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Occupational Therapy in Oncology and Palliative Care

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Abstract

Cancer is a chronic disease that may occur in both children and adults. Occupational therapy focuses on the activity limitations and participation problems in their life. Oncology rehabilitation involves in helping an individual with cancer to regain maximum physical, psychological, cognitive, social, and vocational functioning with the limits up to disease and its treatments in an interdisciplinary team concept. These treatment options are associated with the risk of some side effects, including fatigue, pain, cognitive problems, decrease in bone density and muscle endurance, weight loss, and stress- or anxiety-related psychosocial problems. Occupational therapy approaches are a holistic view in a client center and use training in activities of daily living, assistive technology, education of energy conservation techniques, and management of treatment-related problems, such as pain, fatigue, and nausea. In palliative and hospice care, occupational therapists support clients with cancer by minimizing the secondary symptoms related to cancer and its treatments. At the end of life, occupational therapy offers to identify the roles and activities that are meaningful and purposeful to the client with cancer and try to determine the barriers that limit their performance. Clients with cancer who have childhood cancer or adult cancer can face problems about body structure and functions, activity, and participation, which may limit their participation to their daily life.

Keywords: oncology, rehabilitation, palliative care, occupational therapy

1. Introduction

Cancer is defined as the growth of abnormal cell structures in the body uncontrollably, without purpose, and with a large number. Cancer develops faster when the body's normal defense and control mechanisms do not work. Old cells do not die; instead, they become uncontrolled and replace new cells that are abnormal. These abnormal cells may be called a tumor, while some cancers do not form tumors such as leukemia [1]. Cancer can be anywhere in the body. Cancer

is a chronic disease of various types and characteristics in all ages and genders. According to the literature, the most common cancer is breast cancer in females and prostate cancer in males. Moreover, lung and colorectal cancer affect both men and women at high rates [2]. The most common types of cancer in children between 0 and 14 years of age are acute lymphocytic leukemia (ALL), brain and other central nervous system (CNS) tumors, and neuroblastoma. Although pediatric cancer mortality rates have declined by about 70% in the last four decades, it is still one of the most common causes of death in children [3].

There are five primary categories of cancer: carcinomas, sarcomas, leukemia, lymphomas, and central nervous system cancers. This categorization is made according to the body structure involved. For example, carcinomas begin in the skin or tissues, whereas sarcomas start in the bone, cartilage, fat, muscle, or other connective tissues. Leukemia develops in the blood and bone marrow, lymphomas start in the immune system, and central nervous system cancers start in the brain and spinal cord [4].

The survival rate after cancer treatment is increasing day by day due to advances in children, adolescents, and adults [5, 6]. Cancer survivors also can face the risk of cancer recurrence, metastases, or symptoms such as cancer-related pain, fatigue, stress, or lymphedema, etc. More than 60% of cancer survivors with ages between 5 and 19 years reported at least one serious symptom [7]. Some of the treatment options for cancer clients include surgery, chemotherapy, hormonal therapy, radiotherapy, immunotherapy, and targeted therapy. These treatments contain some risks that are closely related to the individual and the treatment dosage. Some side effects of treatments such as fatigue, pain, cognitive problems, decreased bone density, weight loss, and stressful psychosocial problems as well as hot pressures may occur [8]. It is known that due to these side effects, there is a decrease especially in the physical functions, daily activities of life (ADL), and quality of life in clients with cancer [9].

Occupational therapists (OTs) specialized in oncology does not only need to have high quality of skills but also knowledge about cancer, side effects, and evaluation of the treatments of cancer. This perspective requires a holistic and client-centered approach to provide personal care. OTs working in oncological rehabilitation aim to increase quality of life by facilitating physical, mental, emotional, social, occupational and cognitive needs, goal setting, and participation in meaningful occupations [10]. The main goal of OTs is to provide clients to participate in daily activities of life (ADL). OTs change their occupation or environment to better support occupational engagement in an interdisciplinary team concept. With oncologic rehabilitation, care is given to various age groups in a variety of care settings, including hospital, home, inpatient palliative care, or community-based services [11].

