or general intelligence. It is more defined as a total combination of all the skills learned along with life experience. It is a way to help ourselves grasp, manipulate and control our different relationships, including those in health care occupational environment. Individuals with high emotional intelligence are said to be able to cope with work stress and occupational demands very well (Littlejohn 2012, 361-365; Augusto Landa et.al.2008, 891.)

Novice nurses are especially affected by stressful working environment due to lack of training and experience. They regularly experience the adverse impact of medical alarming events, because they have not discovered and developed competent coping strategies compare to expert nurses (Littlejohn 2012, 363; Meyer et.al.2013, 181.) But it is important to understand, that not one individual can have a full scope of knowledge needed to successfully take care of a child with cancer. Possibility to consult with other members of the multidisciplinary team about how to make decisions on specific patient issues allows novice nurses to carry out holistic care from different perspectives (Gulati et.al.2014, 6.)

Nurses are confronted with the moral and emotional challenge to oppose the vulnerability and suffering of patients, their relatives, co-workers, and themselves. Nurses are in an exclusive position that expects them to perform such challenging duties as providing precise, complete, careful and detailed information to families, being a connection between the patient and other health care professionals taking part in care. Nurses encourage participation and choices in the plan of care. Clinical decisions have to match values and goals of the child and family. Challenging discussions have to remain child-focused and decisions have to reflect best interests of the patient. It is difficult to reach consensus about patient issues especially when people fail to recognize that the focus should be on caring for the child patient (Foster et.al.2010, 212; Gulati et.al.2014, 10.)

Nurses often form close relationships with pediatric oncology patients. As such, the death of a child is one of the most stressful events possible.

“If it is a child that is not doing well, that is dying, it is obviously stressful for everybody and I find that talking to the other members of the team really helps.”
(Gulati et.al.2014, 7)

Grief develops from the experience of loss, and there are many losses when dealing with life-limiting illness, such as cancer, affecting everyone participating in care of the child. Bereavement is a natural influential, distinguished process that surrounds spiritual, social, emotional and physical aspects with its negative and positive consequences. Grief may lead to tremendous pain and distress or personal growth (Foster et.al.2010, 210-216.)

Nursing has a lot to do with stress. And as sad as it is, nurses have been found out to be not so strong in coping with it. Method of one's coping with stress pretty much depends on one's background and personality. It is also influenced by team and social support, personal views, attitudes, circumstances and personal professional experiences (Zander et.al.2010, 95.) Some coping behaviors may pursue well or be ineffective, depending on the situation in which they are applied. In the study focused on stress of health care professionals in oncology Isikhan outlines the most commonly and frequently used stress managing strategies. They include self-confident approach, that refers to assessment of the problem and solving it regardless of the obstacles, struggling and defending the rights; helpless and fatalist approach, deciding that there is nothing to be done to solve the problem; additionally, such approaches as optimistic approach, seeking social support (Isikhan et.al.2004, 240-242.) Similar coping behaviors being already used by nurses are suggested in the study by McGrath. To alleviate stress nurses generally use such strategies and coping methods as individual support, counselling, staff meetings and discussions, change of workplace, reduced workload, seeking help from a professional organization. Secondary coping methods were stated to be sick leaves and early retirement (McGrath et.al.2003, 562.) McGrath also suggests a coping mechanism used to alleviate stress focused specifically on nursing:

“It is suggested that a coping mechanism specific to nursing may be that nurses unconsciously reduce stress in their job by setting nursing objectives as physical objectives in their job.” (McGrath et.al.2003, 563)

Another interesting finding has been cited by McGrath in his study: nurses do not state their partner, family or friends as a primary source of support in coping with working stress. Reasons for that are said to be ethical principles and boundaries of confidentiality, as well as not wanting to burden the family members with work-related stressful disturbances (McGrath et.al.2003, 562-563; Nahm et.al.2012, 23-24.) Some researches

showed that nurses control their work-related stress levels with help of substances, such as alcohol and tobacco, which also refers to the term “*negative coping*” (Happell et.al.2013, 197). Luckily, there are more healthy ways of coping with stress for nurses in the hospital working environment. Gulati describes level of training, years of experience, familiarity with different types of pediatric cancers are valuable sources among colleagues. But again, they will be useful only when team members have access to the extensive knowledge and skills of colleagues through interpersonal communication (Gulati et.al.2014, 6.)

Basic and universal methods of coping with stress suggested in reviewed previous studies done by multiple researchers include the aspects stated further. Solve little problems: this will help to regain the feeling of control. Do not worry about things that are not in your power to solve. Be prepared for the events that you know might be stressful. Look at a challenge as a positive thing, not a threat. Work to resolve conflicts with other people. Avoid overscheduling and set realistic goals at work and in life. Participate in relaxing activities. Take care of getting enough sleep, eat well-balanced food and exercise on a regular basis (Isikhan et.al.2004.)

In the oncological field of nursing it is essential to get to know the personal understanding of life and death to meet the needs of the clients and provide them with adequate support. Nurses have to lead a balanced life, as well as maintain professional boundaries. They have to offer support to each other, have possibility to reflect. Nurses often form close relationships with pediatric oncology patients. The death of a child is one of the most stressful events possible, and care does not end after death. Nurses can help families to set up atmosphere of habitualness and weaken possible feelings of guilt. Nurses give support and care by deliberate and active presence, kindness and gentle accompanying the child and family in this difficult and painful journey of treatment. (Foster et.al.2010, 210-218.)

In an internet journal “Psychology Today” Buettner suggests interesting and easy four stress management strategies. Besides the well-balanced diet strategy and exercise, there are three more tips. First one suggests starting a daily stress journal. It will eventually help to identify patterns, which will help you reflect and develop healthy management strategies. Advice number two is to learn to say “no” when there are too many activities in your schedule. There are limits for everything. Furthermore, people will respect your

boundaries and be more appreciative of your time when you do agree to take on a favor or additional responsibility. And the last but not least, keep yourself hydrated. This might surprise by its simplicity, but drinking enough water actually balances the production of stress-hormone cortisol in your body (Buettner, 2012.)

3 RESEARCH QUESTIONS

The purpose of this research is to address practical implementations and provide some recommendations on stress management for pediatric oncology nurses. It creates a greater understanding of the necessity for the supportive interventions for pediatric oncology nurses by building up a theoretical framework for the topic of occupational stress in the specified field. And by answering the two research questions:

1. What are the basic stressors for nurses working in the field of pediatric cancer?
2. What are the main coping methods for nurses working in field of pediatric oncology?

