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OCCUPATIONAL THERAPY IN THE OCCUPATIONAL ROLES AND QUALITY OF LIFE OF COLORECTAL CANCER PATIENTS UNDERGOING CHEMOTHERAPY

Pamela Puga
Hospital das Clínicas, Faculty of Medical Sciences. Universidade Estadual de Campinas, Campinas, São Paulo, Brazil

Síbila Floriano Landim
Escuela de Terapia Ocupacional, Facultad de Psicología, Universidad de Talca, Talca, Chile

Carmen Silvia Passos Lima
Department of Anesthesiology, Oncology and Radiology; School of Medical Sciences, Universidade Estadual de Campinas, Campinas, São Paulo, Brazil

Luciana Campanatti Palhares
Hospital das Clínicas, Faculty of Medical Sciences. Universidade Estadual de Campinas, Campinas, São Paulo, Brazil

Abstract: Introduction: Occupational therapy (OT) supports the therapeutic bond and the development of skills or functions. Chemotherapy (CT) can alter the occupational roles (OP) health-related quality of life (HRQoL) of cancer patients, but it has not been established whether OT performed during CT can act to rescue OP and HRQoL. **Objective: To** evaluate changes in OP and HRQoL through OT in colorectal cancer (CRC) patients undergoing chemotherapy. **Methods:** A prospective, longitudinal and quantitative study was carried out. The sociodemographic profile at diagnosis was obtained from medical records. Four to six sessions of OT were carried out during the administration of QT. The therapeutic interventions were: making a mandala, reflecting on music, playing bingo, dominoes and painting a medium-density fiberboard box. HRQoL OPs were identified on the basis of the human occupation model (MOH) OP list and the SF-36 and FACT-F QoL questionnaires, respectively, before and at the end of chemotherapy treatment. **Results**: 38 patients were selected and 35 (92%) completed the study procedures. The mean age of the patients was 59 years, and 58% of them were male. The patients underwent adjuvant, neoadjuvant or palliative QT. We observed a change in OP, improvement in the pain domain and functional capacity in HRQoL after the OT intervention. In terms of HRQoL, women experienced changes in social/family well-being and social aspects, and the older they got, the lower their functional well-being. **Conclusions:** OT gave a new meaning to the OP and improved the HRQoL of patients with RCC treated with chemotherapy
Keywords: Colorectal Cancer, Role Performance, Quality of Life, Chemotherapy, Occupational Therapy.

Surgical resection of the tumor, chemotherapy (CT) and radiotherapy (RT) are the main therapies for patients with RCC[1].

Around 45,630 new cases of colorectal cancer (CRC) were estimated by the National Cancer Institute (INCA) for the three-year period 2023 to 2025 in Brazil and 20,245 deaths attributed to the tumor occurred in 2020[2]. 21,970 new cases of RCC in men and 23,660 new cases of RCC in women were estimated for 2023 alone[2].

Cancer is the second leading cause of death in the world and was responsible for 9,958,133 million deaths, both sexes and all ages, in 2020. Globally, around 1 in 6 deaths is due to cancer and approximately 70% of cancer deaths occur in low- and middle-income countries[1()].

The diagnosis of cancer is a moment of crisis for patients and their families, as it changes the course of their lives and has a major emotional impact on accepting the diagnosis and care, dealing with survival issues and adapting to the new reality[10-11].

OT interventions focus mainly on daily activities and occupations, such as those described in the Human Occupation Model (HOM), facilitating the patient's performance in their activities and maintaining their participation in life[6(-11)()].

Improvements in the HRQoL of breast cancer patients have been observed, especially in global, physical and social health, cognitive function, fatigue, functional function and psychological state, through OT with strategies aimed at controlling anxiety (32, 33, 34). In addition, the return of women with breast cancer to activities of daily living and learning new manual work was possible with OT [16].

Disruptions in the lives of cancer patients, such as loss of autonomy and OP, can also be observed during QT and RT[4] and approaches based on the symptoms determined by QT and RT are a challenge for the rehabilitation of cancer patients[()(3)()]). These changes and their repercussions must be taken into account by the OT so that life does not lose its meaning [5,7,12].

Thus, the aim of this study was to evaluate

the OP, HRQoL and fatigue of patients with RCC undergoing QT before and after OT.

