Brief Article

Review of literature on cognitive-behavioral therapy, behavioral parent training for aggressive behavior, and peer problem of children with conduct disorder

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Abstract

Introduction: This study provides an overview of interventions, including cognitive-behavioral therapy, behavioral parent training for aggressive behavior, and peer problems of children with conduct disorder (CD) worldwide. Conduct disorder is one of the main externalizing disorders listed in DSM-5 among children and adolescents. Children with this disorder violate basic rights of others and other societal norms. The main symptom of conduct disorder is aggression. Aggressive behavior often results in being rejected by their peers (especially those with prosocial behaviors) and losing the opportunity for developing social skills.

Methods: This study reviews the related studies on treatment of children with CD through the aforementioned methods conducted over the world. Most of the studies mainly focused on only children with conduct problems and only in a few of them parents of the children were involved as sources of data collection.

Results: This review demonstrated that researchers worldwide investigate aggressive behavior of children with conduct problems vastly. It is also evident that more studies need to be conducted in both developed and developing countries to solve peer problems of children with CD.

Conclusion: It is recommended that in developing countries studies based on making choices program need to be expanded.

Declaration of interest: None.

Key words: Behavior therapy, Cognitive, Education, Parenting, Conduct disorder.

Introduction

Children with conduct disorder (CD) typically show aggression, impulsive and deceitful behavior in early age. It is estimated that CD affects 6% to 16% for boys and 2% to 9% girls in school-aged children (1). Research shows the number of children with CD has been increasing (2). Scott (3) reported that the prevalence of CD is 5% worldwide. More than a decade ago the prevalence of this disorder had been reported 6.9% in Iran (4). Based on a the results of a recent study by Azadyekta (5) on 2016 primary school students in Iran, the prevalence of CD has increased to 10.5%.

According to the Diagnostic and Statistical Manual of Mental Disorder (6), there are three types of CD, including childhood-onset, adolescent-onset and unspecified-onset type. Childhood onset type is diagnosed when the child with CD, less than 10 years old, demonstrates one of the behaviors based on DSM-5 criteria. Aggressive behavior is the most important problem of these children beside poor peer relationship (7). There is no criterion for the conduct disorder when children are under 10 years old in the adolescent-onset type of this disorder. Conduct disorder has comorbidity with other disorders such as attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder(ODD), anxiety, and depression (6).

The main problem of children with CD starts with aggression. Aggressive behavior of children with

CD leads to changes in their interpersonal relationship. They become attracted to deviant peers, and antisocial behavior prevails among them (8). Thus, these children are less prone to develop social skills, and they are at high risk of violent behavior development, school dropout, and noncompliance in early childhood (9). It is reported that 50% of children with CD suffer from aggression that may affect their social development in childhood and adulthood (10).

Poor social skills, using force in relationship of children with CD, and externalizing pattern, especially their aggressive behavior creates a higher risk of rejection for them (11). Lack of opportunities for friendship with prosocial peers is due to the rejection of these children in reaction against children with CD. It increases the risk of friendship with deviant peers (12). Thus, children with CD learn deviant behavior.

Pharmacotherapy, cognitive-behavioral therapy (CBT), and behavioral parent training are three types of interventions introduced for children with CD (13). Pharmacotherapy is not suggested as the only intervention for conduct disorder. Children with CD that have comorbidity with ADHD or anxiety need the diagnosis of psychiatrist or psychologist for this treatment along with other interventions carefully (14). Cognitive-behavioral therapy (CBT) emerges as an effective intervention for modifying aggressive behavior. It helps to change the beliefs of children with CD in order to respond in a less hostile manner in a social situation (15). Social cognition and interpersonal problem-solving skills are two categories emphasized by CBT for solving aggression and consequently peer rejection among children with CD (15).

Lack of information among parents of children with CD can affect the parent-child relationship. Children with CD grow in low-income and large families that usually use corporal punishment. These families usually have problems such as depression and substance abuse among mothers along with a greater incident of personality disorder among fathers (16). With both verbal and physical coercion styles of families, children learn to overcome social problems by force and are in turn rejected because of their aggressive relationship. It often results in these children's poor school adjustment (17, 2). Because of the significant role of parents in treating children, it is suggested that parents' learning to change their coercive style can effect these children's behavior and parent-child relationship (18).

