



EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY ON DEVELOPMENTAL DISORDERS AFFECTING COMMUNICATION AND BEHAVIOR DIFFICULTIES AMONG ADULT POPULATION

¹Ajith Kumar M.P, ²Dr. Santhosh

¹Research Scholar, ²Professor

¹Department of Psychology

OPJS University, Churu, Rajasthan India

Abstract: Developmental disorders such as ADHD, autism, and mixed receptive expressive language disorder (MRELD) are growing at an increasing pace in recent years due to several internal and external factors. Cognitive Behavioral Therapy (CBT) is one of the most popularly used treatment methods by medical practitioners and a number of technological and strategic advancements have been made to enhance its effectiveness in communication and behavioral difficulties faced by people with developmental disorders. This study empirically examines this presence and effectiveness in India, with a sample size of 200 people from Delhi-NCR region using a close-ended survey questionnaire. Their responses were analyzed statistically using correlation and regression tests. The results indicated that CBT is highly effective in improving communication and behavioral difficulties.

Index Terms: Cognitive behavioral therapy (CBT), ADHD, MRELD, autism, developmental disorders.

1. INTRODUCTION

Developmental disorders are conditions which relate to physical, behavioral, language or learning disabilities. These disorders happen during the formative years impacting everyday activities which at most times could last lifetime for such individuals (Hemmings & Bouras, 2016). Autism spectrum disorder (ASD), Attention deficit hyperactivity disorder (ADHD), expressive language disorder (ELD), mixed receptive expressive language disorder (MRELD), and specific language impairment (SLI) are the significant developmental disorders (Skuse, Bruce, & Dowdney, 2017). These disorders could impair individuals', especially child's, cognitive development which is very necessary for their overall growth and development. Most children with such disorders are referred to a speech pathologist who then work upon the necessary treatments/therapy to improve upon the communication and behavior aspects in such individuals.

An important therapy applied for diagnosing such developmental disorders is cognitive behavioral therapy (CBT). CBT is a psychological treatment approach that helps individuals with developmental disorders to recognize their negative thoughts or behavioral patterns which hamper their daily activities (Şenormancı & Şenormancı, 2018). Various research-based studies have proved the effectiveness of CBT in causing major improvements in cognitive functioning and the overall quality of life. It has been found to be very effective in treating different developmental challenges including ASD, ADHD, anxiety etc. The therapy approach of CBT has been found to be at times more effective than other similar developmental therapies like relaxation techniques, yoga, music therapy or medications in improving such developmental disorders (Weston, Hodgekins, & Langdon, 2016). The therapy helps in determining and exploring the ways in which emotions and behavior tend to affect one's subsequent action/activity.

The effectiveness of CBT in diagnosing such developmental disorders forms the crux of this research. Although a number of empirical studies (Hiltunen, Kocys, & Perrin-Wallqvist, 2013; Mayer, Lochman, & Acker, 2005; Scanlan & Francey, 2017; Scozzari & Gamberini, 2011) have been conducted to examine the various applications and recent advancements made in CBT for treating mental health disorders, most of them are focused on a specific demographic profile, particularly children and adolescents. Moreover, there is little evidence of its effectiveness in Indian context. Thirdly, its effect on communication and behavioral difficulty among this population has been unexplored. Therefore, this study aims to bridge the glaring gap in existing research in the field of cognitive behavioral therapy by exploring its effectiveness in diagnosing developmental disorders affect communication and behavior of an individual.

2. LITERATURE REVIEW

2.1. Cognitive Behavioral Therapy and Developmental Disorders

CBT is psychological therapy which is mostly used for diagnosing and treating developmental disorders as stated above. The core principles emphasize on the fact that psychological issues mostly tend to happen either fully or partly due to negative thinking, negative behavior, people can learn to evolve themselves out of such issues by learning techniques to cope with them (Şenormancı & Şenormancı, 2018). CBT is used to treat a variety of communication and behavioral development-related disorders in adults, such as autism spectrum disorder (ASD) (Howlin & Moss, 2012), attention deficit hyperactivity disorder (ADHD) (Volkow & Swanson, 2013), expressive language disorder (ELD) (Reilley, 2016), mixed receptive expressive language disorder (MRELD) (Mawhood & Howlin, 2000), and specific language impairment (SLI) (Poll, Betz, & Miller, 2010). These disorders manifest in various ways such as repetitive behavior, difficulty in paying attention, inability to communicate properly, and difficulty in understanding simple sentences.

