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Evaluation of Intervention Programs for Children with Autism

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Abstract

The present study reviewed the literature about intervention programs for Autism Spectrum Disorder (ASD) among children. ASD is a long-term neurodevelopment disorder that is identified as impairment in the context of social communication and interaction, and the predominance of restricted and repetitive patterns of behavior, interests or activities. Intervention programs have objectives such as to help individuals with ASD, particularly at the early developmental stage. Another objective is to involve the parents of the children with ASD to improve the effectiveness of implementing these interventions. Reviewing the literature showed that the involvement of parents reduced their stress level.

Key Words: Autism, Autism spectrum disorders, Children, Intervention.

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1- INTRODUCTION

1-1. An overview of the autism

Autism Spectrum Disorder (ASD) is considered a long-term neurodevelopmental disorder that has been a long-standing issue in the context of social interaction (1). ASD affects people in different ways based on its severity and the possibility of occurrence with other diseases, however, in all circumstances, there is a particular way to understand and work the world, and this is called the "culture of autism" (2, 3). According to Center for Disease Control and Prevention (CDC), out of 68 children, one is going to have ASD (4). Usually, there are various problems with communication and social interactions among children with ASD (1).

The problems have been reported to be associated with behavioral challenges including, self-injury, aggression, and noncompliance (5-7). Several studies across the literature have shown that behavior problems have negative influences on the psychology of children, emotions and physical health (8). The parents of children with ASD have also been shown to be more stressed as compared to parents of normally developing children (9). Often parents of an ASD child face difficulty in fulfillment, engaging in such intervention programs due to stress (10). Research has reported that ASD symptoms can be reduced and the persons who have ASD can develop their communication skills and behaviors (11-13).

1-2. Intervention programs

The literature has indicated various intervention programs adapting different models and combinations with treatments to improve the lifestyle of children with ASD and reduce the symptoms and enhancing their social interaction (3, 14-16). Literature considered applying multiple tutelages and training strategies would be effective in treating the ASD among children (15, 17-19). Pennefathera et al. (2018) have conducted a study that performed a three-week online multiple education and training program, which included different educational topics such as how to apply Applied Behavior Analytic (ABA) principles, how to lower stress, and meditation practice (18). The study included 23 parents of autistic children with ages ranging between four and eight years. The intervention program had several advantages and impacted on both parents and children; it resulted in increasing knowledge about autism among parents and improved their levels of contentment with the intervention (18), as well as lowering their stress level. In addition, the intervention program had an impact on the children and led to reducing the overactive attitudes and behaviors, as well as enhanced prosaically-behaviors among the children (18).

Dai et al. (2018) proposed investigating whether the video-assisted training program targeted parents of a child with ASD (17). This experiment included 29-parents of young ASD children aged between 1.5 to 6 years. The *"Early Intervention Parenting Self-Efficacy Scale"* (20), was carried out among the parents. In this study, the parents of the intervention group were to take part in a training course for teaching techniques and management behavior; and it is worth mentioning that the authors took into account the culture of the parents (17). Study findings showed that the training program was accepted by parents and rated as valuable. The program increased the knowledge of parents on effective teaching strategies and improved their self-efficacy (17).

Matthews et al. (2018) conducted a study to examine the effectiveness of JumpStart, a 4-week education program including a Behavioral Skills Training model for parents of children with ASD. JumpStart

proposes to teach parents how to apply the behavioral intervention to establish a comprehensive intervention program (15). The study included 18 parents (treatment group), and control group (n=18). Study variables included a change in parent self-efficacy, knowledge, stress, depression, the ability to apply for intervention programs. The study's finding showed that there was significant increase in the levels of all variables among treatment group compared with the control group (15).

Moharreri et al. (2017) conducted a comparative clinical trial to evaluate the effect of the combination of Risperidone and Naltrexone on autistic symptoms (21). A placebo-controlled, double-blind, crossover clinical trial was performed among a convenience sample of thirty ASD children and followed for twenty weeks. The study found that the combination of Risperidone and Naltrexone led to significant progress in listening response at week 4, and a considerable improvement in general impressions was observed in week 8 following the drug therapy (21).

Hojjati and Khalilkhaneh (2017) conducted a study that investigated the influence of the Holistic Multidimensional Treatment Model (HMTM) on the treatment of ASD and explored the impact of it on the performance of receptive and expressive language and the severity of ASD symptoms among a sample of thirty children aged 2-8 years (14). The children were evaluated by pediatrician specialists including general, psychiatrists and a neurologist, according to the autism criteria. The results showed that linguistic development gradually improved during the treatment term (14). Furthermore, Hojjati and Khalilkhaneh (2017) argued that using the HMTM, adapting Hojjati model *"is derived from Iranian traditional medicine and holistic philosophy"* (14), could be efficacious in the treatment of language impairments in children with ASD (14). In this context, Hojjati (2014) conducted an experimental study among a sample of 150 children with ASD in Mashhad in Iran (22). The children were treated by adopting (HMTM) (22). The sample was divided into three groups, fifty in each, for the varied period (one, two, and three years). The results showed that the symptoms of ASD decreased significantly after one year of intervention. The behavioral, cognitive and physical symptoms of the three groups were significantly reduced ($P < 0.05$). However, there were no significant differences in the reduction of ASD symptoms in children treated for three, two, or one year (22). Furthermore, the recovery situation among children treated with this method progressed at a high rate with the time period the following year of the intervention. These results suggested that the HMTM is effective in treating children with ASD in all three groups, regardless of age and sex. No matter how long the treatment lasts, recovery will be more effective in ASD children (22).