To the best of our knowledge, loss and/or reduced performance of the OP, especially in the roles of worker and religious, were observed in patients with RCC in a single study, with a reduction in QoL as a consequence [((13)).]

Another aspect modified by cancer is the HRQoL of tumor patients, which is influenced by physical health, psychological state, level of independence, social relationships and relationship with environmental aspects [(31().] Health-related quality of life (HRQoL) has a narrower meaning, as it is associated with diseases or health interventions. It is a broad, multidimensional concept that incorporates various domains: physical health (physiological dysfunctions and symptoms such as fatigue, nausea or pain), psychological state (depression, anxiety and mood), level of independence (ability to carry out day-to-day activities and those related to work and family), social relationships (quantity and quality of interpersonal relationships), individual beliefs and their relationship with the environment in which the individual is inserted [(33,35)].

METHODS

STUDY DESIGN

This is a prospective, longitudinal study with a quantitative approach carried out at the Oncology Outpatient Clinic of the Hospital das Clínicas of the University of Campinas (HC/UNICAMP), from February to November 2018. The research study complied with the requirements of Resolution 466/2012 CNS/MS and was approved by the local Ethics Committee (no.: 72433017.4.0000.5404, under opinion number: 2.472.555). All the participants selected signed the Informed Consent Form (ICF)

PARTICIPANTS

The criteria including patients in the study were: patients over the age of 18, diagnosed with RCC, female and/or male, undergoing chemotherapy for four weeks or more, literate, without psychiatric disorders, with stable vital signs (information taken from the nursing records), signing and agreeing to the ICF and who were interested in carrying out the activities in the protocol indicated by the OT. Patients who did not carry out all the procedures were excluded from the analysis.

PROCEDURES AND INTERVENTION

Data on the sociodemographic profile was obtained from medical records by the researcher responsible for the study.

The occupational roles referred to by patients were assessed before and after OT intervention, using the Occupational Procedures List, based on the human occupation model (MOH), translated and validated for Brazilian culture [(8)]. as an instrument. This instrument measures different occupational roles played in the past, present and future by calculating their frequency. Initially, the patient chose between the ten roles listed (student, worker, volunteer, carer, domestic service, friend, family member, religious, hobby/amateur and participant in organizations), their performance in the past, present and future, assigning the degree of importance to each of the roles, considering the score 1 for none, 2 for some and 3 for a lot of importance. Subsequently, the patients provided information about the OPs listed in eight categories (role played only in the past, loss of role only in the present, gain of role only in the present, role played from the onwards, role played up to the present, new role in the future, ongoing role and role not analyzed). These listed categories served to establish performance standards and the degree of importance of each role for the patient. The

distribution and frequency of the instrument's data were generated automatically by a created by the person responsible for validating the scale in Brazil [8]

The researcher in charge also applied the SF-36 Questionnaire and the Fatigue Questionnaire (FACT-F) to assess HRQoL before and after the OT intervention

All patients received adjuvant, neoadjuvant or palliative QT in the Chemotherapy Room of the Clinical Oncology Service at HC/UNICAMP.

The OT intervention was carried out during the administration of QT. Four to six OT sessions were held, lasting one hour, according to the intervals in the patient's QT regimen. The intervention activities were: making a mandala, playing dominoes/bingo, listening to music, and painting a medium-density fiberboard (MDF) box (**Figure 1**). The activities in the protocol were developed individually with each patient and for all the study participants (**Table 1**).

STATISTICAL ANALYSIS

The computer program "SAS System for Windows (Statistical Analysis System)", version 9.4 (SAS Institute Inc, 2002-2008, Cary, NC, USA) was used for all the analyses in the study. ANOVA for repeated measures was used to compare the numerical variables between groups and times, and the data was transformed into ranks. Generalized estimating equations (GEE)[(19-20)] were used to compare categorical variables between groups and times. The Spearman correlation coefficient was used to relate age to the instruments and the instruments to each other. The Mann-Whitney test was used to relate the instruments to gender. The level of significance adopted for the study was $p \leq 0.05$.

RESULTS

The initial sample consisted of 38 participants, but three of them dropped out of treatment and were excluded from the analysis. Of the 35 patients, 58% were men, with an average age of 59. Most of the patients had no occupation at the time of the interview, had a low level of education and were married (**Table X**).

