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Department of Social, Organizational, Clinical and Pedagogical Psychology

ABSTRACT OF A DISSERTATION
for awarding the educational and scientific degree
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The dissertation on the topic "The possibilities of cognitive-behavioral psychotherapy for controlling depressive states in developmental dyslexia" consists of 170 pages, of which 132 pages are the main text, 28 pages are bibliographic references, 8 pages are appendices, 5 pages are the title page and table of contents. 5 figures and 10 tables have been used. The bibliography includes 214 titles, including those in Bulgarian, Macedonian, Serbian, Croatian and English. On the topic of the dissertation, 5 publications were made in scientific publications.

Scientific jury

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Relevance of the topic

Children with depressive symptoms in developmental dyslexia are a common, debilitating and recurrent public health problem that is often unrecognized and/or undertreated. The Ministry of Health in the Republic of North Macedonia indicated that Macedonian children, who represent the country's future hopes and resources for development, are at high risk of depression. The prevalence of depression in children under 13 is about 3%, in girls aged 13 to 18 it is about 6%, and in boys of the same age it is 5%. Symptoms of social isolation were found in about 3% of children. (*Ministry of Health 2015*).

Children with depressive symptoms are prevalent worldwide, with prevalence rates ranging from 2.5% to 10%, reported in developing countries, Asia, and some Western European countries (*Juul, E. M. L.; et al., 2021*). It has been found that more than 12% of children in the United States who have experienced depression will recur within one year, with 33% reoccurring within four years (*Cuijpers, P.; et.al., 2023*).

Depressed children, including those in the Republic of N. Macedonia, are known to experience depressive symptoms, including negative automatic thinking and deficits in social and adaptive functioning. In addition, they often exhibit learning disabilities, low academic achievement, drug and alcohol abuse and suicidal ideation, family conflict, poor relationships with peers and teachers, and behavioral problems. They are also at high risk of suicide attempts (*González. C.; 2019*).

Depression among children results from the interaction between their biological, psychological vulnerabilities and environmental factors. Biological factors consist of genetic and neurochemical components, while psychological vulnerability consists of cognitive factors (i.e., negative automatic thinking and environmental factors, such as various disruptive and maladaptive social patterns). The interaction of these factors is believed to trigger the depressogenic process that leads to the development of depression. In that respect, previous research has focused on interventions that target cognitive and social behavioral factors in the prevention and treatment of depression among children with developmental dyslexia (*Moorey, S.; 2017*).

One approach used to prevent and reduce symptoms of depression among children is cognitive-behavioral psychotherapy. In general, children appear to perceive

cognitive behavioral psychotherapy as less stigmatizing than a traditional inpatient depression treatment program (*Idsoe, T.; Keles, S.; 2016*). Although children in Western countries have been found to benefit from participation in cognitive-behavioral psychotherapy for depressive symptoms, no known research has examined whether Macedonian children may benefit from such psychotherapy. Thus, the aim of this dissertation was to evaluate, in Macedonian children with depressive symptoms, the effectiveness of cognitive-behavioral psychotherapy to reduce depressive symptoms and negative automatic thought and to improve social functioning.

Dissertation structure

The introduction justifies the relevance of the problem to be solved and defines the aim of the dissertation. Emphasizing the importance of depressive states in developmental dyslexia, then cognitive vulnerability and the importance of negative events as stress stimuli that can activate depression, as well as the importance of social support, a contribution to early research and prevention designed to reduce the occurrence is achieved, the duration, severity, and complexity of childhood depression.

The first chapter is a theoretical overview focusing on the definitions of dyslexia, the medical and social model of understanding dyslexia, etiology, clinical picture and classification of dyslexia and depression in children with dyslexia. The most common and used definitions of dyslexia are listed and described. The present dissertation is based on the definition of the British Dyslexia Association, which is accepted in the Republic of N. Macedonia. Since the turn of the century, dyslexia research has begun to use a number of models to interpret the social experiences of children living with the condition. These models have been developed by the discipline of Child Disability Studies, which defines a number of alternative definitions of "disorders" from the dominant medical classification. Depending on the model used, the problems associated with dyslexia are interpreted as either due to a physiological deficit, i.e. biomedical, or due to structural inequalities, i.e. social.

Knowing the causes of the occurrence of a disease is of fundamental importance for its prevention and intervention. According to the International Dyslexia

Association, 15-20% of the population has a language disorder. Dyslexia is the most common cause of difficulties with reading, writing and spelling. Dyslexia affects men and women almost equally, as well as children from different ethnic and socio-economic backgrounds (*IDA веб сајт прустапено 2022*). According to the Dyslexia and Related Learning Disabilities Association, Einstein in R.N. Macedonia incidence of dyslexia is 10-15% (*Nikolovski, D.; et al. 2018*).

Theories of the etiology of dyslexia: Successful reading requires well-developed auditory abilities such as auditory discrimination and auditory memory in addition to visual abilities such as visual perception and memory. The symptoms that underlie dyslexia can be divided into several groups: phonological processing deficits, rapid naming deficits (letters, numbers, colors and pictures), skill automation deficits, visual processing deficits, auditory deficits (temporal) processing, working memory deficits.

Etiology of dyslexia according to the REI model: In modern psychology, the typological approach to personality is much less represented than the approach focused on continuous dimensions of personality. One of the newer typologies is described in the work by *Kenda, I.; (2014)* "The REI Method for Eliminating Dyslexia", published in 2014 in the Journal of Psychology and Psychotherapy Research. At the heart of this typology is a description of three intertwined and interdependent neurological structures that interpret information from the environment through the prism of their functional orientations (referred to as the three "reasons" Reason (R), Emotion (E) and Instinct (I)). The REI model offers a new perspective on the etiology and method of alleviating and potentially eliminating the problems of children with dyslexia. According to the adequate reading process model, the most suitable processor is Reason, because with its analytic-synthetic way of thinking, it is involved in decoding letters in reading, turning them into sounds and merging them into meaningful words. The model posits that, unlike normal readers, dyslexic children during reading activate a less appropriate emotion processor, which does not build words from individual letters, but includes larger parts of words/whole words and associates them with images in long term memory. Therefore, in children with dyslexia, phonological processing skills may be less developed and reading may be marked by many errors. Emotion, which thinks extremely parallel, does not understand the

grammatical rules of Reason, cannot form words from individual letters, but perceives each letter parallel and separately in space, and can perceive it from any angle.