Due to the importance of treatment for children with CD, this study aims to review the studies that used interventions including cognitive-behavioral therapy, behavioral parent training, and a combination of both in developed and developing countries. The studies in developed and developing countries are compared in the discussion section of this study. Suggestions made in the conclusion section are expected to improve the quality of future studies in Iran in terms of treatments for aggression and peer difficulties of children with conduct disorder.

Methods

As this study reviews the interventions for children with CD, library archive is the method that is referred to as integrative reviews with special focus on studies conducted in Iran in order to compare the differences between the studies. This study aimed to summarize numerous results of library archives in cognitive-behavioral therapy and behavioral parent training for children with conduct disorder. Cognitive-behavioral therapy programs include problem-solving skills training (PSST), social skills training, cognitive problem-solving skills, making choices program, and incredible years training. Behavioral parent training programs include helping the noncompliance child, incredible years parent training, triple p positive parent training, and Barkley parent training. The selected studies were selected based on the following criteria:

Studies focused on CD particularly with aggressive behavior and peer problems both quantitative and qualitative studies. Studies used treatments based on cognitive-behavioral therapy, behavioral parent training and combination of both studies. Studies conducted from 1992 to 2015 year.

The key words used for selecting the studies rather than the year of the study was "conduct disorder" and "conduct problems".

The selected studies are separated for the exclusion criteria studies, which used treatment based on other programs such as family interventions or cognitive interventions.

Studies used the methods except qualitative and or quantitative. Studies conducted the year not in the range of inclusion criteria. Studies are not

correlated with the main key word of "conduct disorder" or "conduct problems".

Results

Review of Studies

According to DSM-5 (6) there are four kinds of symptoms of CD, which include aggression to people and animals, destruction of property, deceitfulness or theft, and serious violation of rules. The obvious sign of CD, especially in childhood onset type is aggression that may be shown by children through some aberrant behaviors such as physical fights, using a bat or broken bottle for serious harm to others, lying, and being cruel to people or animals. In this section first the programs based on cognitive-behavioral therapy (CBT) are reviewed. Next, the parent training programs are evaluated followed by combination of cognitive-behavioral therapy and behavioral parent training.

Cognitive Behavioral Therapy: CBT programs usually last 25 to 30 sessions with the goal of changing behavior and cognitions (19). This intervention emphasizes on the process of underlying aggressive rather than overt behavior (20). The lessons in this kind of programs affect children's belief and result in fewer hostile responses. The results of study by Bennett and Gibbons (21) showed older children and adolescents reported more changing of disruptive behavior in comparison with younger children. According to their results, the effect of CBT remained after one year follow-up. The following programs are examples of treatments based on CBT that target children with CD.

Problem-Solving Skills Training (PSST): Problem-solving skills training (PSST) affects the antisocial behavior by providing positive relationship, managing cognitive deficiencies, improving interpersonal skills and problem-solving skills, as well as anger control (22). The effect of this program has been tested in both short and long periods. Through the process of this program, first, the child is asked to find the problem and possible solutions. In the next step, the child is helped in choosing the appropriate solution, conducting and evaluating the results (23). One study conducted by Kazdin, Siegel, and Bass (24) was based on PSST for the aggressive behavior of children. The results showed aggressive behavior, and delinquency reduced among children. Kazdin et al. (24) examined the effects of PSST among elementary school-aged children. After the intervention, their disruptive behavior decreased, and their prosocial behavior increased. Follow-up tests showed that the long-term effects of the treatment maintained after two-year follow -up (25).