The analysis of the performance of occupational roles showed that the group was homogeneous, with the same behavior before and after the OT interventions, but the role of worker (37%) and religious person (18%) showed a greater loss of performance in the present, compared to performance in the past; considering chemotherapy treatment in the present, the role of family member (92%), volunteer and caregiver (79%) showed a continuous role (**Table 3**). The occupational roles of caregiver (92%), friend (84%), family member (89%) and religious (87%) were highlighted for future role prospects and the role of student (87%), worker (89%), volunteer (68%), caregiver (89%), domestic service (74%), friend (84%), family member (92%), religious (82%), hobby/amateur (76%) and participation in organizations (50%) were reported as very important after QT (**Table 4**).

We found that patients had greater functional capacity (70.00 vs 85.00, $p \leq 0.028$) and lower pain intensity (72.00 vs 92.00, $p \leq 0.005$) after HT when QoL was assessed using the SF-36 instrument (**Table 6**). When considering gender, in females it can be said that there was a worsening of QoL in social aspects during HT with $p \leq 0.0160$, the other domains did not show statistically significant data

In relation to the Fact-F, an instrument for analyzing fatigue, when compared before and after OT treatment, there was no statistically significant result $p \geq 0.5672$, but when the separate social/family well-being score was analyzed, 17.34 (±4.72) to 17.37 (±4.72) was lower than the other scores. When conside-

ring the genders, for females it can be said that the greater the fatigue, the lower participation in social/family well-being p≤0.0043. In another analysis, it was estimated that the higher the age during chemotherapy, the lower the functional well-being p≤ 0.0357

In the correlation between the Fact-f scale and the SF-36 HRQoL questionnaire, when analyzing the fatigue subscale, we can say that the higher the score, the lower the level of fatigue, as was the case with functional capacity -0.0059; 0.9731 and with pain 0.0109; 0.9502 and vitality 0.0275; 0.8753, respectively, showing a better state of health (Table 6).

DISCUSSION

Studies in the area of OT in patients with RCC are rare in the literature, which is why this study has a great impact in the area of OT, as it is a study developed in care practice by implementing a protocol of OT interventions during QT in the Clinical Oncology outpatient clinics of HC/UNICAMP. Previous research in other services has shown that OT works with adults and children in a hospital setting: with women with breast cancer, providing group and individual care at a certain point after chemotherapy, and in pediatrics, developing play as a therapeutic resource. [13,22]

This study showed a change in the patients' behavioral performance after the OT intervention. Care based on the Human Occupation Model chosen, with the use of therapeutic intervention, the specificities of which can improve and help to understand the experiences of illness, was positive for this study. Coping with the changes caused by cancer showed changes in the occupational roles of student, worker, volunteer, caregiver, domestic service, friend, family member, religious, hobby/amateur and organizational participant, as well as an improvement in functional capacity and a reduction in pain [6].

With the global increase in the number of patients with advanced cancer living for longer and longer periods, there has been a growing need for non-pharmacological therapeutic treatments that aim to support individuals in coping with various problems [23].

Cancer patients are fragile beings who need numerous sources of assistance to maintain their will, courage and hope in the arduous battle to recover their health. One of these sources is OT, which offers resources for adapting to the environment, to the group, as well as to a new reality in accordance with the patient's wishes and needs, taking into account lifestyle, culture and socioeconomic and emotional aspects [12].

In the United Kingdom, the United States and Canada, therapeutic activities are used by various professionals as a valuable therapeutic resource in palliative care services, providing support for individuals with advanced cancer[24].

The MOH was chosen in this study because it guided the activities, as a therapeutic resource and the "why" that OT uses the activity to establish the bond built between patient and therapist. Some Brazilian studies have been carried out with cancer patients, not only to investigate social support and health-related quality of life (HRQoL), but also self-care and to understand the experiences of illness in order to create better interventions [25,11].

In this study, the socio-emotional aspects that the patient reported facing were taken into account because they were based on the principles of patient-centered practice [16], such as: anger, depression, denial, pain, separation, problems due to leaving work and returning home.

The results of this study may suggest that the treatment of RCC as health care should cover not only the management of clinical symptoms, but also the various contexts of the daily routine of life, where the current moment may cause functional and quality of life impairments.

Although the results of the occupational roles had the characteristics of a homogeneous group, after the OT intervention they came to be considered very important. This showed that the proposed activities led to reflection on how to give new meaning to new ways of carrying out activities of daily living.

