RESEARCH ARTICLE

Parent training for Autism Spectrum Disorder

Shamaila Ijaz[1], Farwa Rafaq[2], Sonia Ijaz Haider[3]

Abstract

Objective: The main purpose of the present study was to investigate the effectiveness of behaviour therapy training to mothers of autistic children on verbal and non-verbal improvement of their children.

Materials and Methods: A total of 33 mothers of autistic children were selected for training based on non-probability purposive sampling procedure. Autism Spectrum Disorder (ASD) Knowledge Scale was used to assess mothers' knowledge about autism and Vineland Adaptive Behaviour Scale was used for assessment of the communication skill in autistic children.

Results: This study revealed that behaviour therapy training significantly improved communication skills of children with autism by training mothers. The results of paired t-test revealed that trained mothers developed improved communication skills.

Conclusion: These results showed improvement in communication skills of autistic children whose mothers were trained in behaviour therapy.

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Introduction

Autism spectrum disorder (ASD) is a neuro-developmental disorder, manifested by the presence of impairment in social communication and restricted, repetitive behaviours. It can be observed in the early developmental period.[1] According to a census in Pakistan, 55 per cent of the population is under the age of 19, and roughly there are 1,700,000 children with ASD.[2] Literature search reveals that 1 out of 110 children suffer from this disorder in the developed countries. In a cross-sectional two-phase study conducted in children from 1-10 years of age, a prevalence rate of 0.9/1000 with the highest occurrence of autism in the rural area of Northwest India was observed. Pooled prevalence of childhood autism was 11.8 per 10,000 individuals in mainland China which is lower than estimates from developed countries. In an Indian study it was reported by 80% of participants (psychiatrists, psychologists and paediatricians) about difficulties in the diagnosis of autism. There is no reliable epidemiological data of prevalence of autism in Pakistan. The awareness of autism is deficient in developing countries including Pakistan.[3]

Literature showed main areas of concerns of autism are difficulties in social interaction, limited interest in things and events around and repetitive behaviours.[4] Due to lack of academic skills, limited communication and language, poor daily living skills, no social play, these children with autism remain far behind in all areas when compared to their peers. To improve performance in these above affected areas in autistic children, an intensive and systematic training of staff and parents is needed.[5]

Batool and Khurshid[6] found that severity of ASD child and parenting self-efficacy as significant predictor for improvement in symptoms of autistic children. They suggested that training parents will help to manage challenging behaviours in ASD children. Khan, Siddique & Jibeen[7] highlighted great Emotional Adjustment Problems, Health Adjustment Problems and Social Adjustment Problems in mothers of ASD children as compared to normal group. Ali and Rafique[8] explored negative thinking in mothers dealing with children having various neurodevelopmental disorders. The results showed professional help was taken by 51% mothers, support group help was sought by 5% mothers, rest 41% kept worrying about the future of children and remaining 3% developed clinical depression.

An article reviewed health care system in Pakistan, stating that in low economic budget country like Pakistan; only about 1 % of country's annual budget is spent on health. In this budget, it is very difficult to cope for ASD patients and parents, thus parent education was recommended for improvement of ASD children.[9]

Parent-Mediated Intervention for Autism Spectrum disorders in South Asia was conducted in India and Pakistan in year 2016, which is the only study that trained parents in Rawalpindi and Goa. The training of parents was done in high-income community that showed good results among children and achieved excellent participant

[1,2]Department of Psychology, Lahore Institute of Special Care and Attention, Lahore, Pakistan; [3]Department of Educational Development, Aga Khan Hospital, Karachi, Pakistan.

Correspondence: Shamaila Ijaz. e-mail: shamailaijaz@yahoo.com

adherence.[10] Another study worked on parent–child interactions using the Dyadic Communication Measure for Autism.[11] The results showed that when parents were taught specific ways to communicate with ASD children, the language development improved in autistic children.

Range of psychosocial interventions[12] have been carried out focusing on parent-child joint engagement, child symbolic play, social communication and imitation related to staff or parents dealing with ASD.[13] Intervention based on behavioural theory or communication-focused therapies showed positive outcome, however, major permanent improvement in ASD symptoms were from parent mediated interventions. In many studies the parents drop-out rate is also high, apparently due to slow results regarding challenging behaviours at moderate level. Keeping this point in view, the training is more focused on teaching behavioural methods and its generalization and maintenance. In majority of studies, the effective methods described rely on behaviour therapy.[14]

A study conducted by Smith, Buch, and Gamby[15] trained parents and paraprofessionals. They received 6, 1-day workshops in 5-months, in which they were taught application of applied behaviour analysis principles with ASD children. Five of the six children rapidly acquired communication and self-care skills, but only two children showed marked improvement at follow-up, 2–3 years later. Group Intensive Family Therapy (GIFT) highlighted parents as the therapist.[16] Preschool ASD Children showed improvement on adaptive and cognitive functioning.