2- DISCUSSION

Literature suggested various intervention programs to improve developmental skills for autistic children (3), two main approaches have been reported, of which the first is focused intervention practice to be used for a limited period of time, and the other is a Comprehensive Treatment Model (CTM) in which several interventional components are used for a long period of time to achieve a broader developmental impact (16). The behavioral program was used to improve educational and learning skills for autistic children (15, 18).

The *"Applied Behavior Analytic (ABA)"* is shown to be more effective if it is applied for children in their home and by their parents (13). Research reported that children who enrolled in a home-structured program did well academically, although

other researchers indicated that teaching children in the home using similar formats report contradictory findings (19). It was found that natural behavioral programming was more effective in increasing symbolic and social skills in children with autism (15, 18). The use of positive parent behavioral support to deal with specific behavioral issues in autism has also been shown to be effective; several studies supported programs which were based on the principles of including parents to provide a more naturalistic setting for the children to gain required social and other skills (15, 18).

Makrygianni et al. (2018) found that, *"ABA programs are moderate to highly effective, bringing significant benefits for children with ASD"* (23); also, it is highly effective in enhancing the intellectual abilities of the ASD children (23). The combination of ABA and stress management in the online education program including video training sessions provides a positive outcome for the ASD child and their family members (17, 18). Parents who had an ASD child are likely to develop stress which may be due to the expression of problem behavior by their children (7). The literature indicates that the implementation of intervention programs by parents, such as *ABA*, could lower the challenging behavior among their children (19).

Some literature recommended the addition of other approaches, including cognitive-affective strategies such as *"Acceptance and Commitment Training and Optimism Training"* (24), could benefit parents to further lower their stress rates and support parents to adjust with the new status and seek help for getting involved in such intervention programs (23, 24). Telehealth models were reported to be useful for health education and counseling (1998) (25). For parents who were not able to attend the autism education class, Telehealth Model was reported to be very applicable and effective (26). ABA principles and techniques could be adapted through Telehealth Model (19). In addition to using a video-assisted training program that targeted parents, it was proved an effective strategy (17).

The HMTM Overall was indicated as an effective comprehensive treatment pattern for ASD among children. Recent research indicated the necessity of HMTM method on the improvement process of perception and language production in children with autism (14). Furthermore, Hojjati (2014) highlighted the HMTM's effectiveness in treating autistic children, regardless of age and sex, and regardless of how long the treatment lasts, recovery will be more effective over time (22). In general, HMTM can be said to have acquired traditional medicine and comprehensive philosophy, which can be effective in improving language performance in autistic children (14).

Several studies showed that the access to teaching programs is impacted by factors such as socio-demographic and logistical factors, a matter that could limit the engagement of such early intervention programs (27-29). It is worth mentioning that the earlier the engagement of intervention programs, the better the results, as the plasticity that usually occurs through early development is an advantage (30). Furthermore, early intervention participation may give predictions on acquiring daily living skills that are essential for independent living (12).

Throughout literature, several early intervention programs for autistic children were described in which teaching was based on the most effective strategy (13), mainly if parents were involved in these programs (31). It has been realized through various reviews that the involvement of family is an essential element for effective treatment of children with ASD (13, 32). In this context, several behaviors were improved through the involvement of

parent training; the common interest of children, adaptive behavior, joint participation, compliance, intellectual development, and dynamic communication (12, 33-37).

Dai et al. (2018) recent literature shed light on the consideration that behavioral intervention programs that target and engage parents are a more effective strategy in lowering ASD, however, the problem was that they had limited access to intervention. In this context, Dai et al., concluded that *"Remote PT* [parent training] *may be useful in low-resource settings to help parents develop techniques for teaching skills and forestalling problem behavior in children with ASD"* (17). Furthermore, reports of mothers of children with ASD generally have significantly higher levels of stress and depression than mothers of children without ASD and have a significant impact on mothers and their personal lives (38). More studies are required in the field to investigate stress among parents of Autistic children and find out more intervention strategies to support parents and manage their stress and reduce the negative impacts on their children (38). Furthermore, research should take into consideration the routine interaction and communication among families with children diagnosed with ASD to promote their health (38).

3- RECOMMENDATIONS

As ASD could negatively impact on child's cognitive development status and impaired communications and interactions; therefore, the intervention programs have been recommended by the literature at early stages for more effectiveness in delivering feasible treatments. Most of the literature that indicated the involvement of parents in intervention programs was shown to be more effective, as it supports in control stress among parents. Recent intervention programs have focused on the engagement of parents in education and training programs, via direct sessions or online courses (17, 18). Telehealth Model was found to be applicable for education and counseling the parents of a child with ASD. It has been realized through various reviews that multiple intervention strategies could improve social interaction and communication of ASD children (18, 19, 26); however, it is important to work to promote the health of both the child and the mother; health care providers should be aware of the interrelated feelings of mothers, such as the feeling of guilt or low self-performance (22). The negative interrelated feelings of parents of a child suffering from ASD may affect family interaction and routine communication. The combination of *ABA* and stress management in an online education program provides a positive outcome for the ASD child and their family members. As well, adapting the HMTM proved useful for enhancing language performance in children with ASD. Intervention programs should be implemented at early stages to avoid the passive impact of ASD on the child and the family.

4- CONCLUSION

ASD is a developmental disease that impacts communication and social interactions. The intervention programs at early stages deliver effective treatments and improve social communication for children with ASD. The involvement of parents in intervention programs was shown to be beneficial for parents to reduce their stress, and for their children. Recent intervention programs have focused on the engagement of parents in video sessions.

5- CONFLICT OF INTEREST: None.

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