4 LITERATURE REVIEW

4.1 Narrative literature review

Nursing research in general is nowadays believed to have been started as a broader concept in the late 1940s in UK with the beginning of NHS – the National Health Service. And still, since NHS included not only nurses, but sociologists and psychologists as well, only a few nurses were first eons to actually researching nursing and nurses themselves. However, eventually it led to the establishment of Research Society of the Royal College of Nursing, which continues today. The development of nursing research was especially rapid in the 1980s and 1990s in developed European countries with a special contribution to such countries as UK, Finland and Denmark (Moule & Goodman 2009, 2-3.)

The nursing profession is constantly endeavoring to develop health care services and social sciences through nursing research. It is a complex process, which is characterized by the following key elements:

- It is a systematic and logical process
- It is a search for new knowledge and deepening understanding
- It is a search for an answer to a question (Moule & Goodman 2009, 5.)

A number of research methods used to perform nursing research is divided into two major categories: qualitative and quantitative research approaches. Quantitative can be generally defined as a statistical analysis of collected data, aiming to approve or decline any predicted cause-and-effect relationship or to generate a new hypothesis on a phenomenon. Qualitative research approach refers to studies involving social context, exploration of relationships and human experiences in the research settings (Moule & Goodman 2009, 174-177.) This study was made through a qualitative research approach. To perform the study correctly through the quantitative approach, a serious number of nurses treating children with cancer would have been needed as samples. Due to a small amount of population in the area and an obvious lack of population samples needed for the research, the quantitative approach was denied and qualitative approach was approved. Additionally, since the aim of this research is to find out the factors causing stress and possible coping methods for nurses taking care of children with cancer, there is no predicted or newly generated hypothesis to be proven statistically. As such, to find the broad and complex information on the phenomena, the review of literature became a suitable method of the research.

Literature review in general can be defined as a selection of available evidences on the subject, which embrace ideas and data enough to answer certain purposes or express certain views on the content of the topic and how it is to be thoroughly checked into and explored. The literature review should expose at a convenient the span of the topic being researched. A literature review will investigate our knowledge and understanding of the phenomena being studied (Burns & Grove 1995, 57-58; Moule & Goodman 2009, 121-139; Parahoo 1997, 83.) In other words, the chosen method serves to find out what was already known on the phenomenon, which in this research is the topic of stress in nursing of children in need of cancer care. While systematic literature review is more a review of a single specific question without broader description of the topic, the narrative literature review often addresses a wide scope of arguments and sums them up in an overview (Moule & Goodman 2009, 138.)

The method in this study is performed by using literature. The term 'literature' most commonly is refers to mostly any published material, which can be books, theses,

journals, newspapers, etc. The literature being researched is read and encapsulated to set up a picture of what is known and not known about a particular practice problem. Steps for performing literature review are using library, establishing sources, locating origins of data and summarizing research literature. Nurses and other health care professionals often question the efficiency of diverse ways of providing care and treatment, effectiveness of interventions and new treatment procedures. Identification and filling in the occurring gap in knowledge is the aim of the literature review. Researchers have to analyze and appraise the studies already performed on the topic, taking into the consideration the best evidence-based practices (Burns & Grove 1995, 57-58; Moule & Goodman 2009, 121-139; Parahoo 1997, 83.)

4.2 Data collection

Data or information collection is performed by data or information search, which can be done manually or with computer. Manual information search refers to collection of data using library sources (Burns & Grove 1995, 71). Routine library sources are books, journals, monographs, conference proceedings, masters' theses and doctorate dissertations (Burns & Grove 1995, 71). Books provide useful information, which is also reliable, because books are reviewed by experts (Parahoo 1997, 81-96). Manual library was performed by focusing on the title of the books: they had to be relevant to the content of theoretical framework of the study, which is pediatric oncology nursing. However, nursing research practices, which were studied using literature older than ten years old, may be considered as irrelevant in current practices. Moule and Goodman suggest, that any studies, included in the literature review should be up to date, meaning preferably not more than five years old. But concerning the books used in the research, it is also important to point out, that:

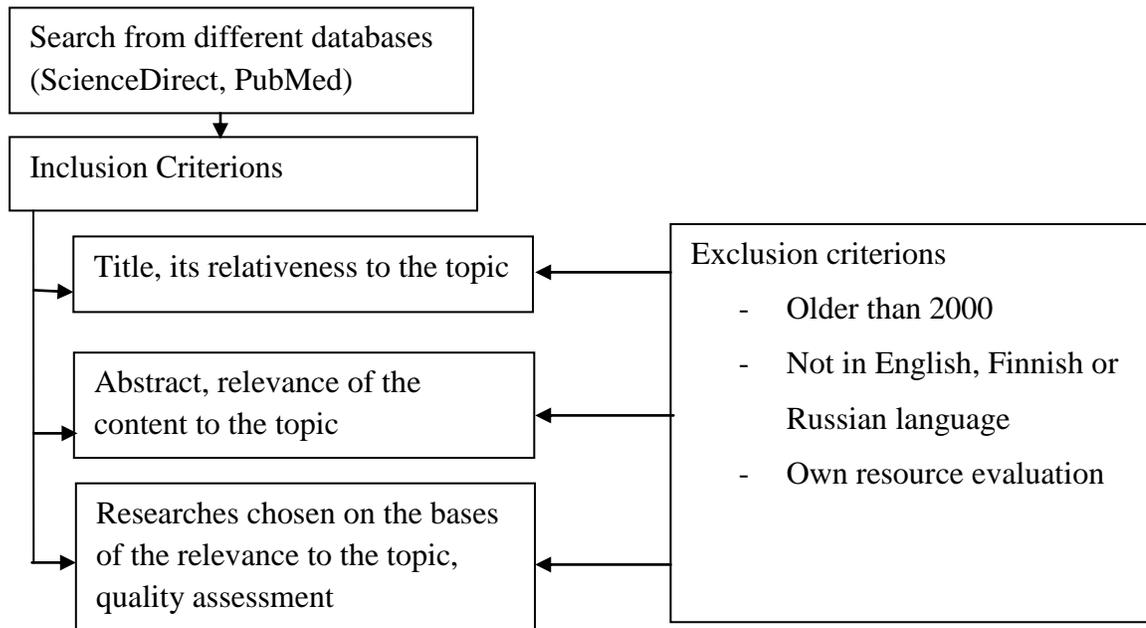
“Exceptions can be accepted for topics where there is a very significant study that remains relevant to current practice.” (Moule & Goodman 2009, 122)

The topic of nursing research methods is to be considered relevant to current practices, so the literature used on that subject may be exceptionally older than the other used literature. To discover and open up the research method in detail, the library books on nursing research were used. All the results of the manual library search are presented in attachment 1.