Clinical presentation of dyslexia: Numerous studies have shown that one of the main characteristics of dyslexia is its heterogeneity, so that each child with learning difficulties will potentially exhibit a different profile and degree of impairment. Thus, some children with dyslexia may have the disorder mainly with accuracy regarding substitutions of many phonographs, omissions and/or inversion errors during reading, while others may have errors only in fluent reading (*Jiménez-Fernández, G.; et al. 2012*). According to Golubović, S.; (2007) a large number of children with dyslexia exhibit impairments in receptive and expressive language development, impairments in phonological awareness, visuospatial deficits, or mixed verbal and visual deficits. The main characteristics of children with dyslexia are low accuracy and / or speed in word recognition, and a significant procedure is decoding, which has the role of a self-control mechanism (*Jiménez- Fernández, G.; Defior, S.; 2014*). They also show a deficit in prosodic processing. The clinical picture of dyslexia is complex because there is no single form of dyslexia. A child with dyslexia usually fails in all participants. Normal vision and hearing, average or even above average intelligence, absence of brain disorder, good health, absence of emotional disturbances, and social deprivation are the accompanying characteristics of dyslexia. Numerous studies have shown that there is a strong relationship between pathological speech and language development and reading disorders. Oral language disorders include phonological awareness, speech delay, grammatical or syntactic disorders in vocabulary development and acquisition, and poor comprehension of spoken language. Developmental dyslexia is characterized by slowness and a high number of reading errors (*Wijnants, ML.; et al. 2012*).

Indicators of Developmental Dyslexia: In understanding and identifying early indicators of developmental dyslexia, we begin with the most current theory in the literature, the phonological theory of dyslexia, which holds that phonological impairment is the core impairment in dyslexia (*Knoop-van Campen, C.A.N.; et*). Phonological disorders are manifested by impairments in three areas: 1. phonological awareness, 2. recall of phonological codes from long-term memory - rapid automatic naming, and 3. verbal short-term memory. The consequences of phonological

disorders can manifest themselves with disorders in the development of phonological awareness or in the processing and retention of phonological information, i.e. in phonological memory, which according to many authors leads to worse reading (Milosevic, N.; Vukovic, M.; 2017). In children with dyslexia, reading disorders are associated with deficits in the storage of phonological information and deficits in executive functions (Papadopoulos, T. C.; et al. 2016). When working memory is associated with dyslexia, both of its functions are linked (data storage and processing), meaning that dyslexia may be associated with reduced working memory capacity as well as inefficiency in processing incoming phonological information (Gathercole, S.E.; et al. 2008).

Emotional dimension of functioning in children with dyslexia: Emotional adaptation to learning difficulties may be an important predictor of outcome in children with developmental dyslexia. This learning disability significantly contributes to the negative impact on overall well-being and quality of life, which can be largely associated with feelings of anxiety and sadness (Livingston, E. M.; et al. 2018). Learning disabilities are also associated with social-emotional problems and depression, and such individuals show more difficulties in psychological functioning than those without them. Children with dyslexia can be susceptible to withdrawal, anxiety, depression and because of their academic weakness. Children with learning disabilities, including dyslexia, show twice the risk of emotional distress, including the risk of violence and suicide attempts. These findings suggest that reading difficulties such as dyslexia have far-reaching consequences for the individual patient's emotional health, which is further reflected by a negative impact on the chances of success ((Шурбановска, О.; 2016).

Profile of a pupil with dyslexia: Due to the reading difficulties of children with developmental dyslexia, they develop compensatory mechanisms to cover up their difficulties, but without adequate help, they feel as if they are losing their confidence. A student with dyslexia may have difficulty in all or some areas. Many of these difficulties can appear in children up to the age of eight, which does not mean that the child has dyslexia. Dyslexia problems should only arise if such difficulties persist despite additional support and/or when they are combined with a number of other listed difficulties (Тасевска Николовска, С.; 2017). Children with developmental dyslexia

are characterized by inconstancy, unpredictability, and fluctuating abilities from day to day and hour to hour.

Classification of different types of dyslexia: Clinical and scientific knowledge about developmental dyslexia has increased in recent years. For developmental dyslexia, there are different classifications and definitions in the literature, which makes it difficult for the reader to get an idea of the actual characteristics and causes of this disorder (Döhla, D.; Heim, S.; 2016). *Types of dyslexia based on the causes:* Primary dyslexia - runs in families, meaning that a child whose parent has dyslexia is more likely to have learning difficulties. Primary dyslexia - runs in families, meaning that a child whose parent has dyslexia is more likely to have learning difficulties. Primary dyslexia refers to dyslexia when it results from a genetically inherited disorder. Secondary dyslexia - refers to reading difficulties caused by problems with brain development during the early stages of fetal development. Developmental dyslexia - an unexpected difficulty reading in children and adults who otherwise have the intelligence, motivation, and education considered necessary for accurate and fluent reading. *Children with dyslexia and their perceptual problems:* Based on some specific aspects, it is possible to determine the dilemma of the child with dyslexia in relation to the world around him or her. It is possible to define the following characteristics, ambiguity of distances and positions of objects, ambiguity of forms and meanings, ambiguity of values, uncertainty in oneself, clumsiness and tangible gestures and verbal expressions: affective ambiguity, abnormalities in the visual-motor process of reading, anomalies in the acoustic-motor process, perceptual anomalies in stereognostic structures, difficulty in rhythmic perception and in spatial temporal sequences of sounds and letters, difficulties in the ability to abstract and symbolize, difficulties in connecting a sequence and its meaning. *Depression in children with dyslexia:* Children with dyslexia are more likely than other children to have depression, especially when they reach their teenage years. A few reasons why dyslexia and depression often co-occur in children: Stress: Dyslexia makes going to school stressful because almost every class involves at least a little reading. And chronic stress makes children more likely to develop depression; Low self-esteem: Problems with schoolwork can lower children's self-esteem. They may begin to think that they are not smart or that they should hide who they are; Social Isolation: Some struggling children would rather miss school or be sent to the principal than be embarrassed in front of

