REVIEW ARTICLE

The effectiveness of Educational Program on Parenting Stress and Coping Mechanism among Parents of Children with Autism Spectrum Disorder: A Systematic Review

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ABSTRACT

The aim of this systematic review was to evaluate the effectiveness of an educational program on parenting stress and coping mechanism among parents of children with Autism Spectrum Disorder. Our current review retrieved the articles from CINAHL, Springer, Ovid, PubMed, Google Scholar, and EBSCO host. Only articles published between the years of 2000 and 2018 in these databases were recruited using keywords such as Autism Spectrum Disorder, education program, parenting stress, coping mechanism, and coping strategies. The search generated 17 articles; 8 articles were relevant. This systematic review provides an important opportunity to advance our understanding of the effectiveness of the educational program for reducing parent stress and improving coping mechanism among parents of children with Autism Spectrum Disorder. The nurses have a pivotal role in delivering the educational program for parents of children with ASD.

Keywords: Autism Spectrum Disorder, Education program, Parenting stress, Coping mechanism, Coping strategies

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INTRODUCTION

Health and well-being of children are inextricably linked to the physical, emotional and psychological of their parents (1). As stated by Keen and colleagues (2) “preserving parents’ good health and well-being is a precondition for the optimal care of their children with autism”. Autism Spectrum Disorder (ASD) is one of the neurological developmental disorders characterized by moderate to severe impairments in social interactions, language, and cognitive development, as well as repetitive behaviors, restricted interests, and emotional distress (3). There is no doubt that the core feature of the ASD, especially behavioral problems, and socio-communication skill deficits lead to much significant stress in the families of these children (4-5).

Parents are usually the first to recognize the developmental differences in their children with ASD. Consequently, parents who have a child with ASD is often more upsetting and stressful, as well as parents who face unique stressors and demands over the time (6-7). Furthermore, parenting stress is a complex construct involving behavioral, cognitive and affective components that are manifested into a tense of their relationship with a child (6, 8). A considerable amount of literature has been published on comparing parenting stress of children with ASD and other developmental disabilities. These studies revealed that parents of children with ASD reported a higher level of stress as compared with parents of children with typical development (9-12) or parents of children with Down syndrome (13-14) or parents of children with intellectual disability, and development delay (15-19).

Without proper support, parents of children with ASD may experience significant high level of distress. Moreover, previous studies have reported variations in how parents adapt to these stressors and demands (20-21). Therefore, parents who experience high levels of stress require strategies to manage their own level of stress and improving coping skills. One way to support parents of children with ASD is through educational intervention programs (20, 21). Consequently, parents should receive a comprehensive program within a
fragmented treatment system with clear and specialist information about which skills are the most effective (20). According to Farmer and Reupert (23), the educational program is a multi-stranded intervention designed to provide parents with information about ASD and social, communication, thinking and behavioral difficulties of ASD children. Parents can learn skills and strategies in the areas of managing children behavior and communication skills with this kind of program. In support of Farmer and Reupert (23), the present study reviewed educational programs aimed at increasing parenting ability by learning effective ways to cope and manage children communication and social development in children with ASD through a series of educational, training support sessions (22).

In fact, educational intervention programs for parents of children with ASD have become an effective way for education and training parents in successful behavioral strategies to manage child behaviors and to assist the parents to improve child development (20). Multi-intervention strategies are often used. These strategies include lectures on specific topics such as understanding ASD definition, characteristics, causes, and diagnosis; learning communication and social difficulties in children with ASD; applying principles of managing behaviors, available services, and strategies to promote communication social skills, managing parenting stress, and relaxation technique (2). Following these strategies, a host of educational programs have been developed for parents of children with ASD to provide knowledge and skills needed to improve parental well-being, reduce parental distress, and improve coping mechanism (2). In particular, the effectiveness of the educational program can promote the coping skills leading to better stress management (2, 20).

The purpose of this systematic review was to evaluate the effectiveness of an educational program on parenting stress and coping mechanism among parents of children with ASD. This systematic review attempts to answer the following question: Is the educational program effective to reduce parenting stress and improve coping mechanism among parent of children with ASD?