Since search must be organized by subject, journal, author or relevant topic, computer search has been proven to be the most competent way to search for professional journals for his research, because that type of search has the necessary tools. It gives possibility to perform a convenient search through specialized databases. Computer search is proven to be broad, complete, readily available and modest way of generating of a list of references with complete resource information. Accelerated enlargement of materials being published up-to-date makes computer database search very valuable and helpful (Burns & Grove 1995, 75-76.) In this study the descriptive accounts of nursing practice are used. Those can be found mostly in professional nursing journals. Preferably journals are handled, because collecting data from them might be easier, due to the fact that they have not much information and it tends to be subjective and can be very informative (Parahoo 1997, 81-96). For example, internet magazine “Psychology Today” was chosen as a reliable reference. The mentioned magazine has articles that are written by experts and up-to-date and topics are related to the subject of the study. Besides journals and articles, through computer search I gain access to research report summaries, which are major elements of a study and describe the input of a specific study to, in my case, nursing practice, and abstracts, which are helpful to see whether sources are relevant for the selected topic (Burns & Grove 1995, 58-74). Information found can be divided into few categories: research information, conceptual and theoretical information, statistical information, descriptive, personal opinion (Parahoo 1997, 81-96). Each of them requires analysis.

While searching for theoretical framework material of this study, I have performed computer search through professional databases ScienceDirect, Terveysportti and PubMed of NIC. Certain search operations were performed. Results of search are presented in the attachments 2 - 4. The initial search through ScienceDirect database gave large amount of results – over 600,000 as it is presented in earlier mentioned attachment 2. The data collection strategy used is universal for both theoretical framework material and research questions. Summarizing research literature involved selection of relevant literature with help of certain touchstones and is presented in the table below (table 1).

Table 1
Inclusion and exclusion criteria



With inclusion criteria such as year of publication and relevance to the topic of working stress in pediatric oncology, specific exclusion criteria were applied. Firstly, with own resources such as time and personal skills and capabilities being limited there was no possibility to look through all the search results (see Attachment 2). So after assessing my own time and competences the search results have been limited down to ten (10) first articles per each key word search section in the lists of results, rated by popularity and ratings of the articles. Secondly, my language skills limited search results down to articles in English, Finnish and Russian. Third exclusion criterion was the country: only articles concerning USA and EU or based on data collected in general all over the world, were chosen. After applying exclusion measures, further filtering of articles was performed. Titles were estimated for relativeness to the earlier already stated topic of working stress in pediatric oncology nursing, chosen abstracts were revised: article had to be focused on stress, children, nursing and cancer. Focus of the titles of reviewed literature is presented in attachment 3 and attachment 4. Described search strategy has provided me with a suitable amount of articles to be reviewed for the purposes of my research. More specifically, nine articles were in the end chosen from computer databases as reliable and suitable references to answer the research questions of my literature review (see

Attachment 4). Abstracts were thoroughly analyzed and full text versions were evaluated. Information was collected, combined and paraphrased.

Another professional database, Terveystietokanta, was used during computer search for theoretical material on the topic of the research. It claims itself to be a professional database for health care experts. The database presents materials in Finnish language, so it was used in the basic search. Search words and results are shortly presented in attachment 2; the search strategy was the same as described in table 2.a. Also, SEER- database (Surveillance, Epidemiology, and End Results Program) of National Cancer Institute, USA was used. As we can see in the name of the database, it presents us with statistics on diseases from different aspects. Search engine of that database is well-structured and helped me very easily to find the one and only necessary table providing me with the information I requested. Search strategy is presented in earlier mentioned table 2.a, as well as in attachments 2 and 4.

4.3 Content analysis

Content analysis is a procedure for analyzing documents systematically and objectively. As an inevitable step of the process, it helps to show the examined phenomenon in a concentrated and conceptualized form. Content analysis is perfectly suitable for unstructured data, making it usable in the analysis of different kinds of written material. There are no specific rules on how to do the content analysis, but there are a number of certain guidelines for it (Kyngäs & Vanhanen 1999, 3-5.)

Content analysis itself can be performed either inductively or deductively, when the analysis is controlled by the previous knowledge-based classification of the researched question. However, both these methods have a common first step, which is determination of the content unit (Kyngäs & Vanhanen 1999, 3-5.) In this study content units varied. It could be a combination of words, for example, the term “*occupational stress*”, used by McGrath throughout his article “Occupational stress in nursing” in an International Journal of Nursing Studies, and the concept of “*coping strategies*” being one of the focus points in this thesis (McGrath et.al.2003, 555-565; Isikhan et.al.2004, 240; Littlejohn 2012, 364; see also Attachment 5). It could also be a statement in a form of one sentence, for example:

“Problems with the patients and their relatives are stated to be an important factor in job stress.” (Isikhan et.al.2004, 242)

Or it can also even be an idea as a whole, which could be a combination of few sentences, for example:

“Interactions with patients, in particular the need to deal with death and dying, are also major stressors. Health care professionals will suffer through, or cope with stressors in a manner that relates both to their own background and personal qualities, as well as to institutional variables.” (Isikhan et.al.2004, 240)

The further content analysis in this thesis was performed using the chosen content units and was orientated on an important idea mentioned in the book by Kyngäs and Vanhanen, saying that a qualitative content analysis is based on the question of how many times the idea comes up in the material (Kyngäs & Vanhanen 1999, 4). In the performed qualitative research, data analysis was done mainly by reading during the process of data collection. Reading is active; its purpose is to create a basis for analysis. Reading demanded an assortment of skills. Skimming (briefly reviewing a source to get a vast overview of the content), and comprehending (full study is read thoroughly; data collection and analyzing techniques are identified along with problem, purpose, major variables and framework) were the skills to start with. Having working stress in oncological pediatric nursing as the main concept of the study, some specific questions were systematically addressed to the content of the reviewed literature: does this material correlate with the topic of working stress in nursing of children with cancer? Is the material focused on the topic? How, so to say, concentrated the idea of pediatric nursing in the material is? The stated questions were continuously in mind of the author and were systematically addressed to the content of the literature being reviewed during the process of reading. The whole process is explained with an example:

“Health professionals frequently suffer from stress owing, among other factors, to the characteristics and working conditions typically found in hospitals. One of the groups of workers most affected by this problem is nurses, who, irrespective of the unit in which they work, frequently suffer from stress. Several studies point out that student nurses, ward nurses, renal care nurses and psychiatric nurses report that they feel stress in their work. Several organizational stressors have been identified, such as timetables, work overload and contact with death.” (Landa et.al.2007, 889)