2. Cancer rehabilitation

Cancer rehabilitation is defined by Cromes as “helping a client with cancer to help to reach the maximum physical, social, psychological, and vocational functioning within the limits of disease and treatments” [12]. The functioning is important while engaging in activity and is related with all performance components [13]. In a more contemporary view, the function is a broad

vision that encompasses the physical, emotional, cognitive, and psychological states of the individual [14]. The World Health Organization’s International Functioning, Disability and Health Classification (ICF) defines a framework in which this multidimensional or biopsychosocial approach focuses on an extensive understanding of the interactions between function, capacity, and performance [13–15]. Cancer treatment itself also can lead to functional problems or impairments in physical, sensorial, or cognitive (body functions and structures), potentially leading to limitations in ADL or instrumental ADL (activity) and participation restriction (participation) [16]. Therefore, as ICF covers all of these domains, it suggests framework and approach regarding diagnosis and evaluation. This framework can also guide treatment programs [17].

Cancer rehabilitation goals are classified as restorative, supportive, palliative, and preventive according to progression of cancer. Generally, restorative care purposes at maximal recovery of residual function of the client. Supportive care aims to increase daily life and mobility by using effective methods such as reducing functional difficulties and compensating for permanent deficits. Palliative care reduces symptoms such as pain and shortness of breath. Preventive care includes in the area of power maintenance and movement after treatment. This process starts right after the diagnosis [18].

Client should be evaluated in terms of goal-oriented activity performance and participation in all contextual areas. Thus, OTs can provide a top-down approach to the clients [19]. **Table 1**

Body functions and body structures
<i>Functions</i>
Sensation of pain
Energy and innerdrive functions
Emotional functions
Voice functions
Respiration functions
Swallowing functions
<i>Structures</i>
Structure of mouth—pharynx-larynx-head and neck region
Activities and participation
Daily routine activity (Self-care-Eating-Drinking)
Social activity (Family and friends relationships)
Productivity activity (Economic self-sufficiency-preparing foods)
Personal factors
Type a or b personality
Interest
Motivation level
Environmental factors
Products or substances for personal consumption
Immediate family
Health professionals
Work environment

Table 1. Impairment of functional health in neck cancer.

shows an example of functional health impairment areas in neck cancer that should be analyzed by OTs [20]. In occupational therapy (OT), rehabilitation generally focuses on these topics:

- Symptom control
- Activity training
- Client education
- Motor training
- Sensory training
- Cognitive training
- Vocational rehabilitation

3. Occupational therapy role in symptom control

Some clients experience symptoms during the first phase of diagnosis or treatment, while others experience these symptoms due to side effects or long-term outcome of treatment during the treatment phase. The appearance of symptoms can be basically examined in five different phases. The pretreatment phase is first experienced with symptoms of fatigue, pain, and anxiety. In this phase, the client will have difficulty in accepting the idea of the disease, their sleep patterns and routines begin to deteriorate, and problems occur in occupational and social relationships. The second phase is the primary treatment phase; in addition to the symptoms mentioned above, some other symptoms such as inappetency, fever, vomiting, dry mouth, etc. can occur as a result of chemotherapy or other modalities. ADL are interrupted. The post-treatment phase is the third one; the client with cancer experience treatment-related symptoms such as pain, weakness, or constipation after surgery. The influence on the activities and routines are very apparent at this phase. The fourth phase, where the symptoms experienced due to tumor growth occur, is the recurrence phase. Clients with cancer often feel depressive, anxious, fear, and unhappy for repetition. ADL and routines are disrupted with negative emotions and thoughts about their future. In the last phase, the end-of-life phase, the most common symptoms are fear of death and alienation to everything. Client usually cannot even get out of the bed and have lost all interest and the desire to live [13].

