

Preliminary Effectiveness Of Paths Curriculum For Preschool Children In Pakistan

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ABSTRACT

The study evaluates the effectiveness of the Preschool PATHS Curriculum in enhancing children's social-emotional competence (SE-C) after being culturally adapted to the context of the urban Pakistani community. A quasi-experimental non-equivalent control group design was used for the effectiveness trial. The sample consisted of 101 preschool children in control and intervention groups. Results showed a significant intervention effect on SEC and behavioral problems of preschool children, whereas non-significant differences between the control and intervention groups on Prosocial/communication skills and academic skills at post-test. As competencies differ in development, the present investigation can inform policymakers about the inclusion of SE learning programs at the preschool level in Pakistan. Globally, it contributes to existing evidence of the effectiveness of the PATHS program and further promotes collaborations in prevention research.

Keywords: Effectiveness, PATHS, Quasi-experimental, Preschool Children, Emotional Learning

INTRODUCTION

Social Emotional Learning

There is ample research evidence that enhanced social-emotional skills are associated with multidimensional positive outcomes for children (Mondi et al., 2021; Sanders et al., 2020). The longitudinal study in the Fast Track project revealed that low levels of preschool social-emotional competence significantly predicted adverse outcomes in

adulthood (Jones et al., 2015). Social-emotional skills-based interventions emerge as prospective global public health interventions that provide an effective strategy to reduce the incidence of childhood behavioral problems and adult psychopathology (Moltrecht et al., 2020).

Social and emotional learning (SEL) is one of the main conceptual frameworks underlying intervention research that takes a positive approach instead of solely focusing on the psychopathology paradigm (Eninger et al., 2021). SEL interventions are mostly school-based; the target groups are children and adolescents (CASEL, 2020). Research evidence points to positive outcomes associated with SEL-based programs (Tolen et al., 2016). A meta-analysis of 213 studies suggests significant improvement in prosocial behaviors and academic achievement from preschool through 12th grade (Murano et al., 2020). In the social and emotional learning approach, students are allowed to engage in activities related to processing their emotions by regularly plotting their moods and using the mood meter to gauge their arousal or energy level. This enables students to develop self-regulation and relationship management skills (Ahmed et al., 2020). Studies also found a reduction in negative outcomes through implementing SEL-based programs in schools (Suratno et al., 2019). Recent literature establishes the effectiveness of SEL-based programs in different developing countries and recommends including SEL-based programs in the educational curriculum of young children (Alzahrani et al., 2019; Ahmed et al., 2020).

PATHS Intervention

PATHS (Promoting Alternative Thinking Strategies) is an SEL intervention that fits under the broad conceptual umbrella of positive development interventions (Tolan et al., 2016). Different editions of PATHS exist (e.g., preschool, primary and secondary school). Preschool PATHS is implemented universally in classrooms by trained teachers (Domitrovich et al., 2007) and was designed according to several complementary SEC and educational theories (e.g., emotional intelligence, eco-behavioral systems, the Affective-Behavior-Cognitive-Dynamic Model; Domitrovich et al., 2007). Ample research evidence supports the use of the PATHS Program both at preschool and elementary levels. Many pieces of research have been conducted to establish its effectiveness since 1995 (Seifert et al., 2004; Riggs et al., 2006; Conduct Problems Prevention Research Group, 2010; Crean and Johnson, 2013).

In recent years researchers have supported the use of the PATHS curriculum to promote protective factors (such as social-emotional competence and social problem-solving skills) and reduce behavioral risks, which are externalizing and internalizing disorders (Humphrey et al., 2016). PATHS curriculum has also been adapted and implemented in different languages and cultures across the globe in non-English speaking countries, including the Netherlands, Turkey, Greece, Sweden, Germany, Australia, Switzerland, Italy, Hong Kong, Thailand, Singapore, and Croatia (Curtis & Norgate, 2007; Little et al., 2012; Kam et al., 2011; Goossens et al., 2012; Arda & Ocak, 2012; Novak et al., 2017; Eninger et al., 2021). Researchers, however, have pointed out challenges in terms

of specific impacts of PATHS effectiveness in some cultures, emphasizing the importance of more research evidence from implementation in diverse cultures (Novak et al., 2017).