This study also showed that the other main occupational role that was lost in the present was that of worker. The role of former worker was confirmed by the number of inactive people (89%), which is related to retirement due to illness or age (average 59 years).

The evaluation of HRQoL in RCC was applied in this study in order to measure the influence on the improvement or worsening of these patients' HRQoL. Evaluating HRQoL is a subjective and abstract construct - it is admittedly a complex task. It is a multidimensional concept, dealing with the relationship between the environment and the individual's physiopsychological aspects, level of independence, social relationships and personal beliefs[22]. Measuring the HRQoL of cancer patients is currently an important resource for evaluating the results of treatment from the patient's perspective [26-27-28].

In this study, it was observed that the participants who were assisted during chemotherapy by OT had increased functionality, a fact that statistically contributes to HRQoL. Increased functional capacity is related to autonomy, independence, socialization and health care. In this study, women showed worse HRQoL in the social aspects domain $p \leq 0.0160$, which leads us to reflect that there is less participation and social relationships during this time in their lives.

In the area of pain, the HRQoL analysis was considered to be one of the most frequent symptoms in neoplasms, and the one most feared by patients [29].

This study showed that, with OT interventions, pain decreased with a p-value of $p \leq 0.0048$ post-intervention compared to pre-intervention. When we think of pain, we relate that the less pain the more functional the patient becomes, as well as more independent and autonomous in managing their decisions and lifestyles [29].

With regard to fatigue, which is a common clinical manifestation and very prevalent in cancer patients, its characterization and mechanisms still challenge health professionals [30]. In this study, there was no significant evidence between before and after treatment of OC $p \geq 0.5672$, but in women social/family well-being showed a worse score with $p \geq 0.0043$ during treatment.

Cancer-related fatigue is a subjective experience characterized by tiredness that is not relieved by sleep or rest, and is considered a predictor of decreased personal satisfaction and quality of life [28,30].

The study also found that the older the patient, the lower their functional well-being during chemotherapy $p \geq 0.0357$.

However, this study was able to add to the knowledge of the OT professional's role as an aid in the non-pharmacological treatment of patients with RCC. The degree of importance attributed to occupational roles, improvement in pain and functional capacity were important in reframing behaviors and helping to restructure life during this process OT contributed to improvement in HRQoL in the functional capacity and pain domains, and in the correlation with fatigue, showed a better state of health when functional capacity, pain and vitality were observed. OT provided a re-signification of the performance of some occupational roles during QT of patients with RCC.

REFERENCES

1. Sung H, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA Cancer J Clin; 71(3):209-249, 2021. Disponível em: https://doi.org/10.3322/caac.21660

2. Instituto Nacional do Câncer (INCA) Estimativa 2020: Incidência de Câncer no Brasil. Disponível em: https://www.gov.br/inca/pt.br/assuntos/cancer/tipos/pulmao Acesso em: 03/05/2023.

3. Baek Y, Yi M. Factors Influencing Quality of Life during Chemotherapy for Colorectal Cancer Patients in South Korea. J Korean Acad Nurs; 45(4):604-612,2015. ISSN 20053673-2093758X. Disponível em: https://doi:10.4040/jkan.2015.45.4.604

4. Cheville AL, Kollasch J, Vandenberg J et al. A Home-Based Exercise Program to Improve Function, Fatigue and Sleep Quality in Patients with Stage IV Lung and Colorectal Cancer: A Randomized Controlled Trial. J Pain Symptom Manage; 45(5): 811-821, 2013. Disponível em: https//doi:10.1016/j.jpainsymman.2012.05.006

5. Ferrari MAC. Lazer e Ocupação do Tempo Livre na Terceira Idade. In: Netto, M.P. Gerontologia. A Velhice e o Envelhecimento em Visão Globalizada. São Paulo: Atheneu. p.98-105, 2002. Monografia em Português LILACS|ID:lil-342985

6. Barrozo BM et al. Os papéis ocupacionais de pessoas com câncer de cabeça. Rev. Ter Ocup. Univ São Paulo; 25(3):255-263, 2014. Disponível em: https://doi.org/10.11606/issn.2238-6149.v25i3p255-263