2.2. CBT in treating communication and behavior development among people with developmental disabilities

CBT has been used to treat people with developmental disabilities with success, which has been documented in many instances in recent years. These disabilities are majorly communication and behavior-related, where communication disorders typically refer to the inability to receive, send, process and compare the verbal as well as nonverbal behavior, and behavioral disorders includes issues such as being disruptive, depression and anxiety among adults. For instance, according to (Bekirogullari, 2018), CBT methods of operant and classical conditioning are used by therapists to address learning disabilities in people from all races, genders and cultures by promoting an increased awareness among the clients and enabling them with readiness to handle new and unexpected challenges in much more functional way. (Richard, Morand-Beaulieu, O'Connor, Sauvé, & Leclerc, 2016) find in their empirical research that CBT helps control repetitive behavior such as nail biting and hair pulling by regulating the excessive amount of sensorimotor activation and muscular tension. (Sasaki, Somemura, Nakamura, Yamamoto, & Isojima, 2017) studied the application of CBT in work environment to determine its effectiveness on communication skills, and found that CBT helped workers coordinate and communicate with each other better to achieving organizational goals. (Hetrick et al., 2015; Rector, 2010) advocate the use of CBT-based treatment methods to reduce anxiety, depression, and restlessness among people with developmental disorders. Finally, (Smith, Lochman, & Daunic, 2005) find that using CBT, therapists are helping people with developmental and mental disorders manage and prevent aggressive behaviors, increase social interactions, and foster long-term behavioral changes.

2.3. Empirical Review

A number of empirical studies have been conducted to identify the impact of CBT on communication and behavioral development among people with developmental disorders, and the problems faced therein.

According to Tok (2017), CBT is an effective and proven treatment for treating children with developmental disorders.

A study by Weston, Hodgekins, & Langdon (2016) consisting of 48 studies done with meta-analytic and systematic appraisal, to investigate the effectiveness of CBT in treating ASD, showed that individuals with ASD undergoing CBT were associated with a small to medium effect size, stating that more empirical research is required. (Høifødt, Strøm, Kolstrup, Eisemann, & Waterloo, 2011) conducted a study that focused on effectiveness of CBT. It was found that communication and behavioral disorders are highly prevalent among adults these days which has been responsible behind the substantial impairment of daily lives. A quantitative approach has been adopted in the present study. It was found that CBT has been effective in treating mild to moderate symptoms of communication and behavioral disorders. With treatment that was able to maintain long term follow up and reduced rate of relapse of depression associated with it. (Teater, 2016) focused on understanding the essential elements of CBT and found that CBT enables a reduction in psychological distress and dysfunction majorly by exploring and addressing thoughts, feelings and behavior. It seeks to modify the distorted thoughts and feelings to more positive and acceptable ones. (Switzer, Harper, &

Peck, 2019) found that the major barriers to effective implementation of CBT include lack of integration of services and unclear referral pathways, lack of multi-disciplinary communication and knowledge. Further that factors such as lack of awareness, lack of specialists in required area, limited training facilities were also identified as possible barriers. (Ringle et al., 2015) focused on identification of facilitators in implementation of CBT among youth. The study first identified the barriers that arise from patients, which included parental instability, poverty, disruptive behavior disorder that mainly emerged at client level. Motivation on the other hand acted as major facilitator.

Based on the review above, the conceptual framework of the study can be represented in the figure below.