Symptoms are multidimensional and changeable in cancer clients. The OT's role in management of symptoms is crucial and important. They must maintain up-to-date professional knowledge of the symptoms and its treatments. They must also investigate the meaning and the impact of the symptom not only to the individual, but also to the caregivers. Besides, in the following sections of this chapter, every title includes client and their family educations for these symptoms, especially. They must search how this situation limits them in carrying out their required objectives in life. Thus, as a priority, realistic and achievable intervention plan can be made for people with cancer to control the symptoms. There are some approaches to control symptoms such as problem-solving strategies, restoration activity, compensation activity, and environmental modification that will be defined in the following sections.

3.1. Problem-solving strategies

Cooper describes problem solving as “analyzing of the client’s needs and enabling the client to cope with dysfunction” in approach to symptom control. OT must help to identify physical, emotional, social, and psychological problems and try to resolve them. For solving the problems caused by the symptoms can include: identifying the main problem, discussing another event that may contribute to the induction of the problem, brain storming through occupational therapy models to cope with the problems, setting achievable goals for individual, discussing methods—techniques to cope with the problems, practicing the developed strategies, and checking up the results of problem solving. OT can use problem-solving strategies mostly for clients with HIV/AIDS, cancer, and palliative care [21].

If cancer client have some difficulties on lifestyle, fatigue, and self-esteem, OT could help them to determine their priorities of life, to use energy levels, to recognize that a client’s inner feelings and values, to change behavior, and to adapt to their changed lifestyle.

3.2. Restoration activity

Clients have different activities related to their routines in their life. The focus of the restorative approach is to develop client skills and abilities or increase the activity performance and participation of the client with cancer. In this stage, grading of the activity level can be done according to the following parameters [22]:

- Physical assistance: providing physical support with relaxation and breath training to manage symptoms such as fatigue or anxiety. Thus, patients’ skill to complete task may be increased. You must remember that the support does not mean that caregiver do all of the tasks instead of the client.
- Supervision and cuing: contain a number and types of cues to support client. It can be supplemented with verbal, tactile, and written material tips to help cognitive impairment of cancer-induced client activities.
- Activity demands: the activity can be changed due to the necessity of performance skills. It will be better to select an activity with appropriate level demands for clients. In activity education, the motor and cognitive demands of the activity can be increased step by step.
- Sequencing of activity: recognize and determine the client’s activity priority. Clients’ motivation should be supported to participate in activities. The number of steps in tasks and the total number of steps can be increased. Thus, cancer client can complete the activity easily with motivation, without symptoms.
- Type of activity: during activity education, activities can be graded from familiar to unfamiliar or from former to new. This method can help the clients to decrease cancer-related symptoms.
- Environment: the activity environment can affect participation in activities. Usually due to the treatments they receive, they are affected by the environment in which they perform activities in connection with their roles. They are often present in isolated environments

such as hospitals and homes. In order to reduce symptoms and improve the performance of the activity, awareness of the activities that they can perform in the environment they are in is extremely important in terms of occupational therapy intervention.

3.3. Compensation activity

The compensation approach focuses on using the patients' skills to achieve the highest possible stage of functioning in the activities. Despite the symptoms, OTs may teach new methods to increase performances. If the client still needs help, OTs can suggest using assistive equipment. These equipments can decrease symptoms, such as fatigue and pain of cancer, and increase participation in the activities.

3.4. Environmental modification

Environmental modifications consist of compensation, modification, and adaptation strategy. The compensation approach directly influences client functioning. However, environmental modification approach influences patients' functioning indirectly. OT could give advice to the client with cancer to redesign environments, such as home, work, and school, where the client wants to be. Modifications must be low cost and easily accessible.