7. Salles MM, Matsukura, TS. O uso dos conceitos de ocupação e atividade na terapia ocupacional: uma revisão sistemática da literatura. Cad Ter Ocup da UFSCar; 24(4):801-810, 2016. Disponível em: https://dx.doi.org/10.4322/0104-4931.ctoAR0525

8. Cordeiro JR, Camelier A, Oakley F, Jardim JR. Cross-cultural reproducibility of the pulmonary disease. Am J Occup Ther. 2007;61(1):33-40. https://doi.org/10.5014/ajot.61.1.33

9. Santi A, Mariotti, MC, Cordeiro, JR. Lista de identificação de papeis ocupacionais em um centro de tratamento de hemodiálise: contribuições para a intervenção de terapia ocupacional – estudo piloto .2012

10. Castro E. Inscrições da relação terapeuta-paciente no campo da terapia ocupacional. Rev. Ter Ocup. Univ São Paulo; 16(1): 14-21, 2005. Disponível em https://doi.org/10.11606/issn.2238-6149.v16i1p14-21

11. Chagas LMDO, Sabino FHO, Barbosa MH, Frizzo HCF, Andrade LF, Barichello E. Self care related to the performance of occupacional roles in patients under antineoplastic chemotherapy treatment. Rev Latino Am Enfermagem [Internet]; 29:e3421, 2021. Available from: https//doi.org/10.1590/1518-8345.4092.3421

12. Peçanha DLN. Câncer: Recursos e Enfrentamento na Trajetória da Doença. In: Carvalho VA, Macieira RC, Liberato RP et al. Temas em Psico-oncologia. São Paulo: Summus Editorial, 2008.

13. Cologna PT. Papéis ocupacionais de pacientes com câncer colorretal submetidos à quimioterapia [monografia]. Ribeirão Preto (SP): Faculdade de Medicina de Ribeirão Preto da USP; 2010.

14. Ciconelli RM, Ferraz MB, Santos W, Meinão I, Quaresma MR. Tradução para a língua portuguesa e validação do questionário genérico de avaliação de qualidade de vida SF-36 (Brasil SF-36). Rev Bras Reumatol; 39(3): 143-50, 1999.

15. Ishikawa NM, Thuler LCS, Giglio AG *et al.* Validation of the Portuguese version of Functional Assessment of Cancer Therapy-Fatigue (FACT-F) in Brazilian cancer patients. Support Care Cancer; 18:481-490, 2010. https://doi.org/10.1007/s00520-009-0697-0

16. Faria NC, De Carlo MRP. A atuação da terapia ocupacional com mulheres com câncer de mama em cuidados paliativos. Rev. Ter. Ocup. Univ. São Paulo; 26(3):418-427, 2015. Disponível em: https://doi.org/10.11606/issn.2238-6149.v26i3p418-427

17. Minayo MCS, Hartz ZMA, Buss PM. Qualidade de vida e saúde: um debate necessário. Ciência & Saúde Coletiva; 5(1): 7-18, 2000. Disponível em: https://doi.org/10.1590/S1413-81232000000100002

18. Sawada NO, Nicolussi AC, Paula JM et al. Quality of life of Brazilian and Spanish cancer patients undergoing chemotherapy: an integrative literature review. Rev Latino-Am Enfermagem;24:e2688, 2016. Disponível em: https://doi.org/10.1590/1518-8345.0564.2688

19. Conover WJ, Iman RL Rank Transformations as a Bridge Between Parametric and Nonparametric Statistics" The American Statistician; 35(3): 124–29, 1981. Disponível em: https://doi.org/10.2307/2683975 Accessed 28 June 2023.

20. Conover WJ. Practical Nonparametric Statistics. 3ª ed. John Wiley & Sons Inc. Nova Iorque, 1999.

21. Liang KY, Scott LZ. Longitudinal Data Analysis Using Generalized Linear Models. Biometrika; 73(1): 13-22, 1986. Disponível em: https://doi.org/10.2307/233626 Accessed 28 June 2023.