**MATERIALS AND METHODS**

**Literature Search Strategy**

The literature search was conducted systematically based on strategies which include searching by a keyword, selecting databases, and applying a limit to the search results, and the number of articles extracted. Our current review retrieved the articles from CINAHL, Springer, Ovid, PubMed, Google Scholar, and EBSCO host. The search terms encompassed four steps: (1) recognizing the problem associated with the research questions, (2) conducting a systematic literature search, (3) reviewing the articles to identify a theme, and (4) analyzing the theme critically. The following search terms were used: Autism Spectrum Disorder, children with autism, effects of education program, educational intervention, parenting stress, coping mechanism, and coping strategies. Also, the search terms entered were a combination of “Autism” OR “Autism spectrum disorder” AND “education program”, “education programs” AND “parenting stress”, “coping mechanism” OR “coping strategy” AND “education programs”.

**Inclusion and Exclusion Criteria**

For inclusion in this review, articles must fulfill the following criteria: They were published in the English from 2000 to August 2018, they examined parenting stress, coping mechanism or coping strategies, at least one or both, as the study main outcome. Studies examining parents of children with other developmental disabilities were excluded in the present review.

**Process of Selecting Relevant Studies**

All studies retrieved from the search were reviewed for relevance and coverage by examining the objectives of the studies closely. Our four authors independently reviewed the relevant articles. They also analyzed and prepared extensive notes in an attempt to summarize the main ideas, including the research purpose, methodology, tools, main findings, and recommendations. They reached a final decision based on the study criteria.

All articles were found in English language with full text/methodology section in accordance to inclusion and exclusion criteria. Seventeen studies were found. All these papers were available in full-text and published in English journals. Nine studies were not taken into consideration because they recruited parents of children with other developmental disabilities as their study sample. As a result, the search strategy identified 8 articles in accordance to the study criteria. Figure 1

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**Figure 1:** PRISMA flowchart for studies selection process
shows the process of selecting relevant articles using the PRISMA.

RESULTS

Effectiveness of the educational program on parenting stress and coping mechanism

Educational intervention programs are effective for improving and enhancing parenting knowledge (24). According to Schultz et al. (24), parent education is designed to provide parents with parenting information or to teach them skills which are beneficial to family functioning. Chiang (25) also noted that educational intervention programs should not be only aimed at improving family functioning but also assisting parents in developing coping skills. As noted by Al-Khalaf and colleagues (20), improvements in managing the level and coping among both parents are predictive of positive ASD children outcome.

Tellegen and Sanders (26) stated that parent education programs have a direct influence and effect on both parents and children (in particular, social and communication skills). Multi-intervention strategies are often used in research studies. Strategies including lecturing on specific topics (e.g., definition and etiology of ASD, factors associated with parental stress, principles of managing behaviors, positive discipline to adapt with disorder, coping strategies, and strategies to promote social skills and communication, and managing parenting stress), group discussions, problem-solving skills, role-play, homework assignments, and building social support through building relationships between parents (25,27).

This review was based on 8 studies. They are either randomized controlled trial or quasi-design studies (Table I).

The use of Parenting Stress Index as an Outcome Measure

Keen et al. (2), in their experimental study with a pre-post-test design, evaluated the effectiveness of an educational program among 39 parents of children with ASD (intervention group n = 17; control group n = 22). The intervention group received an educational program comprising a 2-day workshop and a 10-day consultation based-home visits. The workshop delivers information about autism, social, communication, and behavior problems, as well as strategies to encourage parents responsively and sensitively and to improve social and behavior problems. Educational strategies include the child’s focus of attention, imitations, and turn-takings, augmentative and alternative communication approaches, environmental arrangements, and offering choices. All these educational strategies were delivered through the use of PowerPoint. In their study, the Parenting Stress Index (PSI) was used to assess stress level. The participants completed the questionnaire at the beginning of the study and immediately after completing the workshop. Results of the study have indicated a statistically significant decrease in stress among parents after receiving the educational program.