However, in the context of described circumstances, the current study was designed to examine how the training of mothers showed improvement in communication of ASD children. It is hypothesized that, there is a significant relationship between training of mothers and communication of ASD.

The objective of the study was to investigate the effectiveness of behaviour therapy training to mothers of autistic children on verbal and non-verbal improvement in communication skills of their children.

Method

This is a quasi experimental design, with a pre post intervention to investigate the training of mothers and its effects on the communication skills of ASD children.

The sample was collected through non-probability purposive sampling. The sample included 33 mothers calculated through G Power Analysis.[17] The mothers who had ASD children in moderate to mild category were selected. The diagnostic selection was done through CARS (Childhood Autism Rating Scale). The age criterion of children was less than 10 years. The minimum requirement of education of the mothers was graduation. The data was collected from Lahore Institute of Special Care & Attention, Connections, Child and Family Psychiatry Mayo Hospital, Lahore and Children Hospital, Lahore. Only those mothers who were willing to participate in the study and fulfilled the inclusion criteria were included in the study. Some refused due to time constraints, living out of city and some were not allowed by husbands to do any such training. Few dropped out due to the change of institute and residence. The time period of the study was from 8th May 2017 to 31 May 2018.

The inclusion criteria were mothers who had autistic children with mild to moderate category of autism on CARS. They had not taken any workshop of autism before and had no knowledge of autism. They were coming for assessment and treatment of their children. Mother's education was atleast bachelors and above. They were residents of Lahore only.

Exclusion criteria included children with moderate to severe ASD. Mothers education was under graduate. Mothers were taking training elsewhere for autism. Children aged above 10 were excluded

After approval letter for permission of data collection, concerned parents of ASD were approached and briefed about the research. Research Information and participant information sheet was given to them in which all the information about research was written.

After taking permission from higher authorities, questionnaires were given to the participants. Total 4 Autism institutes were approached. The permission letters for conducting workshops was approved by concerned higher authorities. The consent form was provided to willing participants and briefed about the nature of the study. Total 50 questionnaires were delivered before conducting the workshops which was pre-assessment of the knowledge related to autism, 45 questionnaires was filled and returned. The incomplete questionnaires due to running short of time were discarded. All the questions asked by participants were answered by the researcher during administration of questionnaires. Approximately 15 minutes were needed to answer all the instruments, however, some participants took longer time, whereas no participant was compelled for time. The response rate was 75%.

This work followed the rules and procedures approved by the ethical standards of APA (American Psychological Association). The study protocol was approved by the Institutional Review Board of Ijaz Psychiatric Institute. All

procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national). The purpose of the study was explained to each participant, followed by a written consent. Participants were assured that the shared information will be used only for purpose of study and confidentiality will be maintained. The right to withdraw from study at that point was given to them.

The Instruments used in the study were:

1. **A Survey of Knowledge of Autism Spectrum Disorder (ASK-ASD**; Hansen, 2015). It queries participants about their background, experience and knowledge of characteristics of autism according to DSM V diagnostic criteria. The questionnaire also included a demographic section.[18]

2. **Vineland Adaptive Behaviour Scales:** 2nd Edition (Sparrow, Cicchetti, & Balla, 2005), is a measure of adaptive behaviour showing age-normed standard scores on communication and socialization domains. It is filled by parents.[19]

3. **Childhood Autism Rating Scale (CARS).** "The CARS is a widely used rating scale for the detection, diagnosis, and measurement of severity of impairment of autism.

Parent training programme was carried in groups of 33 parents in 11 sessions, 60 to 90 minutes duration, over 16 weeks and provided time flexibility. The course was designed in a way that parents could predict, manage and evaluate the challenging behaviour that is associated with the ASD children.[20] Parents' expectations were noted down at the beginning of the course. The feedback[21] was received at the end of the course, Question answer session was used to support findings from questionnaires which were completed in order to measure the impact of the training sessions on their attitude towards their children.

The course comprised six modules:

1) Introduction and analysis of ASD child behaviour.

2) Learning intervention for children with ASD.

3) Identifying challenging behaviours and management.

4) Communication strategies for children with ASD

5) Abuse related behaviour for children with ASD.

All participants had to complete sponsor's evaluation form and post-course questionnaire.