their peers. This can lead to feelings of isolation; Co-existing conditions: Many people with dyslexia have co-existing conditions, such as anxiety or attention deficit hyperactivity disorder. These other conditions may increase the risk of depression (*Haft, S.L.; et al. 2019*). *Signs of depression in children with dyslexia* Depression looks much the same in children with dyslexia as it does in any child. Symptoms of depression include: feeling very "down" (or what doctors call "low mood"), trouble focusing and complaints of boredom, changes in sleeping or eating patterns, being very irritable or angry about small things, withdrawing from friends and loss of interest in favorite activities, not doing homework or going to school, talking about feelings of hopelessness or helplessness. Depression can also worsen some behaviors associated with dyslexia. Children with dyslexia may have even more trouble focusing on what they are reading if they are depressed. Or they may try to avoid classes where they have to read aloud. They may do things like stay home from school or spend a lot of time on the toilet instead of in class (*Ihbour, S., et al., 2021*).

Organization of empirical research

This chapter focuses on describing the methodological approach adopted in the present research. Includes purpose, objectives, hypotheses, cognitive behavioral psychotherapy research design, cognitive behavioral psychotherapy research object, research instruments, and data collection and analysis procedure.

Aim and objectives of the research

The primary objective of the current research was to examine differences in treatment response in depressed children receiving cognitive behavioral psychotherapy and children receiving treatment as usual. While exploring the potential benefits of cognitive-behavioral psychotherapy for reducing depression, I also explored what processes unique to cognitive-behavioral psychotherapy might influence treatment response and in what ways.

Objectives

- Conducting standardized assessments to measure outcomes of depressive states, negative automatic thoughts, and social and adaptive functioning among all participants at the beginning of the research
- Identification of potential group differences and similarities between the group receiving cognitive behavioral psychotherapy and the group receiving treatment as usual.
- The research also examined potential differences between the group receiving cognitive behavioral psychotherapy and the group receiving treatment as usual.
- Administering the same standardized assessments of depressive states, negative automatic thoughts, and social and adaptive functioning to all participants immediately after completion of the cognitive-behavioral psychotherapy research (after 6 weeks from baseline).
- Exploring potential differences between the cognitive-behavioral psychotherapy group and the treatment-as-usual group in terms of gender and age.

Hypothesis

Hypothesis 1 – The mean depression score among children with dyslexia receiving cognitive behavioral psychotherapy is significantly lower than those receiving treatment as usual at six weeks immediately after completion of the cognitive behavioral psychotherapy research and four weeks after completion of the cognitive-behavioral psychotherapy research.

Hypothesis 2 – The mean negative automatic thought score among children with dyslexia receiving cognitive behavioral psychotherapy was significantly lower than those receiving treatment as usual at six weeks immediately after completion of the cognitive behavioral psychotherapy research and four weeks after completion of the cognitive-behavioral psychotherapy research.

Hypothesis 3 – The mean social and adaptive functioning score among children with dyslexia receiving cognitive behavioral psychotherapy is significantly lower than those

receiving treatment as usual at six weeks, immediately following completion of the cognitive behavioral psychotherapy research, and four weeks after completing the cognitive-behavioral psychotherapy research.

Research design for cognitive behavioral psychotherapy

The doctoral dissertation was a research using a pre-test and post-test to compare differences in depressive symptoms, negative automatic thought, and social and adaptive functioning between a cognitive-behavioral psychotherapy group (CBT group) and a treatment-as-usual group (TAU group).

The group with applied cognitive-behavioral psychotherapy (CBT group) received a twelve-session cognitive-behavioral psychotherapy for children with depression program including psychoeducation, goal setting, mood monitoring, increasing pleasurable activities, problem solving, cognitive restructuring, social skills training and relaxation training.

Subject of the research for cognitive-behavioral psychotherapy

The research participants were selected through schools in three main centers of socio-demographic regions in the Republic of N. Macedonia (Stip, Eastern Region; Skopje, Central Region; Bitola, Western Region).

All participants met the following inclusion criteria:

1. children from 7 to 13 years old
2. had mild to moderate symptoms of depression from 16 to 24, which were assessed using the Center for Epidemiological Studies - Depression Scale, Macedonian version (CES-D, Macedonian version)
3. agree to participate voluntarily in this research
4. one of their parents or legal guardians has given permission to participate in the research

Exclusion criteria

Excluded from this research were children who had a history of, or had severe depression (scoring above 24 on the CES-D).

Researched participants

The number of participants researched was 32 children in each group, making a total sample of at least 64 participants. With an expected attrition rate of 20% over the 12-week period, the sample size was set at 70 (35 per group). Of the 120 children who met the inclusion criteria for the cognitive-behavioral psychotherapy research, matched for age, sex, GPA, depressive symptom scores, a total of 78 participants were included in this research. At the end of this research, 70 participants provided post-survey data completion for cognitive behavioral psychotherapy (4 participants dropped out, 5 participants in the intervention group and 3 participants in the control group). Reasons for withdrawing from the research included not wanting to miss extracurricular activities for the cognitive-behavioral psychotherapy group (CBT group) and not feeling comfortable participating in the research for the treatment-as-usual group (TAU group).

Instruments

Data has been received from each participant by using two types of instruments in this research, including a data collection instrument and an intervention instrument. The instruments include:

Data gathering instruments

Four instruments were used to collect quantitative data. These instruments were the Demographic Data Form, the Center for Epidemiological Studies Depression Scale - Macedonian version (CES-D Macedonian version), the Children's Automatic Thinking Scale (CATS), and the Child and Children's Social and Adaptive Functioning Scale (CASAFS).

