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Original Article

Tailored Activity Program (TAP-BR): Proposition of an outpatient care version and evaluation of its impacts on dementia - A pilot study

Programa Personalizado de Atividades (TAP-BR): Proposição de uma versão ambulatorial e avaliação dos seus impactos na demência - Estudo piloto

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Abstract

Introduction: The Tailored Activity Program (TAP-BR) is an occupational therapy intervention program that presents promising results in reducing the behavioral and psychological symptoms of dementia (BPSD). **Objectives:** To propose adaptations to the TAP-BR to create an outpatient care version of this program and assess its impact and applicability. **Methods:** The TAP-BR was adapted for use and application in an outpatient care setting, and the applicability of this version was assessed according to the perception of occupational therapy interns and family caregivers. The Neuropsychiatric Inventory (NPI) and the Depression, Anxiety and Stress Scale (DASS 21) were used as outcome measures to evaluate the impact of the adapted version. **Results:** The following changes in the application process of the TAP-BR were proposed for its outpatient format: adaptation of terms in the Intervention Manual and in the Documentation Folder; adequacy of the environmental assessment to be carried out based on an interview with the caregiver; reduction in session duration from 90 to 60 min. From the point of view of the interns and family caregivers, the program can be easily applied. The outcome measures showed that there was improvement in caregiver distress in relation to the BPSD of the older persons with dementia (Cohen's *d*=0.49) and in their emotional state (Cohen's *d*=0.59), especially regarding the variable depression (Cohen's *d*=0.81). **Conclusion:** The outpatient version of TAP-BR can be easily

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applied, has a positive impact on reducing the BPSD in older people, and improves the emotional state of caregivers, with emphasis on the variable depression.

Keywords: Occupational Therapy, Dementia, Caregivers, Intervention Models.

Resumo

Introdução: O Programa Personalizado de Atividades (TAP-BR) é um programa de intervenção em terapia ocupacional que apresenta resultados promissores na redução dos sintomas comportamentais e psicológicos da demência (SCPD). **Objetivos:** Propor adaptações no TAP-BR para a criação de uma versão ambulatorial desse programa e avaliar o impacto e a sua aplicabilidade. **Métodos:** O TAP-BR foi adaptado para uso e aplicação em ambulatório e foi feita a avaliação da aplicabilidade dessa versão a partir da percepção dos estagiários do último ano do curso de graduação em terapia ocupacional e dos cuidadores familiares. O Inventário Neuropsiquiátrico (INP) e a Escala de Depressão, Ansiedade e Estresse (DASS 21) foram utilizados para avaliar o impacto da versão adaptada. **Resultados:** Foram propostas as seguintes alterações no processo de aplicação do TAP-BR em ambulatório: adequações de termos no Manual de Intervenção e na Pasta de Documentação; adequação da avaliação ambiental a ser realizada a partir de entrevista com o cuidador; redução na duração das sessões, de 90 para 60 minutos. Na visão dos estagiários e cuidadores familiares, o programa se apresentou de fácil aplicação. As medidas apontaram que houve melhora no desgaste dos cuidadores em relação aos SCPD dos idosos (Cohen *d*=0,49) e em seu estado emocional (Cohen *d=0,59)*, principalmente para a variável depressão (Cohen *d=0,81)*. **Conclusão:** A versão ambulatorial do TAP-BR é um programa de fácil aplicação, com impacto positivo na redução dos SCPD nos idosos e melhora no estado emocional dos cuidadores, com ênfase na variável depressão.

Palavras-chave: Terapia Ocupacional, Demência, Cuidadores, Modos de Intervenção.

Introduction

Technological advances in medicine have increased people's life expectancy, making aging a growing phenomenon. Currently, people aged ≥65 years correspond to 9.8% of the Brazilian population and, according to statistical data from recent surveys, they will be 25.5% by 2060 (Instituto Brasileiro de Geografia e Estatística, 2020).