Social Skills Training: Social skills intervention emphasizes the lack of skills that creates struggles among peers, results in aggressive behavior and other negative behaviors (26). This program that is a type of behavioral training includes procedures such as modeling, behavioral rehearsal, and feedback. The result of a study conducted social skills training among primary school children with and without CBT package. The outcomes provided evidence for the effectiveness of CBT techniques (27). Social skills training based on CBT techniques such as cognitive therapy, rational emotive behavioral therapy, and multimodal therapy decreased the aggressive and disruptive behavior of the children. The effect of play therapy on the basis of cognitive-behavioral group therapy was examined in Iran for 7 to 11 year-old boys with conduct disorder and aggressive behavior (28). Conducting techniques of CBT during 10 sessions resulted in a decrease of severity in CD, aggression and antisocial behavior. An experimental study examined the effects of social skills training on 10 and 11 year-old primary school girls (n=22) with conduct disorder using storytelling technique (29). Children demonstrated behavioral problem and low level of using social skills. The findings showed decreasing symptoms of aggression, hostile behavior, and improvement of social skills especially peer acceptance (29). The results of another study (30) revealed that by conducting cognitive behavioral play therapy, aggressive behavior of boys with CD between 8 and 11 years of age decreased effectively.

Cognitive Problem-Solving Skills Training: One of the main kinds of cognitive-behavioral approach is cognitive problem-solving training (CPST). This program targets deficits in social cognition and problem solving in children with CD. Previous research indicated that deficits in cognitive process and processing social information are obvious among children with CD, especially with aggression (13). They have a problem in developing social goals and display errors in accurately perceiving social cues. The

process of solving interpersonal problems includes 1- recognizing problem situations, 2- using self-statements for reducing impulsive behaviors, 3- generating multiple solutions to problems, 4- evaluating possible consequences to actions, and 5- taking the perspective of others (31).

According to a study by Kazden et al., (24) aggressive behavior and disruptive behavior decreased after conducting cognitive problem solving among children with CD. Another study by Kazden et al., (32) conducted for assessing the effect of parental problem-solving training (PPST) on parental stress, effect of parent management training (PMT) and child-focused PSST on children with aggressive, antisocial behavior, and interpersonal problems. The participants of this study were 127 randomly selected families, who received 16 sessions of PMT, 25 sessions of PSST, and 5 more sessions of PSST. Although improvement was observed in both groups of this study, the group that received PPST showed more significant changes in fewer children with antisocial behavior and interpersonal problems. In addition to these changes, parental depression and stress indicated greater reduction. Kazdin and Wassell (33) reported a decrease in child's antisocial behaviors and parents' stress, and improvement in family functioning as a result of cognitive problem - solving skills for children and PMT for parents.

Making Choices Program: Making choices program is a kind cognitive-behavioral therapy based on social problem-solving skills that affects and decreases aggressive behavior and peer rejection. This program considers cognitive, emotional, and behavioral modification. It improves children's deficits of social information processing and helps children to think of social situation, make social goals and alternative responses, as well as respond positively to new social situations during 31 sessions based on the child's age. The main target of making choices program is to reduce aggressive behavior through educating social cognitive skills (34; 35).

As in this program, children with the prosocial behavior mix with children with antisocial behavior in social situations, they will be educated to recognize between anti- and prosocial behavior and anticipate the results of their behavior (35). Sometimes making choices program is held with some general family education, which is called strong families (SF). The whole program is called making choices plus (MCP). Strong families educate effective parent-child communication and family problem-solving skills for decreasing coercive parenting style (36). A study by Smokowski, Fraser, Day, Galinsky, and Bacallao (37) conducted making choices program among 8-year-old children (n=101). The findings of the study showed decrease in overt aggression and improvement of peer acceptance and social contact in the children.

Fraser and his colleagues conducted several studies from 1994 to 2011. A quasi-experimental study conducted by Conner and Fraser (38) on 67 pre-school-aged children and their families adapted the making choices program and strong families. This study examined the effects of the above programs on problematic behaviors of children and parents' behaviors. The children included African American, Latino, or Hmong with high levels of violence. Conducting making choices program on children showed improvement in terms of peer acceptance, decrease aggression, and behaviors at school in comparison with the control group with the effect size of (0.499). Parents of the experimental group who received the strong families program demonstrated an effective relationship with their children and developmental anticipations.