Evidence-based Intervention: Situational Analysis of Pakistan

The area of prevention science and developmental psychopathology is very new in the context of academic research and clinical practice in Pakistan (Rehman et al., 2006). Some initial efforts have been made to introduce the concept of evidence-based practices recently with clinical and targeted populations. So far, only a few targeted studies have been conducted in our cultural context (Rozaan, 2013; Malik, 2011; Mushtaq et al., 2017). A more recent study has established the importance of using SEL-based programs in developing countries especially highlighting the comparative ease, cultural appropriateness, and suitability of the PATHS curriculum in the Pakistani educational system (Barlas et al., 2021). However, to understand the significance of prevention efforts, it is imperative to consider the country's socio-political context. Pakistan is a southeast Asian country with an estimated population of 212 million in 2017 (Pakistan Bureau of Statistics, 2017), which makes it the world's 6th most populous country. 13.4% of the population is from 0-4 years of age. The national language is Urdu, with four main regional languages. The estimated adult literacy rate is 58%, with 72.1% of the population attending an educational institute comprised of pre-primary/preschool children (Pakistan Bureau of Statistics, 2017). Pakistan has two central school systems, namely government and private schools. Non-governmental organizations, business enterprises, and educationists mainly control the latter.

Over the last two decades, Pakistan has emerged on the world map as one of the prominent places in many references. Growing social instability, terrorism, and general intolerance have created a risky environment for children's mental health. The country was generally unfamiliar with terrorism before the 9/11 attacks on the United States. Terrorism has adverse impacts on Pakistani society's social, economic, political, and physical infrastructure (Nizami et al., 2018). In addition, sectarian violence, ethnic divides, and political instability added to the complex internal security crises (Daraz et al., 2012). Terrorism, economic instability, and socio-political unrest and patriarchal gender norms have devastating effects on the mental health of the people of Pakistan. Pakistan contributes 11.9% to overall neuropsychiatric disorders globally (UNICEF, 2011). Evidence suggests an increase in the prevalence rate of childhood psychopathology up to 34%, and the most common reason for referral to child mental health services was aggressive behavior (Syed et al., 2007). Another research on community and private school children in Karachi, Pakistan, found that 42.3% of the total sample was rated as abnormal on the conduct problem subscale of the Strengths and Difficulties Questionnaire (Hussein, 2008).

Given the country's socio-cultural context, the need for evidence-based prevention efforts becomes more relevant. The area of prevention science and developmental

psychopathology is very new in the context of academic research and clinical practice in the country (Rehman et al., 2006). An initial phase of such services has been developed at Agha Khan University in Karachi (Syed et al., 2006). Efforts have also been made to introduce the concept of evidence-based practices recently with the clinical population. A parent-training program for ADHD children has been culturally adapted in Pakistan. The program effectively reduces attention deficit hyperactivity disorder and oppositional defiant disorder (Malik et al., 2017). The findings of this study suggested that even for parents' training programs, preventive strategies should be the focus of future researchers to include children with less severe symptoms. It was further asserted that parent training is a challenging area in intervention research due to the stigma issue. School-based preventive interventions have never been a focus of research. Although, there are few solo efforts to use school-based life skills programs by non-profit organizations working on the emotional health of children and adults. These programs focus on social-emotional skills, gender sensitization, tolerance, and child sexual abuse (Rozan, 2013), yet these programs lack an evidence base and solid theoretical rationale.

Similarly, a study was conducted in 2017 to determine the extent to which the Coping Power Program can reduce aggressive behavior and improve intelligent behavior in 4th-grade boys. The results showed a significant reduction in aggression at post-assessment with improvements in behavior, social skills, and social-cognitive processes, with better anger control and problem-solving strategies (Mushtaq et al., 2017). However, no research evidence is available on the prevention of preschool behavioral problems in the Pakistani context.

The Current Study

Due to the dearth of evidence in developing countries regarding the effectiveness of social-emotional learning programs, the present study is aimed to evaluate the impact of PATHS as universal prevention in enhancing social-emotional competence and reducing behavioral problems in preschool children in Pakistan. The study also intended to assess the effects of gender on intervention.

METHOD

Design

A quasi-experimental non-equivalent control group design was used for this study. This design is identical to the Pre-test-Post-test Control Group design, except for randomization. Comparison groups are naturally occurring groups comparable on certain variables of interest to the researchers (Pallant, 2011). This design is used in intervention research in social settings where randomization is impossible, and the difference in scores on outcome measures between the control and experimental condition is attributed to the intervention, which further increases the external validity of the design (Creswell, 2012).

Participants

Sample consisted of 101 (boys=49, girls=52) preschool children. There were 54 children in intervention classrooms and 47 children in control classrooms. The sample was selected using the purposive sampling technique. For sample characteristics, see Table 1 below.

Table 1 Sample Description (N=101)

Variables	Control Group Percentage/Mean(SD)	Intervention Group (Percentage/Mean(SD))
Child's age	4.18(.104)	4.16(.099)
Child's gender		
Male	23(48.9%)	26(48.1%)
Female	24(51.1%)	28(51.9%)
Fathers' Education in Years	14.34(1.64)	14.93(1.41)
Mothers' Education in Years	13.61(2.10)	13.19(2.88)
Family monthly income	Rs.51333.33(19833.26)	Rs.43936.17(15249.24)

Intervention

The adapted version (Inam et al., 2015) of the preschool PATHS curriculum developed by Domitrovich et al. (2005) was used in this study. The adapted curriculum consisted of 35 lessons on understanding feelings, self-control, a positive classroom atmosphere, and problem-solving with peers. In addition to the lessons, teachers used different generalization techniques (circle games, stories, art activities) incorporated into the regular curriculum taught to preschool children.