According to Burlá et al. (2013), aging is accompanied by a physiological decline in organic functions, which alerts to a growth in the number of neurodegenerative diseases. The increase in the age group of the older people resulted in the emergence of diseases typical of this age in substitution of infectious diseases, emphasizing an epidemiological transition (Chaimowicz, 2013; Servo, 2014).

Dementia, defined as Major Neurocognitive Disorder (MND) in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), is characterized by decline in one or more of the cognitive domains, interfering with independence in activities of daily living (ADL) (American Psychiatric Association, 2014). Thus, the increased number of cases of dementia syndromes results in disability in the population affected by these

conditions, which directly interferes with the quality of life (QoL) of older persons with dementia and their family caregivers, with increased healthcare costs for families (Gitlin et al., 2012).

Another characteristic commonly observed in individuals with different dementia conditions are the Behavioral and Psychological Symptoms of Dementia (BPSD), which can result in increased caregiver burden, suffering of the older people and their family members, as well as in increased prevalence of institutionalization (Júnior & Souza, 2017). In most cases, the BPSD include agitation, delusions, hallucinations, apathy, sleep disturbances, disinhibition, changes in appetite, depression, and anxiety (Radue et al., 2019).

The indication of pharmacological treatment to control the BPSD is quite common; however, there is little scientific evidence as for promising results in some behavioral symptoms, and it is also necessary to consider the side effects and the increased risk of mortality resulting from the use of psychotropic drugs (Kales et al., 2012; Júnior & Souza, 2017). Therefore, non-pharmacological management of the SCPD is recommended (Gerlach & Kales, 2018), through identification of possible triggers of these behaviors, such as unmet needs and interactions of the older persons with the environment, considering the social environment (caregivers and family members) and environmental factors (Kales et al., 2014).

A non-pharmacological intervention that has presented positive results in the management of the SCPD is the Tailored Activity Program (TAP) (Gitlin et al., 2008, 2009, 2010), for which there is already a version adapted to Portuguese for Brazil: Tailored Activity Program–Brazilian version (TAP-BR) (Novelli et al., 2018a). It is worth mentioning that, after the cross-cultural adaptation process, the Brazilian version has one more session compared with the original program (9 sessions) (Machado, 2016).

A randomized control trial conducted in Brazil with older persons with dementia and their caregivers that assessed the effects of applying the TAP-BR to these groups presented the following main results: reductions in number, frequency and intensity of the BPSD in the older persons with dementia and in caregiver distress in relation to these symptoms, as well as improvement in the QoL of both (Novelli et al., 2018b).

The TAP-BR is a structured and systematized occupational therapy intervention program conducted over a 3 to 4-month period at the patient's home. The program consists of 9 sessions (90 min each) and three 15-min telephone contacts (Machado, 2016).

Occupational therapy bases its interventions on knowledge about the transactional relationship between the patient, the engagement in activities that are meaningful to them, and the environment for the therapeutic use of occupations, aiming to enable or increase participation (American Occupational Therapy Association, 2020). Thus, the TAP-BR is a program that organizes and systematizes actions well-established in the clinical practice of occupational therapy, such as the use and application of meaningful activities, e.g., care strategies, as well as the simplification and grading of these activities and the environment, to facilitate the engagement of older persons in the prescribed activity and, finally, the guidance of family caregivers in relation to their use and application (Novelli et al., 2018a)

The TAP-BR is developed from two approaches: first, application and use of the activities proposed to the persons with dementia, providing their engagement in activities appropriate to their preserved capacities; second, guidance and training of family caregivers regarding the use and application of the prescribed activities (Gitlin et al., 2009; Novelli et al., 2018a).

The TAP-BR is delivered in three phases. In the first phase, which consists of the first two sessions, the occupational therapist focuses on evaluating the older person with dementia, their family caregiver, and the environment where the activities will be carried out. In second phase, which includes sessions 3 to 7, the family caregiver is guided and the proposed activities are implemented. These activities are reviewed together with the family caregiver and implemented through direct demonstration or role-playing techniques. The third phase comprises the last two sessions, focusing on the process of generalizing what was seen throughout the program.