Focus Group Guidelines were used to obtain qualitative data. Each instrument has the following components:

Instrument 1: Demographic Data Form

The Demographic Data Form (DDF) developed was used to obtain information on: age; gender; GPA; CES-D score and monthly family income.

Instrument 2: Center for Epidemiological Studies Depression Scale - Macedonian version (CES-D Macedonian version),

The Macedonian-translated version of the 20-item Center for Epidemiologic Studies Depression Scale (CES-D) was used to measure children's depressive symptoms, including: depressive affect (ie, blues, depressed, lonely, crying, sadness); positive affect or well-being (ie, good, hopeful, happy, enjoying); somatic symptoms (eg appetite, sleep); and interpersonal problems (ie, dislike). (*Blodgett, J.M.; et al. 2021*).

Each item consisted of one statement describing depressive symptoms. Participants are asked to rate the experience of depression during the past week on a 4-point scale ranging from 0 (rarely or never) to 3 (most or all of the time). A summary score is calculated by adding the scores after reversing the score on four items worded in the opposite direction; high scores indicate a high level of depression (<16 = no depression, 16 to 24 = mild to moderate depression, > 24 = severe depression). Cronbach's alpha coefficient was used to analyze internal consistency reliability for 70 participants (35 participants in the cognitive behavioral therapy (CBT group) and 35 participants in the treatment as usual group (TAU group)) included in the present research. Results revealed that Cronbach's alpha ranged from .89 to .98.

Instrument 3: Children's Automatic Thinking Scale (CATS)

The Macedonian version of the 40-item Children's Automatic Thinking Scale (CATS) was used to assess negative beliefs in internalizing and externalizing difficulties. The CATS measure negative automatic thought on four different factors (physical threat, social threat, personal failure, and dislike) among individuals aged 7–16 years.

Participants were asked to rate the frequency with which they had experienced each thought in the past week on a 5-point scale ranging from 0 = “not at all” to 4 = “all the time”. The score for each item was summed to obtain a maximum total score of 160. The higher the score, the greater the frequency of negative automatic thoughts. In this research, the total CATS had a Cronbach's alpha of 0.91 for control participants and 0.93 for experimental participants. The internal consistency of the subscales ranged from: 0.75 to 0.78 (physical threat); 0.74 to 0.88 (social threat); 0.84 to 0.85 (personal failure); and 0.83 to 0.84 (dislike).

Instrument 4: Child and Children's Social and Adaptive Functioning Scale (CASAFS)

The 24-item Child and Children's Social and Adaptive Functioning Scale (CASAFS) was used to examine children's social and adaptive functioning. The CASAFS consists of four subscales that measure social role functioning (school performance, peer relationships, family relationships, and household chores/self care). Participants were asked to respond on a 4-point scale, (1 = "never" to 4 = "always"), to each of the social and adaptive functioning items. Negatively worded items require reverse scoring before calculating the total score, which can range from 24 to 96.

The higher the total score, the higher the level of social functioning. In this research, the CASAFS had an overall Cronbach's alpha of 0.75 to 0.78. Internal consistency of the subscales revealed coefficient alphas of: 0.65 to 0.79 (school performance); 0.61 to 0.51 (peer relationships); 0.75 to 0.68 (family relationships); and 0.62 to 0.63 (housework/self care). To ensure the stability of the instrument, the test-retest method was applied. A significant correlation ($r = 0.78$ to $r = 0.79$) was found between initial CASAFS participation scores and scores obtained four weeks later. The test-retest correlation coefficient of the subscales revealed a significant correlation of: 0.66 to 0.79 (school performance); 0.59 to 0.73 (peer relationships); 0.58 to 0.73 (family relationships); and 0.56 to 0.72 (housework/self-care).

Instrument 5: Focus Group Guidelines

Focus group guidelines were developed based on a literature review to explore children's views on the effectiveness of cognitive behavioral therapy research. The focus group guidelines included five open-ended questions:

1. How valuable was the information presented in this program?
2. How did this program affect your mood, thoughts and behavior?
3. How did you apply or practice the skills presented in this research?
4. What do you think about the length of the sessions and the 12 weeks in general?
5. What would be your suggestions for activities after completing the research?

Procedure

The goals of cognitive-behavioral psychotherapy were: to reduce depressive symptoms and negative automatic thinking in children, and to improve their social and adaptive functioning. Details of the cognitive-behavioral psychotherapy research are presented in Table 1.

Session	objectives	activities
Session 1	<p>In the beginning, connections and acquaintances and guidelines are established for each program session.</p> <p>To explain depressive conditions and cognitive behavioral psychotherapy.</p> <p>To learn to monitor the mood using the "Emotion Thermometer".</p>	<p>Introduce yourself, get the names of the participants, introduce the "Getting to Know You Activity" and explain the guidelines.</p> <p>Introduce children to depressive conditions and explain the rationale for cognitive behavioral therapy and how it can help.</p> <p>Explain and discuss the importance and recording of daily mood monitoring and homework assignments.</p>
Session 2	<p>To review homework for mood monitoring</p> <p>To learn about setting goals</p>	<p>Review the homework and acknowledge the progress made.</p> <p>Review initial goals, create subgoals, and connect goal setting with other skills</p> <p>Assign sub-goal-oriented homework.</p>
Session 3	<p>To review homework for mood monitoring</p> <p>To learn the importance of engaging in enjoyable activities and to create a schedule for activities.</p>	<p>Review the homework and acknowledge the progress made.</p> <p>Explain and discuss the relationship between depression and lack of active and enjoyable activities and how doing enjoyable activities can improve emotions, thoughts and behaviour.</p> <p>Identify and choose enjoyable activities for them to engage in.</p>