Another study by Fraser et al. (39) examined the effect of making choices program and MC plus (MCP) among 548 3rd grade students in two schools. These students were divided into three groups. The routine curriculum was taught to the first, MC to the second and MCP to the third group. Students showed changes in encoding, interpreting cues without hostile attribution bias, formulating prosocial goals, creating and choosing behavioral decision. The results of research showed significant differences in post-test for overt aggression (δMC= -.17; δMCP=-.17), social aggression (δMC= -.32; δMCP=-.48), social competence (δMC= .46; δMCP=-.56), cognitive concentration (δMC= .27; δMCP=.43), and social engagement (δMC= .67; δMCP=.48).

Another study by Fraser et al. (34) examined effects of MC and MCP on preventing aggressive behavior. This study was conducted on public elementary school third graders that were divided into three groups from two schools. During 3 years, the intervention included routine health curriculum in the year 1 for the first group,

making choices program during the second year for the second group, and MCP in the third year for the third group. The results of the study demonstrated decrease in aggression and improvements in positive behavior after six months follow-up.

The Incredible Years Training: The Child Training Program: This program was designed for children with the conduct problems by Carolyn Webster-Stratton in 1982. Incredible years training has specific training for children, parents, and teachers with videotaped vignettes. (18). The training for the children training program contains 18 to 22 weekly sessions for 2 to 7-year-old children diagnosed with oppositional defiant disorder or early-onset conduct problem (40, 41). One of the advantages of this program is the effect of changes in follow-up assessment that remains long lasting. The result of study by Webster-Stratton and Reid (42) showed fewer conduct problems after intervention.

Behavioral Parent Training: Behavioral parent training is based on social learning principles such as behavior modification, reward system, and discipline to parent (13). It is suggested that these principles help to modify a child's behavior through parents' training in relation to change in their parenting styles. 'coercive cycle' hypothesis by Patterson emphasizes on parents' behavior and how it promotes child's oppositional behavior (43).

Parents usually take the steps of coercive cycle in order to control their children's aggressive behavior. While parents try to control a child's aggressive or disruptive behavior, they use negative reinforcement with some aggressive behavior, and it results in yelling or nagging until the behavior has stopped. So it effects on children conduct problems. Another study by Campbell et al., (44) focused on the important role of combinations of inherited vulnerability plus negative parenting that cause the persistence of conduct disorder. Parents of children with CD revealed lower rates of pre-emptive actions, and they are also less likely to be able to anticipate their children's needs in a problem-solving setting. It can predict persistence of the behavior problems (45).

Parent Management Training (PMT): is a kind of behavioral parent training focused on the efficient progress in parenting skills and managing child behavior. PMT originates from Patterson's coercive cycle and the importance of discipline activities. PMT can be used in both individual and group settings and it is more common for children with the conduct problems (46).

The basic principle of this training program is that child's deviant behavior will be changed by effective behavior management strategies. For instance, by modifying parents' skills and inconsistent their discipline style (47). When parents control their behavior and expand parental skills, they can manage coercion in a child's behavior, and the result is to learn appropriate behavior in communication with parents, teachers and peers. Thus, improvement in children's behavior is related to changes in parental skills (12). A study by Salehi (48) examined the effects of parent training on the basis of the Adlerian approach for coping skills of mothers of children with CD. This study was a quasi-experimental with pre-test, post-test, and control group design. The sample of this study was mothers of boys with conduct disorder who referred to the behavioral disorder section of public hospital in Tehran, Iran. The results demonstrated significant difference in mean score of pre-test and post-test for coping methods of mothers. In addition, the severity of conduct disorder of children reduced in this study. This study found that parenting style of Iranians has specific discipline that effects on children's behavior and can lead to adverse relationship between child and parents.

The following treatments are examples of PMT of children with conduct problems.