The national literature presents a study carried out by Oliveira et al. (2018) that proposes a Brazilian outpatient version of the TAP. This version of the program is structured in 8 sessions, as in the original TAP, and the sessions, lasting 60 min, are held weekly over a 3 month-period. Changes were made to the communication task, and a Routine Grid and a Problem Identification List were added. The application of this Brazilian outpatient version of the TAP showed positive results, with reductions in the BPSD and caregiver burden (Oliveira, 2018; Oliveira et al., 2018).

Despite the existence of this Brazilian outpatient version of the TAP (original program), the present study proposes to conduct adaptations to the TAP-BR, which is delivered as a home-based proposal, and changes in the materials used in the program for the outpatient version, and to evaluate the impact of this adapted program on older persons with dementia and their family caregivers considering the BPSD of the first and the emotional state of latter, as well as the applicability and action potential of this outpatient format. The availability of an outpatient version of the TAP-BR can make this action proposal more accessible to the demands of the care network proposed by the Brazilian Unified Health System (SUS).

Method

The project and the Informed Consent Form, in accordance with Resolution no. 466/2012 (Brasil, 2013), were approved by the Research Ethics Committee of the Federal University of São Paulo (Unifesp), through *Plataforma Brasil*, under opinion no. 3.732.664.

This study was carried out at the Dementia Care Service (SADe) of the Federal University of São Paulo that is an extension project that composes the Care Service to Cognitive Aging (SAEC) Extension Program. The therapeutic sessions were carried out in the Daily Life Activity Laboratory and the Interprofessional Center for Research and Assistance in Aging (SAEC) at the *Baixada Santista* campus. Participant recruitment occurred through invitation of the older persons with dementia and family caregivers assisted at the SADe in 2019.

Inclusion criteria - older persons with dementia: age ≥60 years; diagnosis of dementia based on clinical assessment and neuropsychological examinations through application of the NPI; presence of two or more BPSD in the past 30 days; being able to participate (independently or with some assistance) in at least two ADL (e.g., bathing and dressing); use of psychotropic medication at a stable dosage for at least 60 days; use of medication for dementia (e.g., Ebix, Exelon, Reminyl, or Aricept) at a stable dosage for at least 3 months; absence of severe language disorders; having a family caregiver and being in contact with them for at least 24 h a week. The exclusion criteria included having been hospitalized in the past 6 months and presenting other neurologic or psychiatric diseases, such as stroke, depression, among others.

Inclusion criteria - family caregivers: report the occurrence of two or more BPSD (e.g., apathy, passivity, aggression, etc.) in the older person with dementia in the past 30 days; age ≥ 18 years; being in contact with the older person for at least 24 h a week; willingness to learn how to use the activities in everyday life. The exclusion criteria were unavailability to participate in the program sessions or to develop activities with the older person with dementia in between the therapeutic sessions.

The sessions were conducted weekly and/or biweekly over a 3 to 4-month period, based on the proposal of the TAP-BR.

The study was carried out in two stages: first stage - adaptation of the TAP-BR for use and application in an outpatient setting; second stage - study of the program applicability from the perception of the interns of the SADe and assessment of the impacts of this version on the older persons with dementia and their respective family caregivers. In the applicability stage, it should be mentioned that the interns who applied the TAP-BR (outpatient version) were senior students of the occupational therapy course, were trained in the application of the outpatient version of the program, and had their weekly program implementation activities supervised by the study coordinator, aiming at the method application reliability.

In the first stage of the study, the TAP-BR was adapted considering the adequacy of the assessment instruments and materials used in the intervention proposal, composed of the Documentation Folder and the Intervention Manual, in an outpatient setting. For this outpatient version of the program, the book "You are not alone... we are still with you" was not used because of the poor adherence of family caregivers to this material in previously conducted studies (Machado, 2016).