The content unit was determined. The demonstrated example is a paragraph, containing an idea as a whole. Another step for content analysis is data reduction. Data was concentrated, focused and simplified, at the same time attempting to find the research problem in the material (Burns & Grove 1995, 67-68; Kyngäs & Vanhanen 1999, 4-5). Data reduction was performed by the author continuously asking herself if the idea of the content is relevant to working stress in nursing of children with cancer, and if it answers the research questions: most common stressors and coping methods for nurses working with children with cancer. The stated example is focused well on stressors in nursing, because it contains some of the words, related to the topic of this thesis: nurses, stressors. As such, the part about health care professionals in general was not as important as the part about specifically nurses, so it was eliminated. Further, the part about psychiatric ward, student nurses etc. was eliminated, because topic of this thesis is not focused on these categories of nurses. So we end up with a statement like this:

“<...> One of the groups of workers most affected by this problem is nurses, who, irrespective of the unit in which they work, frequently suffer from stress. <...> Several organizational stressors have been identified, such as timetables, work overload and contact with death.” (Landa et.al.2007, 889)

The quoted statement clearly determines the fact that nurses experience stress and partially answers the question what are the possible causes of stress that specifically nurses come across in the occupational environment. Few other studies were pointing out same ideas on the topic with some additional information, which made the information reliable. McGrath has identified very high workload, organizational conflicts, death and communication issues as common stressors in nursing (McGrath et.al.2013, 556). Isikhan stated the severity of the patients' conditions, death of patients, workload and problems with administrative mechanisms in the same context (see also Attachment 5). So the content units that answer the question of stressors for nurses were picked out and united: nurses are affected by stress in their job due to work overloads, death, administrative conflicts. These points were stated in the results as parts of a complex answer to one of the research questions.

Another example here demonstrates the focus of the material on the pediatric nurses in particular:

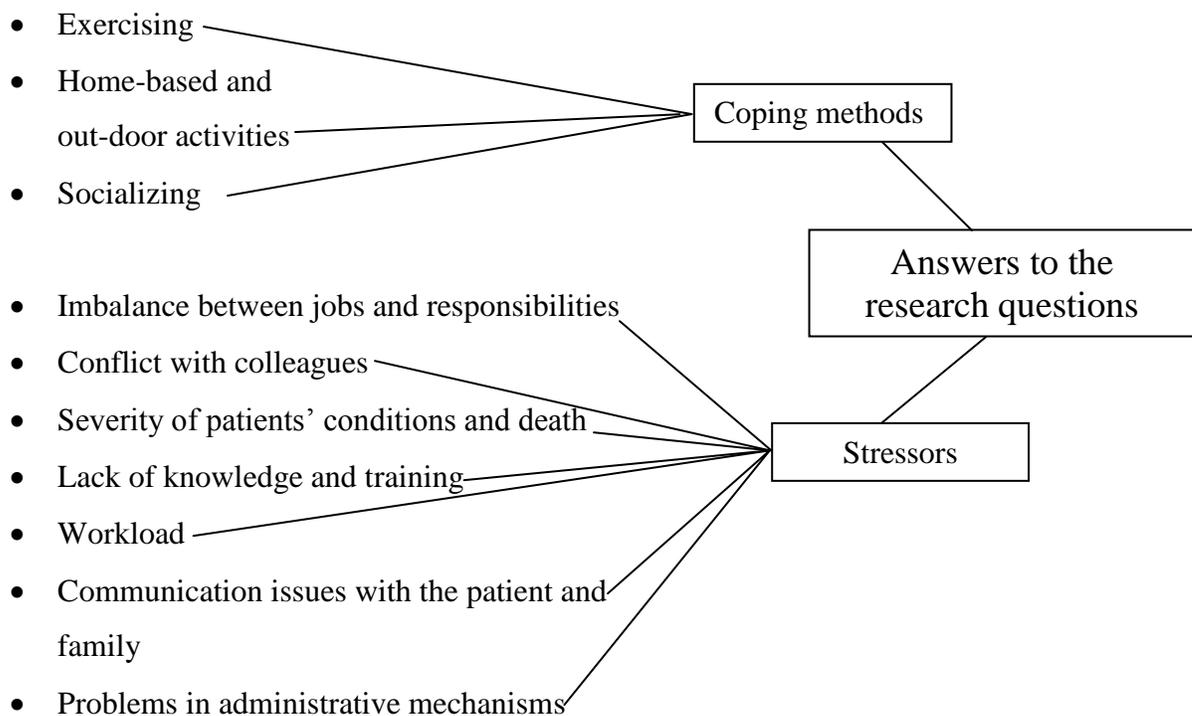
“Pediatric nurses in particular may be at higher risk because children are typically seen as helpless and vulnerable.” (Meyer et.al.2013, 175)

Next step of the content analysis was grouping the discovered statements (Kyngäs & Vanhanen 1999, 4-5). The similar statements mentioned in multiple sources were considered reliable; they were combined into groups as shown in the Attachment 5 and were taken as answers to the research questions of this study. The examples presented in the Attachment 5 were taken from multiple studies (Gulati et.al.2014, 1-15; Hecktman 2012, 356-361; Isikhan et.al.2004, 234-244; McGrath et.al.2003, 555-565; Meyer et.al.2013, 174-183; Zander et.al.2010, 94-108).

Further analysis included abstraction or, in other words, combining the statements that mean the same thing into larger groups, or categories. The final categories were named after the research questions: stressors and coping methods, as demonstrated in the Table 2.

Table 2

Examples of abstraction of the content



The purpose of qualitative analysis in the research is to produce categories describing the examined information, make sense of the data and eventually to gain ideas about the phenomena (see Table 2). And while inductive content analysis is used to find out already existing knowledge on the phenomenon, deductive content analysis is used to generate an idea about the phenomenon – in case of this research “working stress in nursing”, in a different context, being in this thesis the oncological pediatric care (Parahoo 1997, 353; Kyngäs and Vanhanen 1999, 4-7.) Judgment and appraisal of the literature was committed through giving a critical comparison of the different researches to outline similarities, conflicts and difficulties in the evidences on the topic (Moule & Goodman 2009, 148).

5 RESULTS

Having completed a thorough critical appraisal of the data and evidence relevant to the topic followed by an assessment of the difficult issues presented by the researches, the certain results have been conducted. The performed literature review multiply proved the fact that caring for cancer patients is often characterized as a stressful job. Factors causing stress among nurses working with cancer patients - stressors, as an answer to the first question of my research, are listed and explained further.

Marital status, age, professional career, imbalance between jobs and responsibilities, workload, organizational conflicts and disagreements with colleagues, lack of appreciation by superiors, work hours are determined to be the factors influencing the stress in all areas of nursing profession (Isikhan et.al. 2004, 234; Zander et.al.2010, 94). Other factors that cause stress (stressors) in health care professionals working specifically in the field of pediatric oncological care include severity of patients’ conditions, death, lack of training, workload, problems in administrative mechanisms, problems related to family members of the patients, lack of equipment and personnel, being unable to control the results of efforts (Isikhan et.al. 2004, Table 1; Zander et.al.2010, 94).