		<p>Assign homework to increase their participation in enjoyable activities (eg, going to the movies, watching TV, reading, or hanging out with friends).</p> <p>Review progress made regarding participation in enjoyable activities.</p>
<p>Session 4</p>	<p>To review homework and progress made in engaging in enjoyable activities.</p> <p>To learn to solve problems.</p>	<p>Explain and discuss how problem solving can be used to deal with problems and incidents</p> <p>Teach and practice problem solving using a scenario.</p> <p>Assign homework to integrate problem solving with increased participation in enjoyable activities.</p>
<p>Session 5</p>	<p>To review homework and progress in monitoring mood and engaging in pleasurable activities.</p> <p>To learn to recognize cognitive distortions.</p>	<p>Review the homework and acknowledge the progress made.</p> <p>Review the causes of and recognition of a negative automatic thought and how to record its presence</p> <p>Assign homework to record the presence of negative automatic thoughts.</p>
<p>Session 6</p>	<p>To review homework and progress in writing down negative automatic thoughts.</p> <p>Continue to identify negative automatic thoughts.</p> <p>To increase the ability to formulate and use realistic counter-thoughts.</p>	<p>Review the homework and acknowledge the progress made.</p> <p>Work on identifying and labeling negative automatic thoughts.</p> <p>Confront and change negative automatic thoughts using Socratic questions, role</p>

		plays, role reversals, and counter-thought formulation.
	To review the progress made towards the objectives.	Assign homework on coping using realistic counter-thoughts.
Session 7	To review homework and progress in implementing realistic counter-thoughts.	Review the homework and acknowledge the progress made.
	To improve the basic skills of meeting people.	Explain and discuss the rationale for teaching social skills and the fact that changing behavior is one way to change emotions.
		Improve social skills through role-playing (ie, starting a conversation, entering a group conversation, listening and ending an individual or group conversation).
		Assign homework to practice social skills and increase involvement in enjoyable activities
Session 8	To review homework and progress made in improving social skills.	Review the homework and reinforce the progress made.
	To improve understanding of the differences between passive, assertive and aggressive behaviour.	Present content related to possible problems encountered during difficult situations when trying to protect yourself or when trying to ask for help.
	To identify the underlying beliefs that inhibit the use of assertive behavior.	Provide examples of assertive and non-assertive responses and discuss reactions to these responses.
	To increase the use of assertive behavior.	Provide confidence training through the use of the "I" statement, role plays, and personalized techniques.
		Assign homework on writing down signs that help in using assertive behavior.

Session 9	<p>To review homework and progress made in using assertive behavior.</p> <p>To improve listening skills and understanding the thoughts and beliefs of others.</p> <p>To practice compromise</p>	<p>Review the homework and reinforce the progress made.</p> <p>Explain and discuss why you listen to others, even when there are conflicts.</p> <p>Practice listening skills using role plays during "debates" on one or two current issues of controversy.</p> <p>Relate to difficulties in communicating possible negative automatic thoughts.</p> <p>Explain and discuss the rationale for compromise to increase support and reduce conflict and depression.</p> <p>Relate compromise to problem solving and learn how to compromise using role play scenarios.</p> <p>Assign homework on the use of compromise as a problem-solving technique with family, friends, and/or teachers.</p>
Session 10	<p>To review homework and progress made in implementing listening and compromise skills.</p> <p>To improve the ability to relax.</p> <p>To identify effective relaxation techniques</p>	<p>Review the homework and reinforce the progress made.</p> <p>Identify situations that can lead to stress and discuss what approaches are used to cope with stress.</p> <p>Explain and discuss the rationale for using relaxation techniques Teach and practice relaxation techniques: deep breathing, counting backwards, guided imagery, meditation, and progressive muscle relaxation. Determine which relaxation</p>

		techniques to practice over the next week and assign the use of these methods as homework.
Session 11	<p>To review homework and progress made in practicing relaxation techniques.</p> <p>To improve the ability to control emotional stress. Develop a plan for dealing with situations that cause emotional distress.</p>	<p>Review homework and reinforce progress.</p> <p>Explain and discuss the rationale for keeping emotions under control and identify triggers of emotional distress.</p> <p>Planning specific coping actions to control emotional stress (ie, going for a walk, hanging out with family members, going to church, participating in enjoyable activities, or using relaxation techniques).</p> <p>Work on connecting emotional distress control to other skills learned (ie, problem solving, using assertive behavior, formulating realistic counterthoughts, and compromising).</p> <p>Identify one or two stressful situations that may arise and discuss how to implement coping actions when the situations arise. Assign homework to create a list of steps to take when managing emotional stress is required, and then practice following the steps.</p>
Session 12	<p>To review homework and progress made in controlling emotional distress.</p>	<p>Review the homework and reinforce the progress made.</p>

<p>To review progress toward the goals of cognitive-behavioral psychotherapy.</p> <p>To review the cognitive and behavioral skills involved in cognitive-behavioral psychotherapy</p>	<p>Inform participants that this is the last session of cognitive-behavioral psychotherapy.</p> <p>Review the advances made throughout cognitive-behavioral psychotherapy.</p> <p>Review all the skills covered and determine which are most useful. Encourage the use of various skills learned during cognitive-behavioral psychotherapy to help cope with future situations. Thank participants for participating in cognitive-behavioral psychotherapy.</p>
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Table 1 Schedule, objectives and activities of cognitive-behavioral psychotherapy

After the children and their parents/guardians consented to participate, the 35 research participants assigned to the cognitive-behavioral psychotherapy group were provided information about the time, place, and schedule for the 12-week sessions. The research then began with cognitive-behavioral psychotherapy, which lasted one hour each week for 12 weeks. Participants assigned to the treatment-as-usual group received usual care. Data were collected by administering the CES-D, CATS, and CASAFS to both the cognitive-behavioral psychotherapy and treatment-as-usual groups midway through the research (week six), immediately following completion of the research (week 12) and four weeks after completion of the research (week 16).

Data analysis

Descriptive statistics, Chi-square and t-test were used to analyze demographic data. Multivariate analysis of variance (MANOVA) was used to test for differences in depressive symptoms, negative automatic thinking, and social and adaptive functioning between the cognitive-behavioral psychotherapy group and the treatment-as-usual group. A paired t-test was used to compare group mean changes over time.