For this adaptation, the program principles were discussed item by item and evaluated regarding the need for adaptation to an outpatient version by two occupational therapists, who were doctors and professors in the Occupational Therapy course at the Federal University of São Paulo, and by two students in the Undergraduate Research project of the same occupational therapy course, considering the evaluations used and the methodology of action.

To assess the applicability of the outpatient version, the intern's perceptions of the application of the program and its social impact in the view of family caregivers were used as reference.

At the end of intervention, the intern responsible for the program application in the dyad (older person with dementia and family caregiver) evaluated its acceptance by the dyad and identified its benefits in relation to each case. This scale aimed to systematically assess the applicability of the adapted program. The following items were evaluated: time spent on pre-organizing the sessions (assessments, reports, and materials); time spent on the sessions (organization of the proposed activities within each session); ease of administration of each assessment within the program; preparation of the Activity Prescriptions; application and use of the activities in the intervention context; use of activity simplification techniques; environment simplification; interpretation of the general use and application of the program; use of these interventions in the therapeutic context (considering their full application or the need for adjustments and adaptations when using of the program); perception of caregiver engagement in the activity; perception of the engagement of the older person in the activity. This assessment stage

was performed using numerical scales ranging from 1 to 5, as follows: 1 (very difficult), 2 (difficult), 3 (neither easy, nor difficult), 4 (easy), and 5 (very easy).

The following items were considered to assess the social impact of the outpatient version of the TAP-BR in the perception of family caregivers: time spent on the sessions (organization to be available for the sessions); application and use of the activities prescribed by the therapist; use of activity simplification techniques; use of communication strategies; use of stress-reduction techniques; use of educational material (Caregiver Education Manual). This evaluation stage followed the same format of numerical scales used in the previous stage.

To assess the impacts of the program on the BPSD of older persons with dementia and on the emotional state of their family caregivers, the following outcome measures were used: Neuropsychiatric Inventory (NPI) (Cummings et al., 1994; Camozzato et al., 2008), which assesses the frequency and intensity of the BPSD and caregiver distress in relation to these symptoms; Depression, Anxiety and Stress Scale (DASS 21), which appraises the emotional state of family caregivers (Vignola & Tucci, 2014).

In the data collection process, all the participating older persons with dementia and their family caregivers were evaluated. The demographic variables were obtained at pre-intervention and the data related to the outcome measures were applied.

Assessment instruments used:

a. Characterization of the participating dyads through identification data (name, date of birth, address, and contact telephone number), sociodemographic information (sex, education, occupation, and time since retirement), and family data (degree of kinship with caregiver);

b. Neuropsychiatric Inventory (NPI) (Cummings et al., 1994; Camozzato et al., 2008) - applied to assesses the frequency and intensity of the BPSD and caregiver distress in relation to these symptoms. The following symptoms were evaluated: delusions, hallucinations, agitation, depression, anxiety, euphoria, apathy, disinhibition, irritability, aberrant motor behaviors, nocturnal behaviors, and dietary changes, with higher scores predicting greater behavior change and, for caregivers, higher scores predicting greater distress;

c. Depression, Anxiety and Stress Scale (DASS 21) (Vignola & Tucci, 2014) - administered to assess these symptoms in family caregivers, containing 21 statements divided into three domains: depression, stress and anxiety, where higher scores predict altered emotional states. A study conducted by Vignola & Tucci (2014) presents the cut-off points for the scale domains.

Numerical variables were described as mean, standard deviation, median, and first and third quartiles for the outcome measures. To compare the variables between the pre- and post-intervention assessments, the Student's *t* test was used for paired samples and, when its assumptions were not satisfied, the Wilcoxon test was applied. A significance level of 5% ($p<0.05$) was adopted for all hypotheses tested. The data were processed using the R Core Team (2021) software. To evaluated the clinical impact of the interventions, their effect sizes (Cohen's *d*) were analyzed, interpreted as small (0.20-0,49), medium (0.50-0.79), and large (≥0.80) (Cohen, 1988).