4. Occupational therapy in childhood cancer

Nearly over 300,000 children develop cancer worldwide each year [23]. As many as two-thirds of children with childhood cancer are likely to experience at least one side effect, one-fourth of survivors experiencing a late effect that is severe or life threatening [24]. There are many studies showing that childhood cancer client experience many specific sequelae after cancer diagnosis and treatment such as: hair loss, pain and fatigue, loss of fertility, and other changes in body image [25–27]. In children, it is important to be aware of growth and development stages in evaluation and intervention planning. Different from adults, their development can be affected in all components and more from the therapy. As children are also still dependent on caregivers, they are not fully functioning and still developing physical, social, cognitive skills, etc. Sometimes, to save life, surgeries may be harsh resulting with loss of a limb. Therefore, they may struggle to develop with that loss. The majority of the existing studies have shown that children with childhood cancer have increased anxiety, depression, and distress compared to their healthy peers and the general public [28, 29]. In a recent systematic review by Quinn et al., it is emphasized that psychological symptoms often result in impaired quality of life (QoL) [30].

Long-term treatments affect children's ability in the areas of self-care, productivity, and leisure activity. Treatments of cancer, especially treatments, cause a decrease in motor skills [31]. Gross and fine motor skills play an important role in the development of cognitive, academic, and social skills in children [32, 33]. In childhood cancer, the basic problems can be seen in social relationships, educational attainment, and school functions such as writing skills or

reading skills, etc. [33]. Understanding the degree of the motor difficulty that the child faces is important for the efforts to improve their quality of life.

Assessment is needed at the beginning and end of rehabilitation to evaluate body structure and functions, activities, and participation. As all areas are affected, the level of success in terms of rehabilitation goals can be detected by systematic evaluation. **Table 2** shows the rehabilitation goals and assessment tools used by OTs in childhood cancer. It is important to recognize these rehabilitation goals while planning treatment.

Rehabilitation goals	Evaluation instruments
Improvement of functional disorders of the musculoskeletal system	Range of motion, muscle test
Determining of function-related treatment goals	Goal assessment scale (GAS)
Reducing post-surgical problems (scars discomfort, seroma)	Clinical observation
Reducing symptoms after radiotherapy (cystitis, proctitis)	Micturition, Chair Diary
Reducing hormone deficiency symptoms (vasomotor reactions, osteoporosis)	Visual analog scale (VAS) *Osteodensitometry must be checked
Reducing symptoms after cytostatic chemotherapy (polyneuropathy)	Common Toxicity Criteria of the National Cancer Institute (NCI-CTC), sensitivity measurement, vibration sense
Reduction of fatigue	The PedsQL™ Multidimensional Fatigue Scale (PedsQL–MFS), Visual Analog Scale-numeric (VAS), Faces Rating Scale
Reducing pain	Faces Rating Scale, Visual Analog Scale- numeric (VAS), Pain Diary South California sensory Integration Tests (AYRES), Semmes Weinstein monofilament test
Assessing sensory process	
Improving balance	The Berg Balance Test (Berg), South California sensory Integration Tests (AYRES)
Maintaining/increasing independence of daily life	Detailed activity analysis, Wee Functional Independence Measure (WeeFIM), Barthel Index (BI), Instrumental Activities of Daily Living Scale (IADL), Role Checklist (RL)
Improvement of cognitive performance	Dynamic Occupational Therapy Cognitive Assessment (DOTCA), Mini mental state examination-child
Activity Performance and Participation	Canadian Occupational Performance Measurement (COPM), Children’s Assessment of Participation and Enjoyment (CAPE), Preferences for Activities of Children (PAC), The Children’s Leisure Activities Study Survey (CLASS)
Coping with stress and anxiety depressive states and relaxation	Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Spielberger’s State Trait Anxiety Inventory (STAI), and Visual Analog Scale (VAS)

Rehabilitation goals	Evaluation instruments
Increasing Gross & Fine Motor Skills	Bruininks Oseretsky Test of Motor Proficiency (BOTMP-2edition), Purdue Pegboard, Jebsen Hand Function Test, Nine Hole Peg Test
Supporting/developing Quality of Life	SF-36, Quality of Life for Cancer Survivors, Childhood Health Assessment Questionnaire (CHAQ)
Family or peer problems	Interview
Reduction of insomnia	Diary
Construction of meaning and objective perspectives	Interview
Improving of school function	The Evaluation Tool of Children's Handwriting (ETCH), Minnesota Handwriting Test, School Function Assessment (SFA)

Table 2. Rehabilitation goals and the evaluation instruments mostly used for childhood cancer.