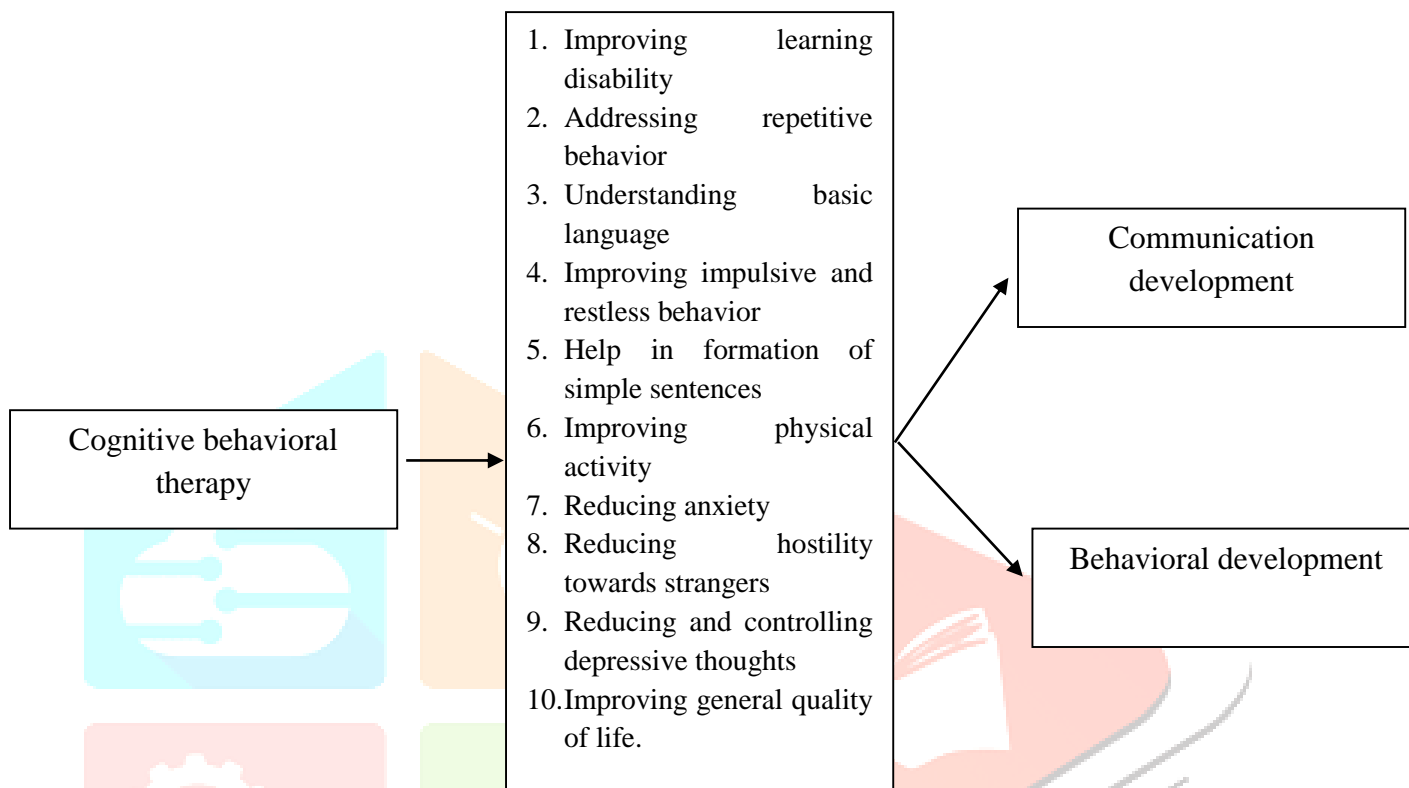


Figure 1: Conceptual framework

3. RESEARCH METHODOLOGY

Primary study was carried out with the aim of determining the effectiveness of CBT on behavioral and communication difficulty among adult population in India with Delhi NCR as the geographical location of the study.

A quantitative study consisting of the survey method was implemented taking into consideration the factors identified in the conceptual framework. The sample population, as specified above, consisted of adult population residing in Delhi-NCR. These participants were identified and selected using the following predefined selection criteria:

- Participants must be medically diagnosed with any of the developmental disorders identified in this study, i.e., ADHD, ASD, ELD, MRELD, or SLI since at least three years.
- At the time of the survey, participants must be undergoing CBT treatment for at least one year under a recognized or registered medical practitioner.
- Participant must be an adult, i.e., over 18 years of age at the time of the survey.

In order to select the participants, the researcher identified and contacted 36 independent as well as institutional medical practitioners from Delhi, Noida and Gurugram. This region was selected as it is the capital and the biggest city of India, and is one of the cities with highest rates of developmental disorders among adults and children (India State-Level Disease Burden Initiative Mental Disorders Collaborators, 2020). Moreover, the healthcare facilities are better than most other cities in the country, making it a suitable choice for this study. The practitioners were contacted via an introductory email explaining the intent of the study and requesting their participation in the survey. After repeated follow-ups via telephone and email, 20 practitioners expressed their consent for participating in the survey by agreeing to share the feedback from 10 participants each, making the sample size 200 in total. Consequently, a structured close-ended questionnaire was developed online using Google Forms and was shared with them. The practitioners filled the response sheets for the participants after one of their sessions and shared them with the researcher over a period of three weeks. The process was followed until the targeted sample size was achieved.