“The additional stressors that are specific to the pediatric oncology field include grief, loss, bereavement, moral and ethical dilemmas... and managing professional boundaries in regard to relationships with patients and their families.” (Zander et.al.2010, 94)

Another factor that causes stress during work in the circumstances of pediatric oncology care is the duration of experience in the field. Nurses with more experience in the field

happened to be less exposed to stress, than those who have less experience or are novice (Isikhan et.al.2004, 236.) It is explained by the fact, that with experience nurses develop better coping strategies. As for novice nurses, guidance and education seldom prepares them for interaction with troubled family and patient, which they frequently come across. That results into such stressors as problems with family of the patient and lack of training; while lack of training itself results into another stressor – the status of just starting work, for example. The nurses may have an impression of being inconveniently devalued, because they often receive delusional ill will and anxieties. That results into such stressor as decrease in appreciation of patients and superiors. Self-esteem and confidence issues are often expressed through irritation towards patients and bitterness towards superiors, causing further harm. That results into such stressors as communication problems among both team members and patients, problems with administrative mechanisms, offering unsatisfactory care. As a part of our society, such stressors as work conditions exist; in other words, stressors including lack of equipment and personnel, workload, low salaries and inadequate social efficiency (Gulati et.al.2014, 6-10.)

“Stressors typically include high workload, feeling inadequate to perform procedures, and working in poorly staffed environments.” (Meyer et.al.2013, 174)

Nurses see how the disease progresses and how the conditions of the patients change. Recognizing how the patient becomes more and more exposed and defenseless both psychologically and physically, depending on the severity of the disease, being unable to control the results of efforts and death of the patients is a greater part of stress-causing factors among nurses working with pediatric cancer patients. Severity of the patient’s condition in combination with increased expectations of the patient and their family also produces such stress factor as excessive job responsibility.

“A poor prognosis inevitably causes the nurse to play a role not only in providing care for the sick child but also in supporting the emotional needs of the family.” (Hecktman 2012, 356)

Stress is considered to be a result from the disproportion between the requirements of the workplace and one’s skill to cope. The success of coping with stress depends on the coping methods being used.

“Mechanisms to manage stress, such as social support, optimism and submissive approaches were the common themes identified.” (Heckman 2012, 358)

Social and emotional support is achieved through debriefing, reflecting, support through family and friends. However, nurses prefer debriefing and reflecting among colleagues. It is believed to be so, because nurses have a mutual and clear understanding in-between each other being united by a common field of occupation. It is easier and more efficient to get an emotional support from those who had experienced similar emotionally stressful clinical and psychosocial situations. An increased stress response may occur if nurses are not relieving and sharing (Gulati et.al.2014, 7; Hecktman 2012, 356-358; Zander et.al.2010, 98.)

The job of a pediatric oncology nurse extends far beyond the workday. The experiences during a workday radically affect the personal life. And other way around:

“A nurse may have difficulty dealing with the stressors that arise in their workplace if they are having personal difficulties outside of their professional life.” (Zander et.al.2010, 98)

Most common and effective coping strategies suggested by researches include nurses involving themselves in different activities in an attempt to forget about work and reduce work stress. Such activities include exercising, home-based and out-door activities, socializing with colleagues, using the staff social club and social networking websites (McGrath et.al.2003, 557-563, Meyer et.al.2013, 174-183, Gulati et.al.2014, 10.) However, the reviewed studies do not deny the existence of coping strategies often used by nurses that do not necessarily have a positive effect on health. Such include substance abuse and even antisocial behaviors.

“...Attempts to avoid discussing stressors, considering alternative career choices, withdrawing from others, and substance abuse.” (Zander et.al.2010, 99)

Less common interventions to decrease stress include complementary and alternative medicine and art therapy. They are said to reduce physiological and psychological negative effects of stress, such as depression, hypertonia and anxiety (Heckman 2012, 358.)

The effectiveness of the practices of coping methods is determined by the situation in which they are used and where the exposure to the stress has been in for the long haul. Nurses as health care professionals working in the field of pediatric cancer treatment, will undergo stress or cope with stressors in a way that is associated both with their own capacities and background, as well as with regulations of the institutions.

6 CONCLUSIONS

Stress factors are all bend and connected with each other, one causing the other; for example, problems with administrative mechanisms are directly connected with lack of equipment and personnel, work load. Offering unsatisfactory care and being unable to control the results increase of patients' expectations are major stressors specific for the field of pediatric oncology. They result in tremendous continuous stress. Previous studies have shown that stress scores of nurses working in the field of pediatric oncology are high enough to be considered serious. Stress can cause harm to your health if it is not coped with. Here is where the coping methods come of use, but nurses as health care professionals have been found to be not too successful in management of stress and use of stress coping strategies (Isikhan et.al.2004; Hecktman 2012, 356-361; Zander et.al.2010, 94-98.) Certainly, major part of coping abilities depends on one's own attitude towards the job itself and working environment. Co-operative relationships between staff of all levels and performance in a friendly environment are the components providing development of positive attitude towards the job. Disagreements between workers are inevitable in all working surroundings that include multidisciplinary teamwork, especially pediatric oncology nursing. However, the negative factors must not distract the health care professionals from the main aim of care, which is having the child obtain maximum assistance despite the diagnosis of cancer and benefit from the care being provided; to support the child's return to the everyday life if possible, and to strengthen their sense of security and safety (Ahonen et.al.2013, 162; Isikhan et.al.2004, 242). Luckily, health care institutions already work to preserve support for the employees. Health institutions are still working on programs, meant for reducing job stress and increasing motivation and job satisfaction (Isikhan et.al.2004, 234).

A surprising discovery for the author was the number of the researches focused on the topic. The idea of lack of the information available on the topic of causes of stress and

coping strategies for pediatric oncology nurses frequently came to the mind of the author and it has found its confirmation. Not only numerous researchers mention, that there are not much of studies done on the subject of nurses coping with stress specifically in the field of pediatric oncology (Isikhan et.al.2004, 240-242; Hecktman 2012, 356-361; Zander et.al.2010, 95-98). But it has also crucially stood out during the author's own database search and data collection process. The number of the articles relevant to the topic of oncological pediatric nursing occupational stress was tremendously small compared to stress in other fields of nursing and in nursing profession in general. As such, some recommendations for further research are in order, and they are described more openly in the chapter 8 "Discussion".