To evaluate the program applicability from the perspective of the occupational therapy interns and family caregivers, analyses of mean and standard deviation of the scores were performed.

Results and Discussion

These are the results of the adaptation stage of the TAP-BR to its Outpatient Version:

1. Adjustments were made to the Intervention Manual and Documentation Folder (the terms "home/household" were replaced by "outpatient clinic/outpatient");
2. The Environmental Assessment was conducted through an interview with the family caregiver;
3. Session duration was reduced from 90 to 60 min;
4. The book "You are not alone... we are still with you" was not used.

As a pilot study to assess the applicability and impact of the TAP-BR–Outpatient Version, the program was applied to a convenience sample that corresponded to five dyads of older persons with dementia and their family caregivers. As five dyads participated in the adapted program, five applicability and impact assessment results were obtained.

As for the sociodemographic variables, 80% of the older persons with dementia were male, with mean age of 67.6 (±7.83) years and educational level of 12.8 (±3.19) years. Regarding the sociodemographic variables of family caregivers, 100% were female, with mean age of 58.6 (±14.19) years and 13.4 (±2.19) years of schooling.

Table 1 shows the applicability results of the program in the perception of occupational therapy interns.

Table 1. TAP-BR-Outpatient Version applicability results according to the perception of occupational therapy interns.

Items assessed by the interns in the senior year of the occupational therapy course (n=5)	
Variables	**Means**
Time spent on pre-organizing the sessions (assessments, reports, and materials)	3.4 (±0.54) [a]
Time spent on the sessions (organization of the proposed activities within each session)	4 (±0) [a]
Ease of administration of each assessment within the program	4 (±0.70) [a]
Preparation of the Activity Prescriptions	3.6 (±0.54) [a]
Application and use of the activities in the intervention context	4 (±0.70) [a]
Use of activity simplification techniques	3.5 (±1.51) [a]
Environment simplification	3.6 (±0.54) [a]
Interpretation of the general use and application of the program	3.6 (±0.54) [a]
Use of these interventions in the therapeutic context (considering their full application or the need for adjustments and adaptations when using of the program)	3.8 (±0.44) [a]
Perception of caregiver engagement in the activity	3 (±1) [a]
Perception of the engagement of the older person in the activity	4.4 (±0.54) [a]

[a] Standard deviation. Source: Prepared by the authors.

The results presented in Table 1 show that, in general, five of the 11 items assessed indicated that the TAP-BR–Outpatient Version can be easily applied. Five items were scored as "easy" and one item received the rating of "neither easy, nor difficult".

The item perception of the engagement of the older person in the activity received the highest rating, showing that the older persons with dementia were interested in the proposed activities and carried them out.

The item perception of caregiver engagement in the activity presented the lowest score, showing that some caregivers had difficulties in using the activities proposed in the program, consequently compromising their engagement to perform the prescribed activities. An explanation for this result may be associated with the difficulty in generalizing the activity from the outpatient environment to the home environment.

Another point to be considered is the interns' short-time experience in the area and with the program, which may have had an impact on their assessment and perception of caregiver engagement in the use and application of the proposed activities. It is evident that previous experience in the area and training in the method should assist the occupational therapist in applying the program and understanding the care premise proposed by it, consequently helping the family caregiver to understand this premise and to adhere to the proposal.

Reflecting on the applicability of the program in this format (outpatient), according to the report of the interns who applied it, what facilitates its implementation is the fact that it has instructions that provide guidance and safety in performing the interventions. As main points, the interns reported difficulties in the involvement and engagement of two caregivers participating in the prescribed/proposed activities, both in the personalization/implementation strategies and in the reading of the educational material.

Table 2 presents the applicability results of the program in the perception of family caregivers.

Table 2. TAP-BR–Outpatient Version applicability results according to the perception of family caregivers.