It is always beneficial to use a framework while planning the treatment. As we prefer person- environment-occupation or Canadian Model of Occupational Therapy in children, we analyze all parameters according to the model. It is useful to train all skills by using play. Play is formed according to the skill loss of the children. OTs should be more creative while working with children. In literature, as we would like to increase motivation, do not bore and tire the child, all components can be trained with play [34]. The most preferred plays are jenga, monopoly, and dart throwing in our clinic. It is because children have joy while playing and these plays can be used to increase proximal stabilization, gross and fine motor skills, sensory skills, cognitive skills, social skills, and bilateral integration.

In motor training it is important to be aware of fine motor skills. Hand strengthening with putty, speed improvement with competitive plays, and endurance training by increasing the time in activities are examples of mostly used trainings. Of course, children should develop in gross motor skills as they participate in school and sports activities. Jumping and climbing are important skills that children should improve. In hospital setting, however, it is harder to train gross motor skills, and via activity, we may train gross and posture muscles.

In sensory training both hyper- or hyposensitivity should be trained. Desensitization or sensory reeducation should be done with materials children are familiar with. If a child has severe problem, caregiver should be well educated to prevent injuries like burn, cut, etc. Motor training can be combined with sensory training. For example, while training grasping, materials can be covered with different materials and the child can be asked to differentiate the feature.

In cognitive training attention is an important component. In development stage, attention is needed for children to be successful in all areas of daily living but especially in school functioning. For example, attention should be handled in terms of selective attention, shifting attention, and divided attention. These attention parameters can be added while skills training via meaningful activity, e.g., singing song while playing jenga. Processing speed, short-long term memory, and sequencing ability should also be trained. Memory cards, history

telling, making animation, and memory training by watching cartoon and asking questions can be examples. However, every impairment should be recognized and trained well in a structural planning.

It is important for the children to gain problem-solving skills, confidence, self-esteem, etc. Therefore, children should take responsibility in treatment; parents also should let the child to participate in activities. Some brainstorming home works are useful for both child and family education. ADL training is needed, and we should be aware of the sociocultural form of the family. If the child had never learned the skill, we may teach the parameters of the activity [35]. Children should develop social skills. We may form a social environment for the child and let him/her participate in group activities. Children always develop more by playing with their peers like communication, language, etc. Environment also should be assessed and needed adaptations should be provided.

In addition, OTs should be more creative in therapy applications. They should use creativity-containing methods such as art, music, and dance therapy to increase activity performance and participation in children with cancer [36].

5. Occupational therapy in adult cancer

There are a total of 14.1 million cancer cases that result in 8.2 million deaths according to the global cancer statistics [37]. Survivors of cancers may have physical, social, cognitive, and emotional problems. For example, in breast cancer which is the most common type of woman, they might experience chronic lymphedema, sexual dysfunction, and cognitive impairment [38, 39]. As well as client with prostate cancer may experience urinary incontinence, peripheral neuropathy, weakness of muscle, sexual problems, and fatigue [22]. Among cancer survivors, psychosocial problems are prevalent and may include economic difficulties related to repetition and fear of death, anxiety and depression, feelings of alienation or isolation, job loss, and discrimination in employment [40]. Because of these reasons, researchers focus on quality of life issues after cancer treatment [41]. The common rehabilitation goals and a couple of examples of instrument for assessing the achievement of this goal are shown in **Table 3**.