Helping the Noncompliant Child: The original version of helping the non-compliant child was developed by Hanf (49). Forehand and McMahon created this program on the basis of PMT. This program was designed for preschool and early school-aged children of 3 to 8 years with noncompliant behavior. Based on the child's response to treatment and competence, this program lasts between 8 to 10 sessions with two phases. The techniques in this PMT program include interruption of coercive methods of communication between parent and child, forming prosocial patterns, and improving parenting skills. 'Differential attention phase' is the first phase of this program. In this phase, parents will be trained for using positive physical and verbal attention based on children's behavior. 'Active ignoring' is the other phase that is used in case of minor inappropriate behavior. Parents learn to use clear

training for providing proper results of child compliance and non-compliance (50).

This program has handouts with homework practice and data sheets for parents to record results. Eyberg, Nelson, and Boggs (51) introduced some skills such as role-playing, time out, and instructions to praise the compliant child. McMahon and Forehand (50) mentioned about maintenance of child and parents' perception during a 14-year follow-up evaluation as an advantage of this program in their study. They reported conducting this PMT program resulted in decreasing inappropriate behavior such as aggression, disruptive behavior, and improving child compliance.

Incredible Years Parent Training Series: Reducing conduct problem and improvement in social cognition are the main purpose of parent training of incredible years by using videotape modeling methods within 12-14 weekly, two-hour sessions (52). The BASIC program is appropriate for parents of children between 0 and 13 years old with four age range groups, including: infant (0-1 years), toddler (1-3 years), preschool (3-6 years), and school age (6-13 years). Each age group has its own specific program. The BASIC program trains parents to improve their parent-child relationships through some lessons such as self-management, problem-solving, child-directed interactive play, limit setting, and parent group support (53).

Level of risk to the child population is the basis for dividing the levels of this program. Level 1 that is a universal program offered for all parents of young children includes infants and toddlers (54). Level 2 emphasizes on improving the parents' ability and skills for providing a flexible environment at home. It is also a universal level for both parents and teachers. Level 3 of the program is proposed for high-risk or "selective" population. It includes parents of aggressive children without a diagnosis of ODD or CD. The focus of Level 4 is on families or children with problems' symptom. The other program is ADVANCED program for risk factors of families. It has been designed to create changes in both personal and interpersonal dimensions such as poor problem-solving skills, marital conflict, anger, depression management and changing coercive parent-child interactions. A period of 18-22 weeks is required for completion of BASIC and ADVANCED programs (55). One of the advantages of conducting this program is that it is cost-effective in terms of providing parent-training materials, supplements. Additionally, the methods used in this program for parent training are sustainable. Based on the child's age, two versions of the BASIC parent training program are developed for children aged 2-7 and 4-10 (18). A study of the ADVANCED program of incredible years parent training for 78 families and their children diagnosed with oppositional defiant disorder and conduct disorder improved parents' problem-solving skills, self-control, and communication skills, as well as their children's understanding of prosocial solutions (56). Another study (57) reported better control for the children's behavior by using behavior management techniques, better relationship with peers, and more self-confidence. The other program based on parent training conducted to evaluate the effectiveness of parent training with parents of pre-children considered to be at risk of developing conduct disorder. 153 of parents of children participated in 12 weeks of group-based program in this study with follow-up. The results showed improvement of problem behavior among children (58).

Triple P-Positive Parenting Program: Matthew Sanders and his colleagues at the University of Queensland in Brisbane, Australia developed the Triple P-Positive Parenting Program. This program that is appropriate for children below 12 years aims to improve the parents' skills for managing child problems. The goal of Triple P is to increase parent skills and beliefs for managing child's behavior problem and developing prosocial behavior (59). Triple P is based on different levels of severity of dysfunction with five levels of intervention. According to Sanders (59), this parenting program is conducted both individually and in group setting for poor socioeconomic parents, resulting in reduced stress and depression among families, as well as increased marital satisfaction (60).

It is possible that some families do not face changes during lower level of intervention and have some kinds of family distress such as marital conflict, parental depression, or high level of stress. They can benefit from participating in Level 5 of Triple P, in which the child experiences severe behavioral problems. Parents

learn how to support each other with the help of coping skills for improving their relationship and parent-child communication (59).