Items assessed by the family caregivers (n= 5)	
Variables	**Means**
Time spent on the **sessions** (organization to be available for the sessions)	4 (±0.7) [a]
Application and use of the activities prescribed by the therapist	3.4 (±0.54) [a]
Use of activity simplification techniques	3.4(±0.89) [a]
Use of communication strategies	4 (±0) [a]
Use of stress-reduction techniques	3.8 (±0.4) [a]
Use of educational material (Caregiver Education Manual)	4 (±0) [a]

[a] Standard deviation. Source: Prepared by the authors.

The results presented in Table 2 show the TAP-BR–Outpatient Version, in general, can be easily applied. Three of the six items assessed were classified as "easy" and one had an average rating very close to "easy". The items with the highest scores were time spent on sessions, use of communication strategies, and use of educational material. It should be emphasized that the item use of communication strategies is crucial to minimize the triggering of behavior changes and favor a more appropriate approach to the person with dementia. The item use of activity simplification techniques was rated as "neither easy, nor difficult", and the item application and use of the activities prescribed by the therapist obtained lower scores, corroborating the lower score in Table 1 and reinforcing, according to the interns, the difficulty of family caregivers in becoming involved and engaged in carrying out the prescribed activities. This may have occurred because of the difficulty in generalizing the use of activities from the outpatient environment to the home environment, where they were reproduced and used as a care strategy.

According to the family caregivers, the communication strategies assisted in approaching the person with dementia, whereas the use of activity simplification techniques helped make activities simpler, providing guidelines for coping with situations and facilitating interactions within the dyads.

Table 3 and 4 show the descriptive measures of the study variables.

Table 3. Results of the used outcome measures at pre- and post-intervention.

Variables	Mean	Standard deviation (SD)	Median (Q2)
Depression Pre	15.20	10.35	12.00
Depression Post	11.20	11.10	8.00
Anxiety Pre	8.80	12.38	6.00
Anxiety Post	6.80	9.55	0.00
Stress Pre	16.40	10.14	14.00
Stress Post	14.40	9.63	20.00
DASS [a] Pre	40.40	30.18	38.00
DASS [a] Post	32.40	28.09	30.00
NPI [b] Pre	72.20	40.66	72.00
NPI [b] Post	68.80	29.76	77.00
Frequency Pre	14.00	4.74	16.00
Frequency Post	13.60	4.51	16.00
Intensity Pre	10.20	6.69	12.00
Intensity Post	9.60	5.27	12.00
Distress Pre	14.80	12.79	12.00
Distress Post	12.20	8.58	12.00
Age of older person	67.60	7.83	70.00
Age of caregiver	58.60	14.19	55.00

[a] DASS (Depression, Anxiety and Stress Scale); [b] NPI (Neuropsychiatric Inventory). Source: Prepared by the authors.

Table 4. Mean difference, confidence interval (CI), comparison, and effect size of the variables at pre- and post-intervention.

Variables		Mean difference	95% CI		*p*	Effect size (Cohen's *d*)
Depression Pre	Depression Post	4.00	-2.08	10.08	0.142	0.816
Anxiety Pre	Anxiety Post	2.00	-5.65	9.65	0.508	0.324
Stress Pre	Stress Post	2.00	-4.33	8.33	0.430	0.392
DASS [a] Pre	DASS [a] Post	8.00	-8.75	24.75	0.255	0.593
NPI [b] Pre	NPI [b] Post	3.40	-18.40	25.20	0.687	0.194
Frequency Pre	Frequency Post	0.40	-2.46	3.26	0.717	0.174
Intensity Pre	Intensity Post [†]	0.60	-1.82	3.02	0.999	0.308
Distress Pre	Distress Post [†]	2.60	-3.95	9.15	0.371	0.493

[†] Wilcoxon test; [a] DASS (Depression, Anxiety and Stress Scale); [b] NPI (Neuropsychiatric Inventory). Source: Prepared by the authors.