Sarabi-Jamab and colleagues (29) reached a similar conclusion in their pre-post study involving 21 mothers of preschool children who were diagnosed with an ASD. Participants were randomly assigned to an educational skill training intervention program or a control group without any intervention. Participants’ stress scores at baseline, immediately after the program, and then a follow-up after 70 days was assessed by the Parenting Stress Index (PSI). Results of the study indicated that mothers who received the educational program reported lower stress scores after post-test and follow-up.

Home-based Educational Programs

Like Keen et al. (2), Bendixen et al. (28) conducted a quasi-experimental study to examine stress among 38 parents (fathers n = 19, mothers n = 19) of children with ASD before and after a home-based educational program. The program consists of 12 sessions, twice weekly lasted for 12 weeks, as well as the program focuses on strategies to improve social and communication problems among their children. Data were obtained at the baseline study and immediately after the last session of the educational intervention program. As indicated by the Parenting Stress Index-Short Form (PSI-SF), parents reported lower mean scores of stress at the post-test compared to the pre-test.

Studies involving Mothers and Fathers as Participants

In a randomized controlled education program for parents of children with ASD, Tellegen and Sanders (26) randomly assigned 64 participants into an educational program or usual care. In their study, parents’ stress was assessed through the use of Parental Stress Scale (PSS) at three stages: pre-intervention, post-intervention, and after six months. The educational program was effective in reducing the stress level among the intervention group.

In Chiang’s (25) study, participants received an educational program lasting 4 sessions. The first section includes a lecture on understanding ASD, teaching social and play skills, teaching communication skills, teaching academic skills, reducing the challenging behavior. This session also highlights a special education system teaching functional skills, community resources, coping strategies, opportunities, and outcomes for individuals with ASD. The second section includes group discussions and role-plays in accordance with weekly topics. The third and fourth sections includes personal sharing own experience of parenting a child with ASD. Results of the study revealed that parenting stress significantly decreases after the parents received
Participants Dependent Quasi-Study. Intervention & Duration Parenting Stress Results 9 families of children with ASD were assigned to control group (n=10) and intervention group (n=10). The educational program included four-sessions lasted for half an hour and half an hour intervention, twice a week focusing on understanding the stress and its effects, problem-solving skills, positive thinking, social support, coping strategies, and relaxation training. Parenting Stress & Coping Mechanism No follow-up No statistical differences in stress level and coping scores between two group.

Keen et al. (2010) Experimental Study-RCT 39 parents of children with ASD (intervention group n=17; control group n=22). Educational program consisted of a workshop for 2 days followed by 10 days consultation based-homework visits. Of five to six weeks which lasted for half hour weekly. While control group received DVD information about the strategies presented in the two-day workshop attended by the intervention group. Parenting Stress No follow-up Decrease stress level among intervention group.

Bendixen et al (2011) Quasi-Study. 38 parents of children with ASD (fathers n=19, mothers n=19). The program consists of 12 sessions, twice weekly lasted for 12 weeks, as well as the program focuses on strategies' to improve social and communication problem among their children. Parenting Stress No follow-up Parents reported lower mean scores of stress at post-test compared to pre-test.

Sarah-Jamab et al. (2012) Semi-Experimental / pre-post test design. 21 mothers of preschool children who diagnosed an ASD were allocated randomly to 1 of the 2 groups: an intervention group and control group. Educational intervention training program, mothers received eleven sessions of training. A control group without any intervention. Parenting Stress Follow-up after 70 days Intervention group reported lower stress scores after post-test and after follow-up.

Al-Khalaf et al. (2014) Quasi-Study. 30 mothers of children with ASD. Educational program ; The program consists of four sessions, which each session lasted for 4 hours. Parenting Stress & Coping Mechanism No follow-up Decrease mean scores of stress post-test compared to pre-test. Also the coping scores significantly increase compared to pre-test study.