7 REVIEW OF RELIABILITY AND VALIDITY

Reliability and validity of a qualitative research, specifically literature review is its quality. Quality of the performed literature review is determined by the aspects, presented by Parahoo (1997, 81-96), Nancy Burns and Susan Grove (1995, 68). Aspects of reliability were provided in this study by using reliable professional sources (journals and books) from reliable professional databases. In other words, the author has implemented the skills of using reliable health care databases to search for health care related literature for the performed literature review. Books are reviewed by professionals on the topic before being released. As such, they are valid sources of information. Journal articles are also sent to be reviewed by experts before publication. Applicable studies are described; primary sources are identified and indicated. References are adapted and sources are organized. Crucial attention is paid on the publication dates of the literature being used. Content was presented honestly and not misrepresented to support the ideas of the study. Direct quotations of statements are presented as evidence of reliability and validity in attachment 3 and attachment 4, as well as in chapter 4.3 "Content analysis". Criticism is focused on the content, it is neutral and educative.

From the point of view of validity, it is believed that the research can be problematic. One of the problems might be that the researcher is unable to examine the processes objectively, but the result of the scale is based on the researcher's subjective view of the matter. However, this problem is not thought to be so great when the document has been analyzed only by the shown, not hidden content. Validity of the research is determined by

how the researcher successfully performs the research steps in a correct, systematic and logical kind of way, and that is as well considered to be a challenge of the research process (Kynge & Vanhanen 1999, 10.) The demonstration of validity of this thesis is to be seen in author's capability to establish a link between the result and the content of the study. The review is not just a collection of separate unconnected points of view, arguments or a series of quotes. Research is focused on the topic of work stress in oncological pediatric nursing care surroundings. Important issues and concepts are handled adequately, information is presented up-to-date, it is relevant and clearly, logically combined and bares the answer to the research questions. The study is performed according to the rules and regulations of literature review as a research method.

8 DISCUSSION

It is truly time to care for staff in pediatric oncology, if caring for others is to be a continuing field of occupation. The ability of the work groups to support each other must be enhanced; more counselling services should be organized. Clinical structure still needs improvement to advance relationships with other professions. These issues need to be confronted as a standard of caring for staff with aim to promote the quality of caring ability of the health care workers. It may be possible to provide better support to nurses to prevent the consequences of exposure to high levels of stress. How the hospital environment can support the nurses working in the field of pediatric oncology? What can be done at an administrative level? Creation and implementation of new interventions in coping with stress in pediatric oncology nursing occupational environment will increase job satisfaction in the sphere. How can we measure the effectiveness of the interventions? They will evolve into an increased productivity of care, followed by improved patient progress and cost efficiency of treatment. If stress relieving practices are not integrated into routine process of care, negative effects will follow: decreased nursing productivity, and as such, bad progress for the patient and the family will occur as a consequence, affecting the institutions as well. Staff nurses should be empowered to inform the administrative structures of the institution on experiencing high levels of occupational stress.

I am convinced that the effectiveness of future measures to reduce stress and help pediatric oncology nurses to cope is indisputable. I am also convinced that it will be

noticed in patients' experiences and progress. It is recommended, that more researches should be done focusing on specifically pediatric oncology nurses, because as it was said earlier in the "Conclusion" chapter, there seems to be a gap in the research. Nurses are at a particularly important point where they have to face needs of patients with life-threatening illness and their families on an everyday basis.

As it is said in a popular saying, there will always be room for improvement. Treatment of cancer is developing with an improvement trajectory. New treatment protocols, new drugs and better supportive measures are being created, which results in an increasing progress already today (Ju et.al.2014). Quantity of children expected to become long-term cancer survivors is reaching 85%; Matziou et.al.2008, 210.); and that will benefit not only the patients, but the health care professionals as well.

Nursing research, specifically the bachelor thesis, is quite a consuming process. Each researcher is developing themselves suitable tools to perform and complete that important step. Throughout this thesis I have developed my skills in critical thought, analytical capacities, and gaining access to relevant research, ability to read and critically appraise evidence. Also I have demonstrated the critical understanding of research processes and awareness of ethical issues related to research. According to Moule and Goodman, the stated aspects are necessary qualities for the nurse in the 21st century to perform as a research aware professional (Moule & Goodman 2009, 21.)

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ATTACHMENTS

Attachment 1

Manual library search results

Author/year/country	Title	Content
Kader Parahoo/ 1997/ <u>USA</u>	<u>Nursing Research:</u> Principles, Process and Issues	The book gives nurses a basic knowledge and understanding of strengths and weaknesses of different data-collection instruments, helps to read and critically assess research literature, recognize the importance of the research. <i>“A literature search and review serves to put the current study into the context of what is known already on the phenomenon.” (page 81)</i>
Nancy Burns & Susan Grove/ 1995/ <u>USA</u>	<u>Understanding</u> <u>Nursing Research</u>	The book is designed to assist students in overcoming barriers and understanding nursing research, to facilitate the movement of research into the mainstream of nursing. <i>“A literature review helps to focus on a research topic and, by so doing, enables the progressive narrowing that turns a topic into a practical and doable research project.” (page 138)</i>
Pam Moule & Margaret Goodman/ 2009/ <u>UK</u>	<u>Nursing Research:</u> An Introduction	The book provides the key information to understand, critically appraise and implement research in daily practice. <i>“A review of relevant research literature is conducted to generate a picture of what is known about a problem and to determine whether the knowledge is ready for use in practice.” (page 70)</i>
Helvi Kyngäs & Liisa Vanhanen/ 1999/ <u>Finland</u>	<u>Hoitotiede: Sisällön</u> <u>analyysi</u>	The book gives a detailed overlook on the content analysis in the process of nursing research. <i>“Analyysin lopputuloksena tuotetaan tutkittavaa ilmiötä kuvaavia kateforioita.” (page 4)</i>
Seppo Ranta et.al./ 2003/ <u>Finland</u>	<u>Pediatrinen</u> <u>Tehohoito</u>	The book covers the pediatric intensive care problems. It is useful as a reference for work also in pediatric emergency situations and emergency care of children. <i>“Pediatriseen intensiiviseen syöpähoitoon liittyy syövän hoito, komplikaatioiden valvonta ja niiden hoito, nestehoidon valvonta ja sairaan lapsen yleinen tuki.” (page 89)</i>
Ahonen et.al./ 2013/ <u>Finland</u>	<u>Kliininen Hoitotyö:</u> Sisätauteja, Kirurgisia Sairauksia ja <u>Syöpätauteja</u> <u>Sairastavan Hoito</u>	The book helps to control and investigate the evidence-based nursing guidelines in treatments of cancer, internal diseases and surgical diseases. <i>“Potilaan psykososiaalisen ja emotionaalisen tukemisen tavoitteena on tukea potilasta ja hänen läeisiään selviytymään uudessa elämäntilanteessa, johon kuuluu syöpäsairaus tutkimuksineen, hoitoineen ja seurantoineen.” (page 162)</i>
Julie Asquith & Carol Williams/ 2000/ <u>UK</u>	<u>Pediatric Intensive</u> <u>Care Nursing</u>	A comprehensive textbook on caring for the infant and child in pediatric intensive care. Examines a full range of specific disorders including discussions of their anatomy and physiology, medical management, and nursing care. <i>“Health care practitioners require</i>