There was a decrease in scores when the pre- and post-intervention results in the NPI are compared, especially in the items intensity of the BPSD, with a small effect size

(Cohen's *d*=0.30), and caregiver distress in relation to these symptoms, also with an effect size considered small (Cohen's *d*=0.49). These results can be explained by the personalized guidance sessions carried out as proposed in the program, which assist in understanding the condition and implementing the care strategies.

Analysis of the DASS 21 results shows an improvement in the emotional state of family caregivers after application of the TAP-BR–Outpatient Version in the comparison between the pre- and post-intervention results, with a medium effect size (Cohen's *d*=0.59), mainly for the variable depression, with a large effect size (Cohen's *d*=0.81). These results can be justified as previously described, but here complemented by the caregiver's self-care perspective throughout the implementation of stress-reduction techniques, which have an impact on their emotional state.

Table 5 presents the results of the outcome measures at pre- and post-intervention for each study participant dyad

Table 5. Results of the outcome measures at pre- and post-intervention (each older person with dementia-caregiver dyad).

NPI [a] (each older person-caregiver dyad)						
Dyad (n=5)	**Frequency Pre**	**Frequency Post**	**Intensity Pre**	**Intensity Post**	**Distress Pre**	**Distress Post**
1	16	16	13	13	20	19
2	19	16	19	15	34	22
3	17	17	12	12	1	1
4	8	6	3	3	12	12
5	10	13	4	5	7	7
DASS 21 [b]						
Dyad (n=5)	**Depression Pre**	**Depression Post**	**Anxiety Pre**	**Anxiety Post**	**Stress Pre**	**Stress Post**
1	16	16	8	14	14	20
2	32	28	30	20	26	22
3	12	0	0	0	8	2
4	12	4	6	0	28	22
5	4	4	0	0	6	6

[a] NPI (Neuropsychiatric Inventory); [b] DASS (Depression, Anxiety and Stress Scale). Source: Prepared by the authors.

Analysis of Table 5 evidences that the scores decreased or remained the same for frequency and intensity of the BPSD and caregiver distress in relation to these behaviors in four of the five study dyads. The outcome measures listed in this table show that three of the five dyads (dyads 1, 3, and 5) did not benefit from the program; however, there was no worsening in the item caregiver distress, which may be associated with the caregivers' understanding of the BPSD.

Concerning the NPI, dyad 2 showed decreased frequency and intensity of the BPSD and, mainly, a decrease in family caregiver distress in relation to these symptoms. Dyad 4 presented reduced frequency of the BPSD. Individual values were maintained for the other variables.

Regarding the results of the DASS 21, scores are interpreted according to the severity level of its domains as follows: regarding depression, 0 to 9 = normal, 10 to 13 = mild, 14 to 20 = moderate, 21 to 27 = severe, and ≥28 = extremely severe; concerning anxiety, 0 to 7 = normal, 8 to 9 = mild, 10 to 14 = moderate, 15 to 19 = severe, and ≥20 = extremely severe; related to stress, 0 to 14 = normal, 15 to 18 = mild, 19 to 25 = moderate, 26 to 33 = severe, and ≥34 = extremely severe.

Analysis of the results regarding the emotional state of family caregivers identified improvement for the dyads 2, 3, and 4. It is noteworthy that the caregiver participating in dyad 2 showed improvement in all scale domains, especially in stress, with a decrease in score from severe to moderate. Dyad 2 was the one who benefited the most from the TAO-BR–Outpatient Version, showing a decrease in the frequency and intensity of the BPSD in the older persons with dementia, in caregiver distress in relation to these symptoms, as well as in the general emotional state of family caregivers.

Dyad 3 showed improvement in the depression and stress domains of the DASS 21, reducing their scores on these variables after the proposed intervention to nearly zero and decreasing their scores in the depression domain from the mild to the normal severity level at post-intervention; however, this dyad did not benefit from the program with respect to the BPSD. Dyad 4 also presented an improvement in the frequency of the BPSD, reduced anxiety symptoms to zero, and lowered their score from mild to normal in the depression domain of the scale.