Chiang (2014) Quasi-Study. 9 families of children with ASD. 10 weeks of educational program and each session lasted for an hour and twenty minutes. Each session consists of four sections. A total of 10 topics were delivered during this program. The first section includes a lecture about understanding ASD, teaching social and play skills, teaching communication skills, teaching academic skills, reducing the challenging behavior, a special education system teaching functional skills, community resources, coping strategies, opportunities, and outcomes for individuals with ASD. The second section, which includes group discussions and role-plays associated with weekly topics were conducted. The third section included one or two parents sharing their own experience of parenting a child with ASD. The fourth section included one or two parents sharing the information that they left with other families. Parenting Stress No follow-up Stress level significantly decreases after received an educational program.

Tellegen & Sanders, (2014) Experimental Study-RCT 64 parents were assigned randomly to 1 of 2 groups: intervention group (n=32) and control group (n=32). Educational program includes four sessions to address one or two specific problems. Session durations ranged from 15 to 105 minutes. Control group receiving usual care. Parenting Stress Follow-up after six months Reduce stress level among intervention group.

Hemdi & Daley, (2017) Experimental Study-RCT 62 mothers were assigned to intervention group (n=32); and control group (n=30). Educational program through using WhatsApp application consisting of five sessions, each session lasted for half an hour, as well as copies of an educational program were distributed for an intervention group. Control group received only advice about behavioral problems among their children. Parenting Stress Follow-up after two months Intervention group reported a lower level of stress compared with control group.

Abbreviation : ASD = Autism Spectrum Disorder ; RCT= Randomized Controlled Trial

Table 1: The effectiveness of an educational program on parenting stress and coping mechanism among parents of children with ASD

<table>
<thead>
<tr>
<th>Authors &amp; Year</th>
<th>Study Design</th>
<th>Participants</th>
<th>Intervention &amp; Duration</th>
<th>Dependent Variables</th>
<th>Follow-Up</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erguner- Tekinalp &amp; Akkuk, (31) 2004</td>
<td>Experimental Study – Randomized controlled trial (RCT)</td>
<td>20 mothers of children with ASD were assigned to control group (n=10) and intervention group (n=10).</td>
<td>The educational program included four-sessions lasted for half an hour and half an hour intervention, twice a week focusing on understanding the stress and its effects, problem-solving skills, positive thinking, social support, coping strategies, and relaxation training.</td>
<td>Parenting Stress &amp; Coping Mechanism</td>
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Studies involving Mothers as Participants

Hemdi and Daley (21) conducted an experimental study to evaluate the effects of an educational program targeting 62 mothers of children with ASD. Mothers in the intervention group received a specific educational program consisting of five sessions, each session lasted for half an hour through the use of WhatsApp application. Mothers in the control group received only advice about behavioral problems among children from their organization. Hemdi and Daley (21) showed that mothers who received educational program via WhatsApp reported a lower level of stress compared with the control group.

Parenting Stress and Coping Mechanism as Study Outcomes

There is a paucity of studies examining the effectiveness of an educational program on parenting stress and coping among parents of children with ASD. In Erguner-Tekinalp and Akkuk (30) involving 20 mothers of children with ASD. Participants were randomly assigned to intervention group (n = 10) or control group (n = 10). The educational program includes a 4-session educational program focusing on understanding the stress and its effects, problem-solving skills, positive thinking, social support, coping strategies, and relaxation training. Participants’ scores on the Questionnaire on Resources and Stress (QRS) and the Coping Strategy Indicator (CSI) were collected at the baseline and immediately after
the educational program. Only a statistically significant difference between the two groups at post-test scores on social support subscale as a coping was reported.

Al-Khalaf et al (20) evaluate the effectiveness of a 4-session educational program on reducing stress level and improving coping among 10 mothers of preschool children with ASD. Participants scores on the Parenting Stress Index-Short Form (PSI-SF), and coping was assessed using the Coping Strategy Indicator (CSI) were collected at the pre and post-programs. There are significant changes in terms of stress coping scores before and after the programs.

DISCUSSION

There are effective ways to cope with stressful situations deriving from internal and external demands (31). According to Lazarus and Folkman (32), individuals employ their behavioral and cognitive abilities to manage and deal with stressful situations. Coping methods can be divided into two types: problem-based coping—strategies applied to solve the problem or to change the source of stress, and emotion-based coping—strategies applied to reduce or manage feelings associated with the main stressor (32). Hence, an effective coping mechanism plays a vital role in mastering, reducing, or tolerating stress, leading an adaptive or maladaptive process (1).