The study by (61) showed Standard-Level 4, Enhanced-Level 5 and Self-Directed-Level 4 decreased disruptive behavior at post-test and more improvement in the third year of follow-up. Another study applied Triple P by using television-viewing condition for parents and disruptive behavior of children. The results demonstrated a decrease in dysfunctional parenting and disruptive behavior of children as well as an improvement in the parents' self-confidence (62). Ten sessions of group therapy in parent-child relationship training displayed that aggressive behavior decreased among pre-school children. In each session parents played with their children to learn skills and information for the effective communication and changing of behavior with children (63).

Barkley's Parent Training Program: This parent training was developed by Barkley (64). Parents of children between 2 and 12 years of age with noncompliant, defiant, oppositional, or socially aggressive behavior can receive this program (65). Barkley (64) indicated that this program is appropriate for parents of children with externalizing disorders, defiant or aggressive children, or children diagnosed with ADHD, ODD, or CD. The purpose of this program is to increase parental awareness of defiant behavior in the child and to improve parental management skills in dealing with child behavior difficulties, particularly noncompliant or defiant behavior. Understanding social learning principles of children's behavior, increasing family harmony, and raising child compliance have been reported as the results of conducting this parent training (64).

Some characteristics of parents such as cognitive problems or marital status as a family background and parent-child communication based on a study by Patterson et al., (66) play the main role in demonstrating defiant behavior among children. One of the main strengths of this program compared with other PMT programs is its effective training and follow-up for non-compliant and defiant behavior of children (64). In addition, despite other PMT programs in terms of costly material and supplements, this parent-training program is not costly for the parents. This parent training program showed 55 to 70% success rate for children under 12 years (65). Kazdin et al. (24) reported about significant results from this program for changing the behavior of children with conduct problems in terms of interpersonal and peer relationship. Ogden and Hagen (67) examined the effects of behavioral parent training among children with CD between 4 and 12 years in Norway (M= 8.44, SD= 2.13). The results of this study showed children aged 8-12 improved more in their compliance behavior. In addition, social relationship of children showed better improvement in the experimental group.

A group of pre-school aggressive children (n = 158) received Barkley parent training in the classroom as a multi-pschoeducational intervention for aggression and disruptive behavior in four groups (68). Aggressive behavior and disruptive behavior decreased as a result of this study. However, the findings of this study suggested conducting parent training in another area rather than a school leads to more effective results.

Combination of Cognitive-Behavioral Therapy and Behavioral Parent Training

Some scholars conducted studies in which the treatment was a combination of both cognitive-behavioral therapy and behavioral parent training. For instance, in Isfahan, Iran, Lali et al. (69) studied 40 male 10 and 11-year old pupils with CD who received problem-solving skills training and whose parents received parent management training. The findings demonstrated that the combination of both programs significantly reduced the CD symptoms in the children. However, the results showed that problem-solving skills training alone had no effects on the children. Salehi, Ghanbari, Shaban and Pooravari (70) conducted a study for peer rejection of children with CD and found decreased peer rejection with the combination programs. Furthermore, Salehi (71) compared the effectiveness of CBT and behavioral parent training for aggressive behavior and peer rejection of children with CD and showed the combination of both programs are more effective than other programs. Another study (72) examined some programs based on CBT and behavioral parent training and identified the effectiveness of these two programs for children with CD.

As mentioned above, the method is library archive that is referred to as integrative reviews (73) in order to compare the differences between the studies. The studies based on cognitive-behavioral therapy are summarized in table 1.