22. Dias SC, Figueiredo FHC, Lobato BC. Intervenção do terapeuta ocupacional junto às crianças com câncer: uma revisão dos Anais do I Congresso da Associação Científica de Terapia Ocupacional em Contextos Hospitalares e Cuidados Paliativos. Revista Família, Ciclos de Vida e Saúde no Contexto Social [Internet]; 6(1): 83-94, 2018. Disponível em https://www.redalyc.org/articulo.oa?id=497955422011

23. Kielhofner G, Nicol M. The Model of Human Occupation: A developing conceptual tool for clinicians. British Journal of Occupational Therapy; 52(6): 210-214, 1989. Disponível em: DOI:10.1177/030802268905200602

24. Kielhofner G. Conceptual foundations of occupational therapy. 4.ed. Philadelphia. Davies Company; 2009.

25. Sette CP, Capitão CG. Investigação do suporte social e qualidade de vida em pacientes com câncer. Revista Saúde e Pesquisa; 11(1): 151-162, 2018. Disponível em: https://doi.org/10.17765/1983-1870.2018v11n1p151-162.

26. Holmenlund K, Sjogren P, Nordly M. Specialized palliative care in advanced cancer: what is the efficacy? a systematic review. Palliat Supp Care; 15(6): 724-740, 2017. Disponível em: doi:10.1017/S1478951517000402

27. Ferrer AL, Santos WA. Terapia ocupacional na atenção a pacientes com dor oncológicas e em cuidados paliativos. In: De Carlo, M.M.R.P, autor. Terapia ocupacional em contextos hospitalares e cuidados paliativos, São Paulo, 2018 p 417.

28. Lis CG, Rodeghier M, Grutsch JF et al. Distribution and determinants of patient satisfaction in oncology with a focus on heath related quality of life. BMC Heath Serv Res; 9(190): 1-11, 2009. Disponível em: https://doi.org/10.1186/1472-6963-9-190

29. Shang YU Y, Jung-Der W, Jer Hao C. Occupational therapy to improve quality of life for colorectal cancer survivors: a randomized clinical Trial. Supportive Care in Cancer; 28:1503-1511, 2020. Disponível em: https://doi.org/10.1007/s00520-019-04971-2

30. Yuen HK, Mitcham M, Morgan L. Managing post-therapy fatigue for cancer survivors using energy conservation training. Journal of Allied Health; 35(2): 121E-139E, 2006.

31. The World Health Organization Quality of Life Assessment (WHOQOL): Development and general psychometric properties. Soc Sci Med; 146:1569-1585, 1998.

32. He Kang MD, Jiang Junjie MD, Chen Mengmeng MD, Wang Taiwei MD, Huang Xuemiao MD, Zhu Ruiting MD, Zhang Zhiyuan MD, Chen Junyu PhD, Zhao Lijing. Effects of occupational therapy on quality of life in breast cancer patients: A systematic review and meta-analysis. Medicine; 102(31):e34484, 2023. doi:10.1097/MD.0000000000034484

33. Palhares LC, Gallani MC, Gemignani T, Matos-Souza JR, Ubaid-Girioli S, Moreno H Jr, Franchini KG, Nadruz W Jr, Rodrigues RC. Quality of life, dyspnea and ventricular function in patients with hypertension. J Adv Nurs; 66(10):2287-2296, 2010. doi: 10.1111/j.1365-2648.2010.05396.x.

34. Lugo D, Pulido AL, Mihos CG et al. The effects of physical activity on cancer prevention, treatment and prognosis: a review of the literature. Complement Ther Med; 44:9-13, 2019.

35. Ohnishi N, Kataoka T, Okamura H. Relationships between roles and mental states and role functional QOL in breast cancer outpatients. Japanese Journal of Clinical Oncology; 41(9): 1112-1118, 2011.

Intervention	Objective	Materials	Results
Building a mandala	Raising awareness that there is still life after a cancer diagnosis.	Canson paper Crayons Stylus India ink	Positive results, some patients have started or resumed activities that were interrupted during the illness process.
Dominoes game Bingo game	Providing leisure	Dominoes game Bingo game Donation of gifts	The increase in the bond between OT and patient was significant
Reflective activity	Reduce symptoms of anxiety, discomfort and pain	Speaker/cell phone Headphones	Patients reported feeling no pain during chemo-therapy and that the session ended quickly
Painting an MDF box*	Stimulate the emotional aspects, cognitive and motor	MDF box Brushes Colored wood paint	Participants received the box as a gift at the end of the OT sessions, with a motivational quote: "*In the life of a winner, there are no problems, only challenges*"

Table 1: Description of the activities carried out in the study

Legend:*MDF: Medium-density fiberboard in the shape of a box.