Results

Quantitative findings: As shown in Table 2, significant interaction effects were found between the cognitive-behavioral psychotherapy group and the treatment-as-usual group on depressive symptoms and negative automatic thought. Also, significantly higher scores for social and adaptive functioning were noted in the cognitive-behavioral psychotherapy group compared to the treatment-as-usual group.

Group	Time of Evaluation								Group effect		Time effect		Group* Time effect	
	Time 1		Time 2		Time 3		Time 4							
	M	SD	M	SD	M	SD	M	SD	F	p	F	p	F	p
depressive symptoms														
CBT														
group	19.66	2.57	18.54	4.99	15.83	4.91	12.91	6.13	33.90	<.001	9.12	<.001	5.09	0.002
TAU														
group	19.74	2.52	21.26	5.13	20.20	5.86	19.26	5.74						
negative automatic thought														
CBT														
group	33.51	16.15	32.09	17.50	24.77	13.92	21.69	14.36	3.49	.063 ^{ns}	1.35	.258 ^{ns}	4.25	0.006
TAU														
group	22.86	17.53	33.23	16.73	34.11	17.37	32.54	17.49						
Social and adaptive functioning														
CBT														
group	65.11	6.82	67.23	7.34	67.94	7.89	71.31	8.97	4.34	.038*	1.64	.179 ^{ns}	2.51	.059 ^{ns}
TAU														
group	67.11	6.61	65.29	8.61	65.29	8.12	66.11	8.38						

Note: Time 1 = baseline assessment;
 Time 2 = six weeks after starting program;
 Time 3 = immediately after program completion;
 Time 4 = four weeks after program completion

Table 2 Main effects and interactions between cognitive-behavioral psychotherapy group and treatment-as-usual group on depressive symptoms, negative automatic thinking, and social and adaptive functioning

The depressive symptoms of the cognitive-behavioral psychotherapy group were found to improve at treatment and at follow-up (Table 2). Their depressive symptoms also decreased during the cognitive-behavioral psychotherapy phase of the research, resulting in significant main effects for group and time interaction ($F=5.09$; $p<0.01$). In addition, the negative automatic thinking scores of the cognitive-behavioral psychotherapy group were found to be significantly lower than the negative automatic thinking scores of the treatment-as-usual group after completing the cognitive-behavioral psychotherapy research, and in follow-up.

Variable	Time	CBT group		TAU group		F	df	p
		M	SD	M	SD			
depressive symptoms	Time 1	19.66	2.57	19.74	2.52	0.02	1	.89 ^{ns}
	Time 2	18.54	4.99	21.26	5.13	5.03	1	.03
	Time 3	15.38	4.91	20.20	5.86	11.45	1	.001
	Time 4	12.91	6.13	19.26	5.74	19.97	1	<.001
negative automatic thought	Time 1	33.51	16.15	26.86	17.53	2.73	1	.10 ^{ns}
	Time 2	32.09	17.50	33.23	16.73	0.08	1	.78 ^{ns}
	Time 3	24.77	13.92	34.11	17.37	6.17	1	.01
	Time 4	21.69	14.36	32.54	17.49	8.06	1	.006

Note: ^{ns} = not significant; Time 1 = baseline assessment; Time 2 = six weeks after starting program; Time 3 = immediately after program completion; and, Time 4 = four weeks after program completion

Table 3 Simple effects on depressive symptoms and negative automatic thought between the cognitive-behavioral psychotherapy group and the treatment-as-usual group at different time points

As reflected in Table 3, the social and adaptive functioning of the cognitive-behavioral psychotherapy group showed improvement over time compared to the treatment-as-usual group. Social and adaptive functioning were found to increase during the intervention phase, resulting in a significant main effect for groups ($F=4.34$, $p<0.05$).

Variable/ Group	Time of Evaluation								F	p
	Time 1		Time 2		Time 3		Time 4			
	M	SD	M	SD	M	SD	M	SD		
Social and Adaptive Functioning										
CBT group (n=35)	65.11	6.82	67.23	7.34	67.94	7.89	71.31	8.97	3.81	0.01
TAU group (n=35)	67.11	6.61	65.29	8.61	65.29	8.12	66.11	8.38	0.42	.74 ^{ns}

Note: ^{ns} = not significant; Time 1 = baseline assessment; Time 2 = six weeks after starting; Time 3 = immediately after completion; and, Time 4 = four weeks after completion

Таблица 4 Сравнение на средните резултати между експериментални и контролни групи за социално и адаптивно функциониране в различни периоди от време

In addition, participants reported a reduction in the frequency of their negative automatic thoughts, an increase in their social and adaptive functioning, improved relationships with family and friends, and greater attention to school work. Overall, the findings indicated that cognitive-behavioral psychotherapy had a positive impact on the depression levels of the participating children. As indicated by the participants' responses, the cognitive-behavioral psychotherapy research provided them with knowledge and skills that they could use when dealing with their depressive symptoms.

Discussion

In this research, cognitive-behavioral psychotherapy was compared with treatment as usual in children with depressive states in developmental dyslexia. The results can be summarized as follows. Before the cognitive-behavioral psychotherapy research, there were no significant differences between the cognitive-behavioral psychotherapy group and the treatment-as-usual group of children with depressive states in developmental dyslexia in terms of their depressive symptoms, negative automatic thinking, or social and adaptive functioning.

However, at the completion of the cognitive-behavioral psychotherapy research as well as 4 weeks later, results provided evidence of significant reductions in self-reported depressive symptoms and negative automatic thought, as well as improved social and adaptive functioning compared to usual care, among the children from the group with applied cognitive-behavioral psychotherapy. In addition, participants indicated that the cognitive-behavioral psychotherapy research was acceptable in that they appreciated the positive changes they experienced, as well as the fact that they did not experience any adverse effects while undergoing the cognitive-behavioral psychotherapy research. behavioral psychotherapy. The mechanism underlying the participants' improvement may be due to the following.