Table 1. Summary of Studies on Cognitive-Behavioral Therapy

Authors	Study	Population	Sample Size	Results
Kazdin (2010)	Effects of Problem-Solving Skills Training	Elementary school-aged children	Not given	Less disruptive behavior, Improvement in prosocial behavior, prolonged effect of the intervention after a two-year follow-up
Tuisarkani-Ravari (2008)	The effects of social skills training based on storytelling	Girls of primary school children aged 10 and 11 with conduct disorder, behavioral problem, and low level of social skills	22	Reduced symptoms of aggression, hostile behavior, improvement of social skills especially peer acceptance
Ghaderi, Asghari-Moghadam, & Shaeiri (2006)	Effects of group therapy based on cognitive behavioral play therapy	8 to 11-year-old boys with CD	24	Reduced aggressive behavior in children
Smokowski, Fraser, Day, Galinsky, & Bacallao (2004)	Effects of making choices program	8-year-old children	101	Decreased overt aggression, improved peer acceptance and social contact
Maughan, Rowe, Messer, Goodman, & Meltzer (2004)	Effects of social skills training	Primary school children	10438	Reduced aggressive and disruptive behavior
Webster-Stratton, Reid, & Hammond (2004)	Effects of incredible years training (child training program)	Children between 4 and 8 years old with early-onset conduct problems	159	Fewer conduct problems
Baedi (2001)	Group therapy Effect of play therapy on the basis of cognitive-behavioral	Iranian 7 to 11 year-old children with aggressive behavior between	Not given	Decreased CD severity, aggression and antisocial behavior

As can be seen from the table, the above studies ranged from 4 to 11 years old of children. In addition, these studies conducted around past 15 years that shows the importance of the conduct problems.

Table 2 shows the summary of studies based on behavioral parent training program.

Table 2. Summary of Studies on Behavioral Parent Training

Authors	Study	Population	Sample Size	Results
Rajabpour, Makvand-Hoseini, & Rafinia (2011)	Effects of group therapy in parent-child relationship on aggression in pre-school children	Pre-school Iranian children with aggressive behavior	45	Decreasing aggressive behavior in children
Ogden and Hagen (2008)	Effects of behavioral parent training	Children aged 4-12 with CD in Norway	112	More improvement in compliance behavior and social relationship for children between 8 and 12 years
Sanders, Bor, & Morawska (2007)	Effects of standard-level 4, enhanced-level 5 and self-directed-level 4 of Triple P-Positive parenting program	Children below 12 years old with disruptive behavior at 3 year follow-up	139	Decreasing disruptive behavior of children in the third year of follow-up
Hutching, Grander, Bywater, Dalet, Whitaker, Jones, Eames, Edwatds (2007)	Effects of Webster-Stratton incredible years basic parenting programme	Children aged 3-5 at risk of CD	153	Improvement of problem behavior among children
Salehi (2005)	The effects of parent training on the basis of the Adlerian approach for coping skills of mothers of children with CD	Mothers of Iranian boys with conduct disorder	30	Improvement of coping methods of mothers, decrease of the severity of conduct disorder

				among children
Patterson, Mockford, & Stewart-Brown (2005)	Effects of the Webster-Stratton 'parents and children series' program (qualitative study)	Children with below average behavior	Not given	More confidence of children, better relationship with peers, using new behavior management techniques by children
Kazdin & Whitley (2003)	The effect of parental problem-solving training (PPST), on parental stress, effect of parent management training (PMT) and child-focused PSST	Children aged 6-14 with aggressive and antisocial behavior	127	Fewer severe child antisocial behavior and interpersonal problems among children whose their parents received PPST
Sanders, Montgomery, & Brechman-Toussaint (2000)	Effects of Triple P-Positive parenting program	Children aged 2-8 years old with disruptive behavior	56	Decreasing dysfunctional parenting, disruptive behavior of children and improving self-confidence among parents
Barkley et al., (2000)	Effects of Barkley behavioral parent training	Aggressive children in pre-school old	158	Decreasing aggressive behavior and disruptive behavior of children
Webster-Stratton (1994)	Effects of ADVANCED program of incredible years parent training	Children diagnosed with oppositional defiant disorder and conduct disorder	78	Improvement of problem-solving skills, self-control, and communication of parents, and progress in children's understanding of prosocial solutions

According to table 2 some studies focused on parent training to reduce conduct problems among children. Same as programs focused on children. These program conducted around more than 15 years ago. These studies showed the effectiveness of parent training for conduct problems.

Table 3 summarizes the studies in which the treatment was a combination of the two aforementioned intervention programs.