The questionnaire consisted of different multiple-choice questions pertaining to respondents' demographic profile, general background and inferential analysis. For inferential analysis, Likert scale of 1 to 5 was used - 1 being Strongly disagree and 5 being Strongly agree, to understand patient's percept of effectiveness of CBT. Frequency, regression and correlation analysis with the help of the SPSS tool for the purpose of this study.

4. RESULTS AND DISCUSSION

Male respondents stood at 60.5%, while the female ratio was at 39.5%. The age criteria of the respondents were between 18-20 years (14.5%), 20-25 years (29.5%), 25-30 years (20.5%), 30-35 years (16.5%) and above 35 years (19%). With respect to their educational qualifications, 8.5% respondents had studied up to primary school, 17.5% up to secondary, 24.5% of respondents finished a bachelor's degree, 31.5% were graduates and 18% were post-graduates. Further considering the number of years of disorder for the respondents it was 0-3 years for (29.5%), 3-6 years (19%), 6-9 years (10.5%), 9-12 years (28.5%) and 12+ years (12.5%).

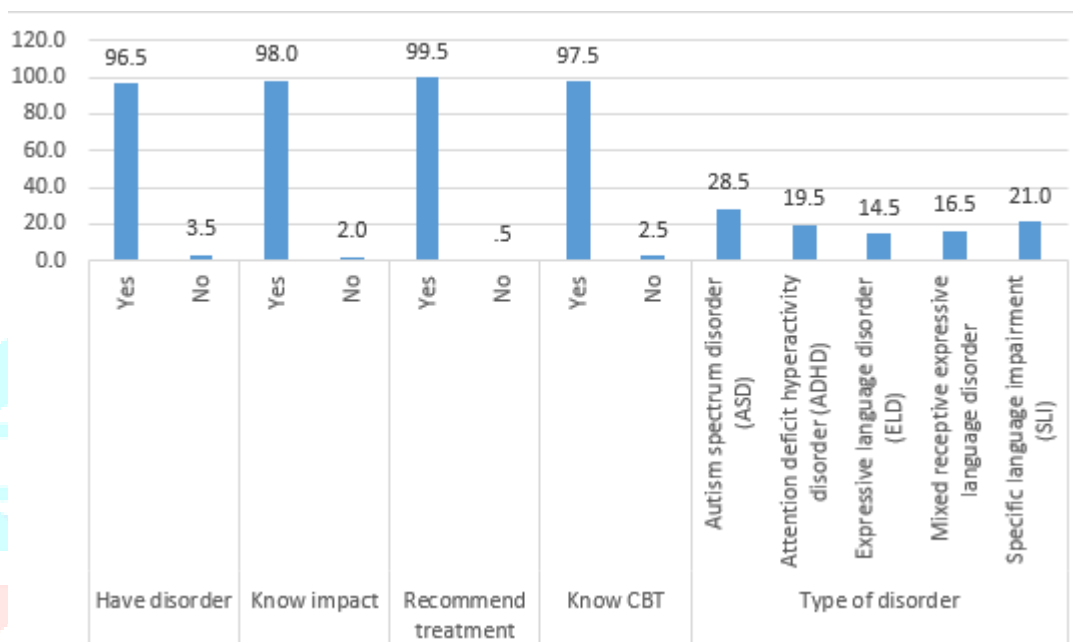


Figure 2: General background of respondents' knowledge of CBT

The researcher conducted general background analysis as per Graph 2. The analysis focused on the general behavior of the respondents towards CBT. 98% of respondents knew about the impact of developmental disorders while a mere 2% were unaware. 99.5% recommended treatment for developmental disorders, while 0.5% did not recommend it. 97.5% respondents were aware of CBT while only 2.5% were not aware of that. Further considering the type of disorder 28.5% respondents had ASD, 19.5% had ADHD, 14.5% had ELD, MRELD respondents were at 16.5% and SLI respondents were at 21%.