In the first workshop, the initial assessment of the parents was done. Introduction to autism and analysis of child's behaviour was taught. In the second and third workshop parents were taught how to analyze behaviour and identify its form and function using ABC model.[22,23] In the fourth workshop, parents were introduced to the different types of reinforcements and how to implement them on children with ASD. In fifth and sixth workshop parents were taught how to manage challenging behaviours like temper tantrums, repetitive behaviours as moving in circular movements, spitting, flapping hands etc, sensory issues and sexual behaviour, meltdown behaviours and mood swings. In seventh and eighth workshop they were taught how to deal with academics and communication skills of the children. In the ninth and tenth workshop practical demos and videos of the children were shared for learning purposes. In the last workshop post assessment was done by giving survey form again to check the knowledge which could result in the improvement of the children and the Vineland was administered again on the children to see the improvement in communication skills. The feedback related to the workshop was also taken from mothers in the last workshop.

Results

The results section comprised of two dimensions, the first dimension covers demographics characteristics of data, second dimension includes inferential statistics which will provide information about the tested hypotheses in current study.

Demographics represented that majority of the parents were living with spouse 29 (75.1%). Small number lived in the category of separated and widowed 4(1.3%). The family background of most of the participants was Urban 19(57.7%). Most of the participants 20(58.7%) fell in the category of moderate socio-economic status. The average mean age of the participants was 35±5 years; they had an

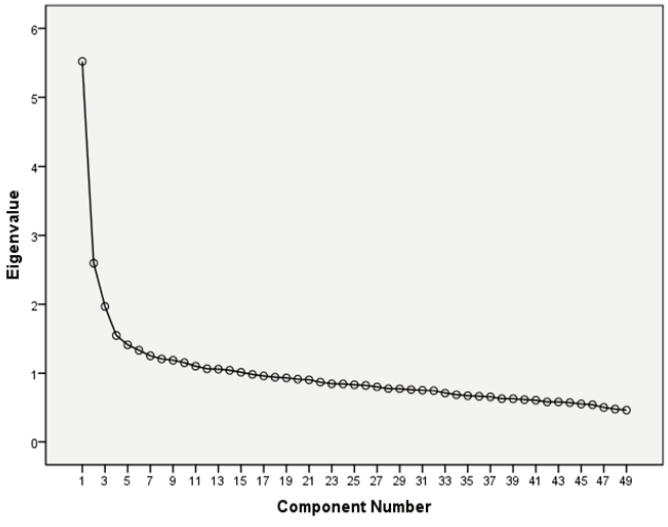

Figure: Scree Plot of Autism knowledge survey (AKS).

Table-1: Pearson's Product-Moment Correlation Coefficient between Training of mothers and improvement among ASD communication (n=33).

Variables	Training of mothers	Communication of ASD child	Mean±SD
Training of mothers	------	0.17**	83.67±13.96
Communication of ASD child	0.17**	------	259.15±20.57

SD = standard deviation. **p<.01

Table-2: Mean, Standard Deviation, and t value on Autism Knowledge Survey among Mothers of ASD and on VABS (n=33).

Variable	Pre and Post Ratings		t-test	p-value	95% CI	
	Pre	Post			LL	UL
AKS Mean±SD	80.10	34.14	46.89	.000	[44.20,	48.21]
	4.18	4.19				
Communication Mean±SD	33.15	73.4	15.4	.000	[45.60,	48.21]
On VABS	4.08	14.6				

SD = standard deviation; CI = confidence interval; LL = lower limit; UL = upper limit. ns p> .05

average of 2±0.93 children. The mean age of autistic child was 5.5 ±1.3 years. Moreover, most of family systems were joint 18 (54.5%) which indirectly reflect their support from all family members as compare to nuclear 15 (45.5%) style of family. Most of the parents were post- graduated 19 (57.6%).

The major emphasis of study was to highlight the importance of training of mothers for the ASD child communication. For this purpose, the following measure were used: Autism knowledge survey and Vineland II. There was a significant correlation between training of ASD mothers and communication of ASD children.

It was hypothesized that after training mothers would perform better on autism knowledge survey test. Paired sample t test was carried to compare the mean score of Autism Knowledge Survey before training and after training among mothers of ASD. A paired t-test showed that the difference between conditions was statistically significant (t=46.89, df=32, p<.000) the magnitude of the differences in the means (mean difference =46.21, 95%CI: 44.20 to 48.21). Table shows that there is a significant difference in mean score of mothers before training and after training on Autism Knowledge Survey. Moreover, the results are significant which proved that the knowledge of mothers increased due to training which would result in improvement of communication skills of ASD children

To assess the impact of mothers training on the ASD communication VABS was done for post assessment of children. Table shows a significant difference in mean score of communication of ASD pre and post on measure of Vineland II subscale communication (VABS).