The first stage (sessions 1-5) of the cognitive-behavioral psychotherapy research was aimed at reducing their depression scores to a normal range through behavioral techniques that helped them monitor their ability to change their life experiences. Children learned to change their behavior by: setting goals; observing how they feel (mood); being more active, especially in pleasurable or enjoyable activities; improving their social skills; and developing effective communication, confident learning, compromise and problem-solving skills. Children learned to change their behavior by: setting goals; observing how they feel (mood); being more active, especially in pleasant or enjoyable activities; improving their social skills; and developing effective communication, confident learning, compromise and problem-solving skills. Thus, children were better able to gain a sense of accomplishment from completing behavioral tasks as well as learning new skills.

The second stage (session 6) of the cognitive-behavioral psychotherapy research focused on identifying and challenging the negative automatic thoughts that

the children experienced. In this way, their negative thoughts were analyzed and modified by replacing them with positive thoughts, thereby changing their depressive symptoms. These changes were perhaps most evident in the comments of the children included in the focus group, where they stated that they understood the connections between their emotions, thoughts and situations. They also indicated that they were aware of the activities that made them feel better, happier and more active, and that they should participate in more such activities. In addition, these participants stated recognition that restructuring their thought processes would help them alleviate their feelings of sadness, guilt, and conflict and make them happier.

The third stage (session 7-12) of the cognitive-behavioral psychotherapy research aimed to teach participants how to monitor their mood by regulating their emotions and using relaxation techniques. In addition, children were taught how to improve their social skills, use effective communication skills, and apply problem-solving skills so as to improve their social functioning and increase their number of enjoyable activities and social contacts.

The results of this research point to ways to improve the strategy for cognitive-behavioral psychotherapy among depressed children in schools in the Republic of Macedonia. Growing evidence now supports the effectiveness of cognitive-behavioral psychotherapy that encourages depressed children to regulate, heal, and improve themselves.

Limitations of the research

Besides the contribution in scientific, theoretical and social contexts, this doctoral dissertation also has limitations. The limitations of this doctoral dissertation are shared by the theoretical and methodological limitations of all articles that aim to capture the overall picture of the phenomenon, but also the impossibility of doing so in a single research.

The justification for choosing depressive states should be sought in arguments for the possibilities of application in clinical and educational practice, in the challenge for future research and the mission to integrate these models with other dominant ones in the world. We will mention some limitations of this research, which stem mainly from the design and instrumentation itself, but also from the impossibility of investigating a

complex phenomenon, such as childhood depression, in a single research. Therefore, instead of the word limitation, we will continue to use the words improvement and expansion of the possibilities for researching the phenomenon of depression and depressive states. Some of these can be attributed to objectively existing limitations that are an integral part of clinical research.

The inclusion of psychopathological aspects of development and the integration of adequate theoretical models is necessary. To introduce dynamics into the research itself, which is not possible with this design model, as a consequence for further research we suggest:

- Inclusion of a longitudinal, dynamic dimension, which allows a rigorous research of the process and different types of stability of depressive symptoms as well as the role of gender in the etiology of depression in children;
- Exploring various changes in negative automatic thoughts;
- Using depressive symptoms as a benchmark to interpret social and adaptive functioning among depressed children;
- In addition to self-report measures of negative automatic thoughts and depression and quantitative data, parent and teacher interview and report should be added, followed by qualitative data analysis and cognitive processing tasks;

In addition to the fact that much more research is needed to understand the parameters of the process of cognitive vulnerability stress in explaining the onset, maintenance, remission and possibility of relapse of depression in children, we believe that based on the arguments presented in this dissertation, we can conclude that cognitive risk factors and psychosocial risk factors for depression, especially in interaction with stressful events, play an important etiological role in depression.

This research, like all research, has limitations. Ten percent of participants dropped out of the research before its completion. This may be due to participation in cognitive-behavioral psychotherapy, which requires the active participation of children, although some of them may:

- do not feel comfortable being in a group;

- interested in joining other activities;
- and with permission from their parents to participate

The results were obtained only from children in public schools. Therefore, the findings cannot be generalized to children attending private schools or not attending school.

Future Research Opportunities

The main conclusion of this research is that cognitive-behavioral psychotherapy is likely to be effective in children with depression compared to treatment as usual. However, the small size of the included studies, diverse participant demographics, and research heterogeneity have significant implications regarding the generalizability of these findings to broader clinical populations of children. From a clinical perspective, the results of this research suggest that psychological treatments derived from cognitive-behavioral psychotherapy can be used as a first-line treatment for depression in children. This is important because many children with depression are reluctant to accept treatment as usual, and this research shows that cognitive-behavioral psychotherapy is a good alternative to treatment as usual.

Because the participants expressed a need for their parents to better understand their depressive states and cognitive-behavioral psychotherapy, it is recommended that replication of this research be conducted with parents' participation in psychotherapy. In addition, randomized clinical researches with different age groups and a wider range of schools should be conducted to better evaluate the benefits of cognitive-behavioral psychotherapy. In addition, a prospective follow-up research regarding the effectiveness of cognitive-behavioral psychotherapy should be conducted at 3, 6, and 12 months after the research to evaluate the long-term benefits of cognitive-behavioral psychotherapy. Perhaps most importantly, a training manual should be developed to be used by psychotherapists in the implementation of cognitive-behavioral psychotherapy throughout the Republic of Macedonia.

Finally, the choice of treatment for children with depression should be based on treatment availability, cost, and preference.

Conclusion

In conclusion, cognitive-behavioral psychotherapy for depressed children demonstrated positive main effects on depressive symptoms, negative automatic thoughts, and social and adaptive functioning. The finding provided support to the conceptual framework of the present research.

The main effect of a cognitive-behavioral psychotherapy for children with depression intervention on depressive symptoms, negative automatic thoughts, and social and adaptive functioning is to change and modify behavior patterns through skill acquisition and restructuring of negative automatic thoughts, in turn, with subsequent changes in depressed mood, negative automatic thoughts, and social and adaptive functioning.

Participants rated and expressed the benefits they received from participating in the cognitive-behavioral psychotherapy research. The benefits described were the value and effects of information presented in the cognitive behavioral psychotherapy research on depressive symptoms, thoughts and behaviors, implementation skills presented in the cognitive behavioral psychotherapy research, administration of the cognitive behavioral psychotherapy research: steps, duration of sessions, 12 weeks in total, and suggestions for cognitive-behavioral psychotherapy.