		<i>a range of examination techniques to choose from depending on the different age groups and clinical presentations.” (page 4)</i>
Beverly McMillan/ 2006/ <u>RF</u>	Human body: a Visual Guide (Человек: энциклопедический путеводитель)	Illustrated guide to the human body and the latest developments in medical and scientific knowledge. “При постоянном стрессе <...> нарушение физиологического и химического равновесия может привести к повреждению сердечно-сосудистой, пищеварительной и иммунной систем.” (page 73)

Attachment 2

Search words from different databases

Database	Search type	Search words	Field	Year	Results
ScienceDirect	Basic Search	cancer	Biochemistry, Genetics and Molecular Biology	2000 to present	610,031
	Advanced Search	children AND cancer	Nursing and Health Profession	2000 to present	14,857
		Stress AND nursing	Nursing and Health Profession	2000 to present	17,473
		Stress AND nurse	Nursing and Health Profession	2000 to present	16,769
PubMed	Basic Search	nurses stress pediatric oncology	-	2000 to present	69
Terveysportti	Basic Search	syöpä lapsella	sairaanhoitajan käsikirja	2000 to present	2

Attachment 3

Computer search results on theoretical framework

Barbara L. Jones/ 2012	<u>The Challenge of Quality Care for Family Caregivers in Pediatric Cancer Care;</u>	Qualitative/ On the bases of articles published between 2002 and 2012 requirements and possible actions for caregivers of children with cancer were discussed;	Deviation to parenting a child with cancer is very disturbing for the identity and family structure and can cause negative issues for the caregivers. Nurses can support families in coping and may reduce distress. <i>“In practice, pediatric oncology social workers, nurses, psychologists, and other health care providers have always offered psychosocial support, counseling, referral, and intervention to children with cancer and their families.” (page 218)</i>
Estela A. Beale et.al./ 2005	Silence is Not Golden: Communicating with <u>Children Dying from Cancer;</u>	Qualitative/ Discovering and taking into account child's emotions, convenient timing, encouraging child with presence, explaining information on treatment, create positive communication;	<i>“Uncertainty is a main psychological problem and clarity of communication can reduce anxiety and produce reassurance.” (page 3629)</i>
C.A. Stiller/ 2008	<u>Pediatric Cancers;</u>	Qualitative/ Descriptive article about pediatric cancer;	Provided fundamental information on epidemiology, etiology and incidence of childhood cancers. <i>“The etiology of most childhood cancers is unknown, though some cases are attributable to radiation, infections, and various genetic syndromes.” (page 28)</i>
Vasiliki Matziou et.al./ 2008	<u>Cancer in childhood:</u> Children's and parents' aspects for quality of life;	Quantitative/ The study group consisted of 149 young patients and data was collected using the Pediatric Quality of Life Inventory;	Findings advice that children with cancers show better quality of life than their parents. <i>“Therefore, as the incidence of cancer in childhood and early adolescence continues to increase, the portion of children expected to become long-term survivors approaches 85% because of the success of the cancer treatment.” (page 210)</i>
Debbie Stayer/ 2012	Pediatric Palliative Care: A Conceptual Analysis for <u>Pediatric Nursing</u>	Qualitative/ Concept analysis of pediatric palliative care;	Gives nurses information on the concept of pediatric palliative care to help them understand, identify and fulfil needs of the patients and their caregivers. <i>“Pediatric nurses are in a unique situation to assess and meet</i>

	Practice;		<i>the needs of children and families who may be experiencing a life-limiting illness” (page 351)</i>
Ali Masoudi-Nejad et.al./2014	Cancer Systems Biology and Modeling: Microscopic Scale and Multiple Scale Approaches;	Qualitative/ Multiple scale systems and models of cancer were compared to address the span of applicability of explored knowledge;	Provided fundamental information on etiology, biology and multiple modeling. <i>“Cancer is a disease mainly derived from mutations in single somatic cells that deviate from the normal routes of proliferation, migrate to adjacent normal tissues, and end in secondary tumors (metastasis) on sites different from the initial origin.” (page 61)</i>
Louise Parker/2014	The Impact of the Environment on Cancer Genomics;	Qualitative/ Describes impact of environmental factors on etiology of cancer;	Provided fundamental information on incidence and etiology of cancers. <i>“The number of people diagnosed with cancer each year will almost double to 21 million cases worldwide by 2030 because of the aging population.”(page 451)</i>
Roderick Skinner/2012	Long-term Effects of <u>Cancer Therapy</u> in <u>Children</u> – Functional Effects, Late Mortality and Long-term Follow-up;	Qualitative/ Two descriptive researches focused on chronic treatment-related side-effects which may be severe or even fatal in some cases;	Chronic functional consequences of cancer treatment in childhood that many survivors experience in a long run were described including impairment of neuropsychological, metabolic and immunological function, growth and quality of life. <i>“Survivors of childhood and adolescent malignancy may suffer a variety of psychosocial and/or functional consequences, potentially impairing their quality of life.” (page 250)</i>
Mariel B. Deutsch & Lisa M. Deangelis/2014	Neurologic <u>Complications of Chemotherapy</u> and Radiation Therapy;	Qualitative/ Extensive summary of aspects of chemotherapy and radiotherapy;	Attention paid to newer agents and rapid development of anticancer drugs and their neurological complications. <i>“Chemotherapy and radiation therapy are two of the major modalities used to treat cancer.”</i>
Ju Hy et.al./2014	Advancements in The Treatment of Pediatric Acute Leukemia and Brain Tumor - Continuous Efforts for 100% Cure;	Qualitative/ Data was collected worldwide to discover that there is need for improved treatments in cancer care;	<i>“Treatment outcomes of pediatric care have majorly advanced and survival rates are greatly improving with help of new drugs and treatment protocols.”</i>
Elad Schiff & Eran Ben-Arye/2011	Complementary Therapies for Side Effects of Chemotherapy and Radiotherapy	Qualitative/ 36 articles focused on gastrointestinal complications of cancer treatments were	Study suggests that complementary and alternative medicine can be a safe treatment for complications. <i>“Chemotherapy and radiotherapy remain the mainstay of treatment for</i>

	in the Upper Gastrointestinal System;	reviewed;	<i>patients with advanced malignant disease that is incurable by local surgery. However, effective use of these therapies is limited by toxic effects". (page 12)</i>
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Attachment 4