Figure indicates scree plot which shows four factors plot for Autism Knowledge Survey. Factor analysis was carried out with three and four factor solution to get actual factors of scale. Most of items did not fall in the three factor solution therefore in the end four factor solution was retained which clearly gives a division of items in four factors. These four factors comprised of 41 items. Each factor had independent items. With the purpose to determine the internal consistency of the four factors and total of scale, Cronbach's alpha reliability was calculated.

Discussion

The study investigated the efficacy of behaviour therapy training to mothers of autistic children by focussing on improvement in communication skills. According to Nazish Imran (2014) there is need to train the caregivers of ASD in Pakistan. There are few dedicated child psychiatric units in the provinces of Punjab and Sindh which are actively engaged in treatment of ASD. These services are almost missing in the two provinces, Baluchistan and Khyber Pakhtunkhwa. Michael[24] have shown the importance of parents' involvement. The early intensive behavioural intervention often include parents as therapist. According to him this approach is important since getting parents involved in these treatments as early as possible is advisable. A lifelong treatment model of parent training would be sensible, for early intensive behavioural treatments. In this sense, this study provided empirical evidence to support our Hypotheses, and underlining the importance of training ASD mothers as a way to increase the communication skills of ASD.

Further understanding regarding how behaviour therapy training of mothers influenced the verbal and non-verbal communication skills was achieved through examining a theorized path model. Two general findings were evident from the results of this study. First, the findings of this study suggested that training of ASD mothers have increased their knowledge about autism, before training their knowledge had significant differences with after training. Jones with his colleagues suggested that knowledge of ASD had a positive, small relation with parenting satisfaction, suggesting that parents with knowledge about ASD might also be more satisfied in their caregiving role.[25] Furthermore, in our study there is a significant difference in mean score of trained mothers. The results showed that knowledge of mothers related to autism increased after training of behaviour therapy. Secondly the training improved communication skills of mothers, which resulted in enhanced communications of their ASD children.

Our results supported previous research that was conducted by Fathalipouri; they provided training of play therapy to mothers of autistic children in a way which could

efficiently improve the autistic children's communications.[26] It was concluded that play therapy can successfully increase the abilities of non-verbal communication. One of these types of training of autistic mothers can effectively increase communication skills of ASD children. The pre and post intervention researches reported significant improvements in knowledge of parents, which showed improvements in autistic children's behaviour and communication. Thus parent-mediated intervention is beneficial in management of children with ASD.[27]

Our findings supported those reported in previous researches; the importance of giving training of behaviour therapy to parents for improvement in communication skills and challenging behaviours of ASD children. Parents feel more proficient and self-assured in dealing with the challenging behaviours.[28]

The results provided encouraging results for autism supporting staff for arranging training workshops for mothers. Previous empirical studies have demonstrated that parents of children with autism help effectively in education of their children. In another study, the effects of a family education programme taught parents the use a research-based discrete trial method. The trained mothers felt more competent in dealing with autistic children by using modeling techniques.[29]

In study by Chu the parent training was delivered in group to parents in 11 sessions of 90 minutes duration over 16 weeks. Findings of this research suggested that Parent Training Programme proved to be effective in decreasing problem behaviours in children.[30] It was revealed that nearly all parents of children with special needs face lot of challenges related to their children. The problem can be of accessibility, affordability or a combination of these issues, especially in developing countries. Thus to deal with these issues worldwide, the concept of parents as co-therapist seemed to resolve issues of accessibility and affordability to some extent. He highlighted the role of "key worker", a person; parents could approach for advice about any problem associated with the child's case or condition. The responsibility of the key worker is to maintain regular contact with the family and work with professionals from a range of services to support the child. Thus this study strongly agreed with the importance of parents training; it also supported our hypothesis that, there is a significant relationship between training of mothers and communication of ASD.

In our present research, the course comprised of six modules of behaviour therapy. For children with ASD, a 24-week parent training programme was greater to parent education for reducing disruptive behaviour on parent-reported outcomes, although the clinical significance of the improvement was uncertain. The rating of positive response judged by blinded clinicians was greater for parent training vs parent education.[23]

This study helped to bring awareness for understanding the basic facts and functions of challenging behaviours in ASD children and it helped parents to examine the root cause of the manifested behaviour, and thus manage the manifested behaviour of their ASD children in better way. It provided valuable information for the development of training programmes, considerable attention to this sensitive issue would help improve communication skills of ASD children.

Conclusion

These results showed improvement in children with autism whose mothers were trained rather educated in behaviour therapy. It showed parents how to better manage the verbal and non verbal behaviour of their children. The improvement in the quality of their life, after attending the course was observed in their feedback form. It helped in improving the mental health of mothers and provided guidelines to psychologists and policy makers to develop psycho-education and intervention strategies.

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Conflict of Interest: None

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