In summary, the cognitive-behavioral psychotherapy designed in this research demonstrated the positive outcome regarding the outcomes of depressive symptoms, negative automatic thought, and social and adaptive functioning.

In addition, participants in the cognitive-behavioral psychotherapy group reported benefits from participation such as improvements in depressive symptoms, negative automatic thoughts, and social and adaptive functioning. Participants also reported using programming skills such as thought restructuring, problem solving, and social skills to reduce their symptoms.

Clinical psychology and developmental psychopathology in the Republic of N. Macedonia are still at an early stage of development. Because of this, there is little scientific research in the field of mental disorders in children. This is an even greater reason to emphasize the need for research in this area, especially since the results of this research have not only scientific, but also great applied value. From the point of view of clinical psychology, the results of the present doctoral dissertation are expected to provide additional evidence and should provide an impetus for more

research to reveal the working mechanisms of cognitive-behavioral psychotherapy, which is strongly recommended to be the next step in the improvement of psychological research.

Recommendations

The following recommendations for further research are drawn from the findings of the present research.

1. Future implementation of cognitive-behavioral psychotherapy for children with depression should be conducted with parental involvement in psychotherapy because participants in this research expressed the need for their parents to understand their depression and cognitive-behavioral psychotherapy.
2. A replication of this research using a randomized clinical research with different age groups and a wide range of schools should be done to demonstrate the effects of cognitive-behavioral psychotherapy.
3. A prospective follow-up research of the effectiveness of cognitive-behavioral psychotherapy for depressed children should be conducted for long-term follow-up at 3, 6, and 12 months.
4. Short-term school-based cognitive-behavioral psychotherapy should be developed to be less time-consuming, such as five to eight sessions, but still cover the essential details.

Some recommendations for future research:

1. Comparative studies of treatment approaches: Conduct comparative studies to evaluate the efficacy of transdiagnostic and targeted cognitive-behavioral approaches for both clinical and subclinical conditions. This research should aim to determine which approach produces better results in different contexts.
2. Evaluation of treatment modalities: Compare different treatment modalities, including group versus individual cognitive-behavioral psychotherapy, as well as other therapies and medications. This comparative analysis would help in determining the most effective and appropriate therapeutic strategies for different types of conditions and patient profiles.

3. Review of research components and mechanisms of change: Explore research components and mechanisms of change, along with assessment of treatment fidelity. Understanding the working mechanisms behind different therapeutic interventions can offer insights into the development of more effective methods.
4. Use of personally relevant outcome measures: Use more personally relevant outcome measures, including measures tailored to individual therapeutic goals and holistic measures beyond symptom measurement, as well as triangulation with informative measures. This approach can provide a more comprehensive understanding of treatment effectiveness and patient progress.
5. Include longer follow-up: Include longer follow-up periods to examine whether deterioration continues and whether booster sessions can reverse this trend. Long-term follow-up studies can provide valuable information about the persistence of treatment effects and the need for additional interventions.
6. Examining therapist skills and the quality of the therapeutic relationship: Explore whether cognitive behavioral therapy (CBT) skills are needed and whether understanding the cognitive model influences outcomes. Additionally, examine whether therapist competence and the quality of the therapeutic relationship influence outcomes. Understanding the role of therapist skills and the therapeutic alliance can inform training programs and improve treatment delivery.

Based on the information provided, psychotherapists may consider the following options:

1. Involving relatives to maintain long-term effects: Consider involving patients' relatives in the therapy process, which can help reinforce and maintain learned techniques. It is important to consider privacy issues and ensure that participation is of patient choice.
2. A systems approach to involve staff and family: Consider a systems approach to therapy, involving staff, professionals and the patient's family. This approach can improve the perception of staff and caregivers while facilitating the therapeutic process.

3. Conducting booster sessions to maintain effects: Offer to conduct booster sessions after the completion of therapy to help maintain the achieved results in the long term
4. Focusing on a preventive approach in non-health/community settings: Explore the possibility of facilitating cognitive behavioral psychotherapy by care staff in non-health and community settings as a preventive approach to helping patients.
5. The Importance of the Therapeutic Relationship: Take time to consider the importance of the therapeutic relationship, which may be more important to children with dyslexia than to the general population. Because of their limited experience in relationships, a therapeutic relationship may be essential for them.
6. Use of group therapy: Explore the possibility of using group therapy, which may be a more appropriate model for children with dyslexia. This format can help patients better cope with social isolation, discrimination and stigma while providing them with opportunities to develop close relationships. These considered aspects may contribute to a more effective and adapted treatment for patients with dyslexia.

Contributions

The following theoretical and scientifically applied contributions have been made:

1. A theoretical-empirical model is presented for depressive states, negative automatic thoughts, social and adaptive functioning among children with dyslexia receiving cognitive-behavioral psychotherapy.
2. Four instruments were developed, translated and adapted: Demographic Data Form, Center for Epidemiological Studies Depression Scale - Macedonian version (CES-D Macedonian version), Children's Automatic Thinking Scale (CATS) and Children's Social and Adaptive Functioning Scale and children (CASAFS). Focus Group Guidelines were used to obtain qualitative data.
3. The results of the cognitive-behavioral psychotherapy research in this doctoral dissertation can be used in further research that is needed, primarily in the direction of developing better preventive, diagnostic and therapeutic strategies.

The obtained results will contribute to the overall scientific knowledge in the field of clinical psychology, which will allow the creation of a certain model for early diagnosis, cognitive-behavioral psychotherapy, and hence a better long-term prognosis and improvement of the quality of life of children, which gives and practical meaning of this dissertation.

4. The correct use of cognitive-behavioral psychotherapy provides more effective results in reducing and improving depressive symptoms and academic difficulties in children with dyslexia. Treatment of depression in dyslexic children between the ages of 7 and 13 with cognitive-behavioral psychotherapy has shown significant reductions in depressive symptoms.

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