Table 3. Summary of studies based on cognitive-behavioral therapy and behavioral parent training

Authors	Study	Population	Sample Size	Results
Conner & Fraser (2011)	Combination of making choices program and strong families	Preschool children levels of violence	67	Improvement in peer acceptance, and decrease in aggression
Fraser, Lee, Kupper, & Day, (2011)	Effects of Making Choices program and Making choices plus	Public elementary school children in 3rd grade	443	Decrease of aggression and improvement in positive behavior for children after six months follow-up
Lali, Malekpour, Molavi, Abedi, & Asgari (2012)	Effects of problem-solving skills training and parent management training	pupils aged 10 and 11 with CD	40	Decreasing symptoms of children with CD
Fraser, Galinsky, Smokowski, Day, Terzian, Rose, & Guo (2005)	Effects of making choices program and making choices plus	Students in two schools at 3rd grade	548	Changes in encoding, interpreting cues without hostile attribution bias, formulating prosocial goals, creating and choosing behavioral decision in children, decrease in aggression
Kazdin & Wassell (1999)	Effects of cognitive problem-solving for	Children with oppositional,	200	Decrease of oppositional, aggressive and antisocial

	children and PMT on parents	aggressive, and antisocial behavior		behavior of children and parental stress
Salehi, Ghanbari, Shaban, & Pooravari (2014)	Cognitive behavioral therapy and behavioral parent training	Peer rejection of children with conduct disorder	136	Decreased symptoms of peer rejection
Salehi (2012)	Cognitive behavioral therapy and behavioral parent training	aggression and peer Rejection of children with conduct disorder	136	Reduced aggression and peer rejection of children
Eyberg, Nelson, & Boggs (2008)	Cognitive behavioral therapy and behavioral parent training	Children with conduct disorder	Not given	Reduced disruptive behavior of children

According to Table 3, children with aggressive behavior or peer difficulties who received diagnosis of conduct disorder and joined to cognitive-behavioral therapy and their parents participated in behavioral parent training, showed better results in follow-up (26).

Conclusion

This paper reviewed the studies that used interventions for children with CD particularly with aggressive behavior and peer problems. As mentioned above, there are some interventions specifically for children based on cognitive behavioral therapy while there are other intervention programs for these children's parents (e.g., behavioral parent training). Overall, the review showed the effectiveness of treatments for aggressive behavior, disruptive behavior, and peer difficulties. In addition, in some studies both children and parents received interventions. As the results of these studies showed, a combination of intervention programs provided for both children and parents produce more effective outcomes. In some studies reviewed above, the effects of treatment remained after the time of follow-up for both aggressive behavior and peer problems of the children with conduct disorder (35). Based on the effectiveness of combination of both programs, it is recommended to use effect size of the studied for better conclusion of effective interventions. It is demonstrated that most of the studies focused on aggressive behavior of children with conduct disorder in comparison with peer problems among them.

The other finding of this study revealed that Barkley behavioral parent training is used less than other behavioral parent training for parents of children with CD around the world. As far as the investigation of the scholar's shows, except making choices program on the basis of cognitive behavioral therapy, there is no evidence of study on peer difficulties in primary school in children with CD. It is hoped that making choices program will be continued to be developed and tested in controlled research trials. Although, it is clear that making choices program offers effective enhancements as a specific cognitive behavior therapy program. The intervention of making choices program as a social problem-solving skills training targets both aggressive behavior and specifically peer problems.

Regarding parent training, it is obvious that parents of children with CD need more awareness for managing children's behavior and also solving conflicts between family members. Furthermore, effective treatment for children requires information of family problems with lower cost and clear techniques for child's compliance. The other suggestion of this study is expanding combination of effective programs such as cognitive behavioral therapy and behavioral parent training. It can improve the body of knowledge for children with CD around the world to manage and control CD difficulties. Moreover, it is suggested to use follow-up to see the changes among children with CD during the time for making sure about the results of interventions. In addition, counselors or other clinicians should be aware of the criteria for age-group of children, specific problems of children, and family characteristics to help them for decreasing, controlling, and managing child's behavior.

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