Variables	N=35	%
Age **Years (average)**	 59,3	
Gender **Male** **Female**	 21 14	 58 42
Occupation **Active** **Inactive**	 4 31	 11 89
Education **Years (average)**	 5,1	
Marital status **Married** **Single** **Separate** **Divorced** **Widowed**	 27 1 1 4 2	 67 4 4 17 8

Table 2: Demographic data of patients with colorectal cancer

Occupational roles	**Performed only in the past**	**Loss only in the present**	**I only earn in the present**	**Performed from the present**	**Performed to date**	**New role for the future**	**Continuous paper**	**Missing paper**
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Student	33 (87)	4 (11)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3)	0(0)
Workers	18 (47)	14 (37)	0 (0)	0 (0)	2 (5)	1 (3)	3(8)	0(0)
Volunteer	4 (11)	2 (5)	0 (0)	4 (11)	0 (0)	2 (5)	30(79)	0(0)
Caregiver	0 (0)	2 (5)	0 (0)	4 (11)	0 (0)	2 (5)	30(79)	0(0)
Domestic service	0 (0)	5 (13)	1 (3)	2 (5)	0 (0)	0 (0)	29(76)	1 (3)
Friend	0 (0)	5 (13)	1 (3)	2 (5)	0 (0)	0 (0)	29(76)	1 (3)
Family member	0 (0)	0 (0)	1 (3)	2 (5)	0 (0)	0 (0)	35(92)	0(0)
Religious	1 (3)	7 (18)	0 (0)	2 (5)	0 (0)	2 (5)	26(68)	0(0)
Hobby/amateur	5 (13)	4 (11)	3 (8)	3 (8)	2 (5)	1 (3)	17(45)	3(8)
Participation in organizations	6 (16)	1 (3)	0 (0)	0 (0)	1 (3)	6(16)	10(26)	14(37)

Table 3: Distribution of the pattern of performance of occupational roles of the 35 patients with colorectal cancer

Occupational roles	**Performance over time**			**Degree of importance after chemotherapy**		
	Past	**Present**	**Future**	**No importance**	**Some importance**	**A lot of importance**
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Student	35 (100)	0 (0)	6 (17)	0 (0)	2(5)	33(94)
Workers	32 (91)	9 (25)	25 (71)	0 (0)	1(3)	34(97)
Volunteer	13 (37)	15 (42)	28 (80)	2 (5)	7(20)	26(74)
Caregiver	29 (82)	33 (94)	35 (100)	0 (0)	1(3)	34(97)
Domestic service	27 (77)	32 (91)	29 (82)	1 (3)	6(17)	28(80)
Friend	29 (82)	33 (94)	32 (91)	0 (0)	3(8)	32(91)
Family member	33 (94)	35 (100)	34 (97)	0 (0)	0(0)	35(100)
Religious	31 (88)	30 (85)	33 (94)	0 (0)	4(11)	31(88)
Hobby/amateur	24 (68)	29 (82)	30 (85)	0 (0)	6(17)	29(82)
Participant in organizations	17 (48)	12 (34)	16 (45)	1 (3)	11(35)	19(61)

Table 4: Distribution of the performance of the occupational roles of the 35 patients over time and the degree of importance after chemotherapy