Table 1: Correlation between CBT developmental disorders

Variable code	Variables	Pearson Coefficient	Significance
	Dependent	1	
A1	Effectiveness in improving learning disability	.896**	.000
A2	Effectiveness in addressing repetitive behavior	.859**	.000
A3	Effectiveness in helping understand simple language	.897**	.000
A4	Effectiveness in improving impulsive and restless behavior	.833**	.000
A5	Effectiveness in helping form simple sentences	.822**	.000
A6	Effectiveness in improving basic physical activity	.712**	.000
A7	Effectiveness in reducing anxiety	.817**	.000
A8	Effectiveness in reducing hostility towards strangers	.715**	.000
A9	Effectiveness in reducing and controlling depressing thoughts	.809**	.000
A10	Effectiveness in improving the general quality of life	.670**	.000

Table 1 indicates that the significance value for all variables is less than the significance level of the study, i.e., $0.000 < 0.05$. This shows that there could be a possibility of having a good link between CBT and its impact on diagnosing and treatment of developmental disorders. Also, the Pearson Coefficient value for every variable is greater than the least coefficient value required for moderate linkage between the dependent and independent variable (i.e., A1 - 0.896, A2 - 0.859, A3 - 0.897, A4 - 0.833, A5 - 0.822, A6 - 0.712, A7 - 0.817, A8 - 0.715, A9 - 0.809, A10 - 0.670). The correlation results thus indicate that a significant linkage exists between CBT and its effectiveness in communication and behavior related to developmental disorders. The results of hypothesis testing are shown below.

H_0 : there is no significant impact of CBT on communication and behavior related to people with developmental disorders.

H_1 : there is significant impact of CBT on communication and behavior related to people with developmental disorders.

Table 2 shows the results of regression analysis.

Table 2: Regression analysis for hypothesis 1

CL	Coefficient	T-statistic	p-value	R ²	Adjusted R ²	F Ratio
Constant	-.280	-3.010	.003	.907	.902	184.497
A1	.365	7.241	.000			
A2	.253	4.342	.000			
A3	.189	3.047	.003			
A4	.088	1.548	.123			
A5	.073	1.346	.180			
A6	-.137	-2.709	.007			
A7	.025	.384	.701			
A8	.073	1.198	.233			
A9	.236	4.122	.000			
A10	-.104	-2.066	.040			

The value of R² and adjusted R² is 0.907 and 0.902 which indicates that the model stating CBT and its impact on effectiveness of communication and behavior in people with developmental disorders is represented rightly. The value of adjusted R² at 0.902 shows 90.2% of the variation in independent variable is represented by dependent variable. Further, the F value is 184.497 is greater than the required value of 1, showing presence of CBT impact as an independent variable in the model. Further the P-value of variables such as A1, A2, A3, A6, A9 and A10, is less than the significance level of study i.e., less than 0.05, indicating these variables show impact of CBT in diagnosing and treatment developmental disorders. Thus, the null hypothesis that there is no significant impact CBT in behavior and communication of people with developmental disorders is rejected.

5. CONCLUSION

Developmental disorders are becoming increasingly common in recent years due to a number of factors related to genetics, environmental conditions, birth trauma, consumption of highly potent drugs used for recreational purposes or to treat mortal diseases, poor nutrition, and exposure to toxins, among others. In India, instances of such conditions are on a rise, with almost 2.5% of the population diagnosed with developmental disorders. However, the diagnosis and treatment of these disorders is still in its infancy in the country. Moreover, treatment among adults is rarer as compared to children due to the societal stigma attached to it, which has prompted very few researchers to explore the effects of CBT among this population.

Therefore, this study intended to assess the effectiveness of one such treatment methods, i.e., cognitive behavioral therapy on communication and behavioral development of adult people with such disorders. The findings of this study suggest that there is a significant impact, with the most significant improvements being in improving learning disability, addressing repetitive behavior, helping understand basic and simple language, improving basic physical activity, and reducing and controlling depressing thoughts. It can thus be concluded that CBT is an effective treatment method in people diagnosed with developmental disorders.

There are certain limitations in this study. Firstly, the sample population consisted of adult people from only one region of the country, i.e., Delhi-NCR, therefore may not be a good representative of the nationwide status. Secondly, only selective disorders were included in this study. Finally, only communication and behavioral aspects of the disorders were considered, whereas mental

state is also relevant. Therefore, future researchers in this topic are suggested to further the field of study considering these shortcomings.

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