Here we report a systematic review to evaluate the effectiveness of an educational program on parenting stress and coping mechanism among parents of children with ASD. The effectiveness of the educational program on parenting stress and coping mechanism among parents of children with ASD was supported in the literature, but there is no agreement on its duration and frequency. The findings by this systematic review provide support for the effectiveness of an educational program to reducing parenting stress and improving coping mechanism among parents of children with ASD. Eight studies met the inclusion criteria. Seven of the eight studies reported that the educational intervention program plays a crucial role and effective in reducing parenting stress and improving coping mechanism among parents of children with ASD. However, only one study indicated that there is no difference in parenting stress level and coping mechanism among parents who received the educational program. Evidence for the effectiveness of an educational program to reducing parenting stress and improving coping mechanism among parents of children with ASD was at a preliminary level. Past studies did not use a standardized tool for assessing parent stress, hinting at the presence of method variance and measurement bias. Various tools were used in the reviewed studies including the Parenting Stress Index-Short Form, the Questionnaire on Resources and Stress, and the Parental Stress Scale. These tools were all psychometrically validated. It is important to highlight that nurses at all practice levels have a pivotal in promoting child health. Nurses are in the best position and play a vital role to deliver educational interventions for parents of children with ASD.

In spite of the important findings in this systematic review. The review of the literature on the effectiveness of the educational program is limited to the methodological issues as reported in the previous studies. The current review limited to CINAHL, Springer, Ovid, PubMed, Google Scholar, and EBSCO host databases. Both parents may be stressful which places them both at a risk for negative psychological health outcomes. Previous studies have recruited mothers as study informant. Father’s involvement is still lacking, leading to the loss of information to identify paternal stress. Only a small body of research focused on the effectiveness of the programs on both parenting stress and coping mechanism. These studies often used a quasi-experimental design. Their sample sizes were small. There was also no follow-up assessment. Taken together, the present findings and conclusions should be considered as preliminary due to the limited articles on educational program and publication bias where only studies with significant findings were published.

This systematic review has provided the preliminary findings for the effectiveness of an educational program to reduce parenting stress and improving coping mechanism among parents of children with ASD. The role of nurses is unique. As an educator, counselor, and researcher, they play a crucial role in promoting health, health education, physical, intellectual and emotional well-being within the context of family members and communities. They can also directly involve in providing care for parents and their children with disabilities by delivering the educational program for parents of children with ASD.

For future studies, the inclusion of articles and reviews published in other databases such as Scopus and Cochrane are needed. Secondly, future research can adopt a wider review covering the effectiveness of an educational program with the incorporation of other existing interventions such as cognitive behavior therapy and mindfulness-based interventions (henceforth referred to as psychoeducation). Thirdly, the randomized controlled trial (RCT) represents the gold standard for examining the effectiveness of an intervention, while the quasi-experimental design has no random assignment compromising internal validity. Future studies can examine to what extent an educational program is capable of reducing parenting stress and improving coping mechanism by focusing RCTs. Fourthly, future research should examine the effectiveness of an educational program targeting both fathers and mothers of children with ASD. Fifthly, as only 8 relevant articles were included in this review, therefore the quality of the studies was not investigated. Future studies are suggested
to determine the quality assessment of the eligible studies in compliance with NHMRC level of evidence (NHMRC 2009). Finally, future research needs to assess the effectiveness of an educational program on parents with follow-up periods of more than 6 months to provide more information about sustainability and maintenance the positive effects of educational programs.

CONCLUSION

Several studies have documented that educational program plays a crucial role in reducing parenting stress among parents of children with ASD. This systematic review provides an important opportunity to advance our understanding of the effectiveness of the educational program for reducing parent stress and improving coping mechanism among parents of children with Autism Spectrum Disorder. Future experimental studies and mix method design with large sample size can be recommended to provide scientific evidence regarding the effectiveness of an educational program. Furthermore, cohort studies which include multi-year follow-up can be used to assess the long term effectiveness of an educational program.

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