Score	Number	Average	Median	Standard deviation	Minimum	Maximum	P-value
Functional capacity							
Neoadjuvant/adjuvant pre-OT	8	70,63	70,00	12,37	55,00	90,00	0.50
Palliative pre TO	29	71,21	80,00	21,74	25,00	100,00	
Neoadjuvant/adjuvant after TO	8	74,38	70,00	16,13	45,00	100,00	**0.028**
Palliative after TO	26	77,12	85,00	19,50	30,00	100,00	
Physical aspects							
Neoadjuvant/adjuvant pre-OT	8	28.13	12.50	36.44	0.00	100.00	0.359
Palliative pre TO	29	42.24	50.00	38.44	0.00	100.00	
Neoadjuvant/adjuvant after TO	8	25.00	0.00	40.09	0.00	100.00	0.91
Palliative after TO	26	48.08	50.00	38.03	0.00	100.00	
Pain							
Neoadjuvant/adjuvant pre-OT	8	72.25	72.00	26.97	31.00	100.00	0.79
Palliative pre TO	29	69.93	64.00	26.00	30.00	100.00	
Neoadjuvant/adjuvant after TO	8	82.38	92.00	22.30	41.00	100.00	**0.005**
Palliative after TO	26	72.92	73.00	27.07	10.00	100.00	
General state of health							
Neoadjuvant/adjuvant pre-OT	8	80.88	84.50	15.55	55.00	100.00	0.14
Palliative pre TO	29	69.38	72.00	19.24	30.00	100.00	
Neoadjuvant/adjuvant after TO	8	83.00	82.00	13.18	62.00	100.00	0.13
Palliative after TO	26	76.46	82.00	18.29	22.00	100.00	
Vitality							
Neoadjuvant/adjuvant pre-OT	08	79.38	82.50	14.99	50.00	100.00	0.68
Palliative pre TO	29	74.66	80.00	20.22	25.00	100.00	
Neoadjuvant/adjuvant after TO	08	83.75	90.00	21.51	45.00	100.00	0.13
Palliative after TO	26	79.42	80.00	14.38	50.00	100.00	
Neoadjuvant/adjuvant pre-OT	8	70.31	75.00	27.50	25.00	100.00	0.79
Palliative pre TO	29	74.14	75.00	21.63	25.00	100.00	
Neoadjuvant/adjuvant after TO	08	67.19	62.50	16.28	50.00	100.00	0.44
Palliative after TO	26	74.52	75.00	22.49	25.00	100.00	
Emotional aspects							
Neoadjuvant/adjuvant pre-OT	8	29.17	33.33	11.79	0.00	33.33	0.80
Palliative pre TO	29	40.23	33.33	37.14	0.00	100.00	
Neoadjuvant/adjuvant after TO	08	33.33	33.33	43.64	0.00	100.00	0.94
Palliative after TO	26	50.00	50.00	38.01	0.00	100.00	
Mental health							
Neoadjuvant/adjuvant pre-OT	08	82.00	92.00	22.93	28.00	100.00	0.33
Palliative pre TO	29	78.76	80.00	15.46	48.00	100.00	
Neoadjuvant/adjuvant after TO	08	87.00	90.00	13.98	56.00	100.00	0.068
Palliative after TO	26	85.08	86.00	11.40	60.00	100.00	

Table 5: Quality of life domains by SF-36 questionnaire before and after occupational therapy intervention

OT: occupational therapy. *P-values* for significant differences are shown in bold

	Physical FACT F	Social FACT-F	Emotional FACT-F	Functional FACT-F	FACT-F Fatigue Subscale	Total FACT-F
SF-36 Functional capacity	-0.0517 0.7680	0.1971 0.2564	-0.1481 0.3959	-0.0809 0.6443	**-0.0059** **0.9731**	-0.0689 0.6941
SF-36 Physical Aspects	0.0426 0.8079	-0.0552 0.7529	0.1033 0.5549	0.0497 0.7770	0.1309 0.4535	0.0934 0.5935
SF-36 Pain	-0.1314 0.4518	-0.0351 0.8413	0.1471 0.3991	0.1869 0.2824	-0.0888 0.6122	**0.0109** **0.9502**
SF-36 General Health Status	-0.1089 0.5334	-0.0876 0.6168	0.0513 0.7698	-0.0060 0.9729	-0.2833 0.0992	-0.1225 0.4831
SF-36 Vitality	-0.1152 0.5099	-0.0348 0.8428	-0.0270 0.8775	0.1211 0.4883	-0.2785 0.1053	**-0.0275** **0.8753**
SF-36 Social Aspects	0.0233 0.8941	-01260 0.4709	-0.1426 0.4139	-0.0859 0.6235	-0.2279 0.1879	-0.1209 0.4890
SF-36 Emotional Aspects	-0.1002 0.5670	0.1005 0.5659	0.0035 0.9842	0.1152 0.5098	0.1607 0.3563	0.1252 0.4737
SF-36 Mental Health	-0.0704 0.6878	0.0749 0.6690	-01520 0.3834	0.0740 0.6725	-0.2571 0.1360	-0.0715 0.6832

Table 6: Pearson's correlation between FACT-F and SF-36 subscale scores.

FACT-F Functional Assessment - Fatigue Scale; SF-36 MOS Short-Form Health Survey * $p < 0.05$;

Figure 1: Patient coloring a box with paint during the occupational therapy intervention. Source: researcher herself.