Computer search results on research questions

Author/ year	Title	Type of research/ Content	Results
Vedat Isikhan et.al./ 2004	<u>Job Stress and Coping Strategies in Health Care Professionals Working with Cancer Patients.</u>	Quantitative/ Aim was to conclude circumstances influencing stress in health care professionals working with cancer patients. 57 nurses participated in the questionnaires in the research;	Physical and psychological signs of stress and stress factors were indicated and determined. <i>"It is thought that stress in oncology emanates from the imbalance between the coping ability of the individual and the demands of the work place."</i> (page 236)
Michelle Hecktman/ 2012	<u>Stress in Pediatric Oncology Nurses</u>	Qualitative/ The literature review seeks to provide a general overview of stress experienced in the pediatric oncology work environment.	Nursing and hospital administration must understand stress, compassion fatigue and burnout to avoid occupational hazards, which may affect staff and institutions. <i>"Mechanisms to manage stress, such as social support, optimism and submissive approaches were the common themes identified."</i> (page 358)
Sonia Gulati et.al./ 2014	<u>Demands and Rewards of Working Within Multidisciplinary Teams in Pediatric Oncology.</u>	Qualitative/ Interviews were conducted with 33 healthcare providers from four pediatric oncology centers;	Health care providers discussed demands of working within the area of pediatric oncology. <i>"Interpersonal and communication tensions, conflicting views about providing care, role confusion, overlap and being undervalued in the hospital environment"</i> were pointed out. (page 7-8)
McGrath et.al./ 2003	<u>Occupational stress in nursing.</u>	Quantitative/ Interprofessional study of nurses, field social workers, and teachers on of occupational stress undertaken with a large sample of Northern Ireland nurses, including qualified staff;	Stressors are identified in both professional and private lives. The effects of stress as manifested through the General Health Questionnaire and the Maslach Burnout Inventory are examined and nurses' views on various stress-coping strategies are discussed. <i>"Commonly identified sources of stress are: workload, patient care,</i>

			<i>interpersonal relationships with colleagues, knowledge of nursing and nursing skills, types of nursing, bureaucratic-political constraints.” (page 557)</i>
Melissa Zander et.al./ 2010	<u>Coping and Resilience Factors in Pediatric Oncology Nurses</u>	Qualitative/ Purpose was to investigate what is known about coping in assisting pediatric oncology nurses to manage work-related stressors;	The study suggests, that <i>“the need for support, a positive personal attitude, experience <...> give the ability to overcome challenges or negative events in everyday clinical work” (page 100)</i>
Patricia Littlejohn/ 2012	The missing link: using emotional intelligence to reduce <u>workplace stress</u> and workplace violence in <u>nursing</u> and other <u>health care professions</u> .	Qualitative/ Descriptive article on the emotionally intelligent responses and interactions;	Aim was to raise awareness about healthcare workplace stress and workplace violence and to increase emotional competence. <i>“Although nurses are compassionate caregivers, they also cope with a variety of workplace stressors, many of which can lead them to demonstrate less than effective emotional responses at any given time.” (page 361)</i>
Augusto Landa et.al./ 2008	The relationship between emotional intelligence, <u>occupational stress</u> and health <u>in nurses</u> .	Quantitative/ This study investigated the interrelationships among emotional intelligence, work stress and health, considering also the impact of socio-demographic variables on stress and nurses’ health;	As far as stress is concerned, the results show that the nurses who score high in clarity and emotional repair report less stress, whereas those with high scores in attention to emotions experience greater levels of stress. <i>“Studies conducted in nursing have shown that emotional intelligence is a skill that minimizes the negative stress consequences.” (page 81)</i>
Rika M.L. Meyer/ 2013	Pediatric Novice Nurses: Examining Compassion Fatigue as a Mediator between <u>Stress Exposure</u> and Compassion Satisfaction, Burnout, and <u>Job Satisfaction</u> .	Quantitative/ longitudinal study examining nurse stress exposure, compassion fatigue, burnout, and job satisfaction across 6 months of nurses’ RN residency program;	The vast majority of nurses continued to encounter stressful life events after entering nurse residency. <i>“Nurses are at high risk for developing stress disorders given the amount of stress that novice nurses experience, such as caring for chronically ill and dying patients.” (page 176)</i>
Lisa M. Kath et.al./ 2013	Predictors of <u>nurse manager stress</u> : A dominance analysis of <u>potential work</u>	Quantitative/ dominance analysis was conducted to examine which stressors were the most important predictors of	Organizational leaders are encouraged to help nurse managers reduce their actual and role overload in organizational constraints. <i>“Many nurses operate in a culture of acceptance of their work overload and resultant stress with little knowledge of what can</i>

	<u>environment stressors.</u>	nurse manager stress.	<i>be done to help.” (pages 1475-1476)</i>
Dan Buettner/ 2012	4 Easy <u>Stress Management Strategies.</u>	Qualitative/ Descriptive article about strategies of coping with stress;	Four types of strategies described to stop suffering from chronic stress. <i>“It’s important to learn how to effectively identify and manage stress in your life to increase your longevity and become a happier, healthier person.”</i>
Nahm et.al./ 2012	<u>Nurses’ self-care behaviors</u> related to weight and stress.	Quantitative/ descriptive study examined registered nurses’ dietary and exercise practices, stress levels, and preferred preventive health strategies using a sample of nurses recruited from a community-based, urban teaching hospital	Participants who reported greater stress had more irregular meal schedules. The most frequently used stress-release method was eating, followed by exercise. <i>“High stress levels are a significant health problem for nurses. Main sources of stress include workload and the emotional cost of caring”.</i> (page 24)
Brenda Happell/ 2013	How <u>nurses cope with occupational stress</u> outside their workplaces.	Qualitative/ Exploratory study involved a purposive sample of registered nurses;	A total of six focus groups were conducted to explore how nurses managed work-related stress outside the hospital environment. <i>“If stressors cannot be avoided in healthcare environments, nurses need to be assisted with developing coping strategies to improve their lives both within and outside the organizations in which they work.”</i> (page 197)

Attachment 5

Content analysis: examples of grouping

Statement	Name of the group
<i>“interpersonal conflicts”</i> <i>“conflicting demands”</i> <i>“negative personality traits”</i> <i>“gaps in communication”</i> <i>“communication with family and caregivers”</i> <i>“interactions with patients”</i>	Communication issues as stress factors
<i>“high volume of work”</i> <i>“workload”</i>	Workload as a stress factor
<i>“limited resources”</i> <i>“budget cuts”</i> <i>“resource shortages”</i>	Organizational factors causing stress
<i>“emotional support or advice”</i> <i>“sharing with colleagues”</i> <i>“discussing”</i>	Sharing as a method of coping

<i>“social, team and organizational support”</i>	
<i>“negative coping (substance abuse)”</i> <i>“complementary and alternative medicine”</i> <i>“art therapy”</i> <i>“optimism”</i>	Other methods of coping