According to ICF parameters, **Table 3** shows some examples of the rehabilitation goals and the evaluation instruments which are mostly used by OT for cancer client in adults. Clients with cancer need sensory-motor-cognitive training, breathing and relaxation training, fatigue and pain management, and vocational rehabilitation to support independent, healthy life. It is also important to promote occupational balance and appropriate planning of daily routine in adults. Different than children, adults may have more problems in gaining motivation; they are mostly very pessimistic and sometimes it is hard to initiate the rehabilitation program. Therefore, therapist should use therapeutic skills for communicating well.

In sensory training, it is good to support body image, body awareness, and deep sense. Mindfulness, body awareness training, proprioceptive-kinesthetic training can be added to rehabilitation program. Sensory education should be given for both upper and lower extremity. Many clients have problems in perception of foot sole. Sensory input should be given

Rehabilitation goals	Evaluation instruments
Increasing of physical performance	WHO Activity Index, Karnofsky Performance Score, Harvard Step Test, Ergometry, Muscle Strength Measurement (Vigorimeter, Digimax Muscle Testing), Functional Assessment of Cancer Therapy (G: General, F: Fatigue, P: Prostate-FACT)
Reducing post-surgical problems (scars discomfort, seroma)	Clinical observation, Visual Analog Scale (VAS)
Reducing hormone deficiency symptoms (vasomotor reactions, osteoporosis)	Clinical observation, Visual Analog Scale (VAS)
Reducing sensory symptoms after treatments	Sensitivity Measurement, Vibration Sense, Semmes-Weinstein monofilament
Reduction of fatigue	Multidimensional fatigue Inventory (MFI), Cancer Fatigue Scale (CFS), Piper Fatigue Scale (PFS), Functional Assessment of Cancer Therapy, Fatigue (FACT-F), Visual Analog Scale (VAS), EORTC-QLQ-C30, Fatigue Module
Reducing pain	Visual Analog Scale (VAS), Pain Diary
Reduction of lymphedema	Clinical observation, rating scale
Improvement in urinary incontinence	Biofeedback, diary
Dealing with sexual dysfunction, improvement of erectile dysfunction	Diary, International Index of Erectile Function (IIEF)
Improvement of functional disorders of the musculoskeletal system	Range of motion Muscle strength test
Maintaining/increasing independence of daily life	Detailed activity analysis, Functional Independence Measure (FIM), Barthel Index (BI), Instrumental Activities of Daily Living Scale (IADL), Role Checklist (RL)
Increasing motivation and interest in activities	OQ (Occupational Questionnaire), Interest Checklist and Activity Checklist (ICAC)
Improvement of cognitive performance	d2-test (Attention stress test), Benton test (visual memory-BT), Multiple Choice Vocabulary Intelligence Test (MWT-B), Loewenstein Occupational Therapy Cognitive Assessment (LOTCA), Mini mental state examination
Promoting disease management, improving self-awareness and self-acceptance, emotional stabilization	EORTC, SF-36, Functional Assessment of Cancer Therapy (G: General, F: Fatigue FACT)
Coping with stress and anxiety depressive states and relaxation	"Stress thermometer," Hospital Anxiety and Depression Scale (HADS-D), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Visual Analog Scale (VAS)
Reduction of Progression	Fear of Progression Questionnaire
Improving of Hand Function	Purdue pegboard, Jebsen Hand Function Test
Improving of Quality of Life	QLQ-C30, cancer-related modules
Breakdown of family and partnership problems	Interview, Couples climate scales
Enabling reintegration, initiating professional promotions	CIO Community Integration Questionnaire, ISSI (Interview Schedule For Social Interaction)

Rehabilitation goals	Evaluation instruments
Obtaining participation in life, increasing activity performance	Reintegration to Normal Living Index, Instrumental Activities of Daily Living Scale (IADL), Canadian Occupational Performance Measurement (COPM)
Reduction of risk behavior (smoking alcohol abuse, overwork)	Life Habits Assessment (LIFE-H), Questionnaires
Providing vocational rehabilitation	Worker Role Interview, Valpar Component Work Samples (VCWS)

Table 3. Rehabilitation goals and the evaluation instruments mostly used for adults cancer.

form planter surface of the foot. Education in upper extremity should be given in a functional manner. Materials and exercises should be selected according to the meaningful activities.