The caregivers participating in dyads 1 and 5 did not show improvement in relation to their emotional state, maintaining individual values, except for dyad 1, who increased their score in the anxiety (from mild to moderate) and stress (from normal to moderate) scale domains, which may be associated with the greater demand for carrying out the activities.

Results of the pilot study point to the potential of non-pharmacological interventions, which are promising in reducing the BPSD, as well as in having positive effects on family caregivers, which is in line with the findings of previous studies (Gitlin et al., 2016; Novelli et al., 2018b; Oliveira et al., 2018 as cited by Polenick et al., 2020). The results of the present study corroborate these findings, as they point out the positive impact of non-pharmacological actions on managing the BPSD.

The TAO-BR–Outpatient Version presents actions developed in the application and use of activities proposed by occupational therapists that are meaningful for persons with dementia and that are used as care strategies by family caregivers, maintaining the intervention focus on the family caregiver. Thus, the use and application of tailored activities have shown positive effects on the engagement of older persons with dementia in activities, with positive effects also on the BPSD, and these, when reduced or controlled, can reduce the emotional distress and care burden of family caregivers.

It is important to reflect on the relevance of developing and proposing actions that contemplate the older person-caregiver binomial, since investigating and identifying the caregiver's needs and challenges, acting on these issues, influences not only the quality and effectiveness of the care provided, but also the QoL of both (Novelli et al., 2010; Gitlin et al., 2016).

As for the outcome measures, this version indicates a positive impact on the emotional state of family caregivers, especially regarding the variable depression.

The home program may have a greater impact than the outpatient program, because the activities are experienced and trained in the home environment, which facilitates their subsequent reproduction; however, it should be considered that the outpatient version may be more accessible to the services offered by the SUS healthcare network, which does not include homecare in its action proposals.

It is worth highlighting that this is an occupational therapy intervention program that organizes, systematizes, and restores principles that are the expertise of this area of study and practice, such as the analysis of activities and engagement and the involvement in activities appropriate to the residual capacities of older persons, and the use of activities as a care strategy not only for older persons with dementia, but also for family caregivers.

The results of this study point to the importance and relevance of occupational therapy actions for the management of the BPSD in older persons with dementia, as well as for caregiver emotional state, based on several aspects addressed in the program:

1. the understanding and comprehension of family caregivers about the condition of older persons with dementia, considering the disease itself and its symptoms, as well as the importance of the activities as a care strategy that has a positive impact on both;
2. the use of the proposed activities as a care strategy that fosters the involvement and engagement of older persons with dementia in activities appropriate to their residual capacities and the instrumentalization of family caregivers for this use;
3. the awareness of caregivers regarding the use of residual capacities of older persons in their involvement and engagement in activities as a central objective of the program.

It is important to consider that this program points to a perspective of occupational therapy practice that differs from the rehabilitation traditionally used as a care strategy, and that emphasizes the potential for action of older persons with dementia at all levels of severity of their condition, providing involvement and engagement in meaningful activities that are tailored and graded according to this action potential.

A limitation to this study lies on its small sample size, and further studies need to be conducted with larger samples so that the stability of the results presented here can be verified.

Conclusion

The TAP-BR–Outpatient Version can be easily applied, has a positive impact on reducing the BPSD in older persons with dementia, especially for the variable intensity, and improves the emotional state of family caregivers, especially for the variable distress, with emphasis on depression. The TAP-BR–Outpatient Version is delivered in 9 sessions (60 min each) over a 3 to 4 month-period.

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Author's Contributions

Isabela da Costa Francisco: Study design, data analysis, and writing and final review of the text. Gabrielle Christine Pereira: Data analysis and writing and final review of the text. Marcia Maria Pires Camargo Novelli: Study design and final review of the text. All authors approved the final version of the text.

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