In motor training, according to the areas of weaknesses, muscle strength gain should be aimed. Clients mostly have problems in endurance and control. In hospital setting, activity training should be planned in this manner. For example, for the clients who do not wanted to participate to therapy and can only sit in bed for 5 minutes, we decided to use dart throwing exercise. We asked him to sit in a wheelchair and stand up and throw the dart. First day, he did only one throw; however, second day he stood up three times, and at the end of the week he started walking and participated to the therapy. We should always support antigravity muscles by activities. Endurance and fatigue management should be our priority, afterwards we can aim speed.

Cognitive training will differ according to the effect among cancer clients. However, mostly, programs may include memory, attention, orientation, and executive function. If the client is elderly, cognitive problems may be more visible as with ageing cognitive abilities are decreasing. In working adults, executive functioning gains importance for working skills. It is advisable to start cognitive training as quick as possible because its effect on symptom and fatigue control has been shown.

Breathing and relaxation training consist of learning breathing technique, body/mind relaxation technique, somatic experience technique, and relaxation exercises [21, 22]. The common goal of these techniques is to ensure that people are both physically and cognitively less likely to feel stressed and more comfortable to maintain and participate in their activities.

Fatigue and pain management are most important in rehabilitation. Because nearly every client struggles with fatigue and pain, and these symptoms affect treatment success. Management of these symptoms will closely influence the performance and participation of activities of individuals in their daily lives. OTs should give priority to teach the client to state, sequence, and divide the activity for them to enable to cope with these symptoms. Energy conservation techniques and activity planning should become a part of their lifestyle, so that they can keep their energy for longer or use it more appropriately. In addition, planning sleep routines and daily routines is an intervention that OTs should not forget in adult cancer clients [21].

Leisure activities can also be suggested to these clients. As we aim occupational balance, this area of occupational performance should not be forgotten. Gardening, doing hand crafts, painting, yoga, dance, and pilates are mostly preferred activities. As these activities give joy to

clients, some chemicals like serotonin can be released and immune system can be supported. Therefore, we may say that these activities can also have a healing effect.

Adult client may whether continue with their old job or are ready to return to work or whether they will be able to get a new job or not. Thus, vocational rehabilitation may be needed in treatment plan. OTs can make suggestions on improving the physical, psychological, and cognitive skills of the worker about the work, and give suggestions about designing the working activity or modify the work environment.

In conclusion, occupational therapy should carry out a holistic approach including improving endurance and muscle strength, preserving energy for daily living activities, decreasing stress, improving activity performances, and participation in adults' cancer [22, 42].

6. Rehabilitation in palliative care and hospice care

The role of occupational therapist in palliative care and hospice care is quite similar and important. In these care services, occupational therapists support mostly the secondary symptoms related to cancer client, cancer types, and treatments. End-of-life care of children and adults can include the management of physical, emotional, social or cognitive symptoms, limitations of performance, meaningful roles and activities, family, and social support. They analyze the current activity preferences and the personal and environmental resources to increase client participation. Hospice care generally has been little experienced with children, while it is mostly used as an approach to care during the last stages of life in adults [24]. The main aim of OTs is to improve the quality of life according to the values of the client and to maximize lasting functional skills [43].

7. Conclusion

OT clinical trial evaluation and interventions focus on functioning and participation by improving the abilities of cancer clients. The care of cancer client prolongs from the start of treatment to the end of the client life. They provide evidence-based interventions in inpatient care, outpatient care, education, and home care and in hospital care settings. Cancer clients may usually need support for ADL, using breathing and relaxation training, lifestyle redesigning and fatigue management, self-esteem, motor skills, cognitive therapy, vocational rehabilitation, and client and caregiver education. The OTs mainly focuses on these subjects and activity and participation restrictions in the rehabilitation community.

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