Measures

Emotion Knowledge

The Kusche Emotion Inventory (Kusche, 1984) was developed to evaluate preschool children's ability to recognize different emotions. The Recognition of Emotion Concepts subtest was adapted and revised by Spletz et al. (1999). For the present study, this revised version was adapted for Pakistani children. The Recognition of Emotions subtests consisted of 30 (Cronbach's $\alpha = .64$) pages, each with four cartoon figures depicting different emotions. One of these four cartoon figures displayed the target emotions while the three were distracters. Children were asked to identify the correct emotion. For each trial, a score of 2 was given for the correct response and 0 for the incorrect response. If children correctly identified the valence of the target emotion (For example, happy for excited expression), they got a score of 1. The highest score is 60 for this measure. For the original measurement tool, Kusche (1984) reported test-retest

reliability of .85. For the adapted version, Cronbach's alpha coefficient was reported as .73 (Rhoades et al., 2009).

Social Competence

A translated version of the Social Competence Scale-Teacher Ratings (Conduct Problems Prevention Research Group, 1990) was used to assess children's social competence. The use of informant ratings for young children, as opposed to the self-report technique, is supported mainly through research evidence (Conijn et al., 2019). The scale consists of 25 items (Cronbach's $\alpha = .72$) and three subscales: prosocial/communication skills, emotion regulation skills, and academic skills. The responses were scored on a five-point Likert scale; Not at all (0), A little (1), Moderately well (2), Well (3), and Very well (4). In addition to the subscale scores and total score, a combined score of prosocial/communication and emotion regulation subscales was also calculated. The Cronbach's alpha coefficient of the original measure was reported as 0.98 (Corrigan, 2003).

Behavioral Problems of Children

An Urdu translation of the preschool version of the Child Behavior Checklist, CBCL (11/2-5)-TRF, was used to assess preschool children's emotional and behavioral problems as reported by teachers. The scale was developed by Achenbach and Rescorla (2000). The checklist consisted of 99 items (Cronbach's $\alpha = .92$) assessing preschool children's emotional and behavioral problems, while there is one open-ended item. Six empirically-based syndrome scales are Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Attention Problems, and Aggressive Behavior. These syndrome scales broadly form two subcategories of behavioral problems: internalizing and externalizing. In addition to that, it also provides five DSM-based scales, namely Affective Problems, Anxiety Problems, Pervasive Developmental Problems, Attention-Deficit/Hyperactivity Problems, and Oppositional Defiant Problems. Scoring was done on a 3 point scale, where 0 = not true, 1 = sometimes true, and 2 = often true or very true. The Cronbach's alpha coefficient of the original measure was .88 for the total problem scale and .89 and .77 for externalizing and internalizing subscales, respectively (Achenbach & Rescorla, 2000).

Procedure

The Advanced Studies and Research Board of the university approved the project, keeping in view the ethical standards of the American Psychological Association. As a first step, pre-test child assessments were conducted at the beginning of the school year in spring for both intervention and control groups. For this purpose, a multi-method assessment strategy was used. One measure was direct child assessment, where children were evaluated on the measure of emotional knowledge in quiet locations within schools. The social competence and behavior problem ratings were taken from class teachers. The school administration sent the demographic information form to parents of both intervention and control groups with a cover letter from the school explaining the project and ensuring the confidentiality of information. A 4-day training was

conducted for eight teachers from the intervention school at the end of summer break of the same year. These teachers were not involved with child assessments. This training was designed to elaborate on the theoretical background and implementation techniques of the PATHS curriculum. PATHS lessons were conducted with the intervention group from the fall of the same year to the following year's winter. The lessons were taught twice weekly for 30-35 minutes each day. Weekly planning sessions were also conducted with implementation teachers to prepare lessons for the upcoming week. Post-test assessments of both intervention and control groups were done after the following year's summer break.

RESULTS

Step I: Baseline comparisons between intervention and control group on measures of the study

Baseline comparisons were made on the outcome measures of the study. There were no significant differences between the intervention and control groups for the total score on emotional knowledge, social competence, and behavior problems.

Table 2 Baseline comparisons between control and intervention groups on outcome measures (N=101)

Variables	Control Group (n = 47)		Intervention Group (n = 54)		t- value
	M	SD	M	SD	
KEI-R					
Total Score	31.89	5.21	33.65	7.39	1.36
Emotion Accuracy (Percent Correct)	28.72	9.86	35.06	17.68	2.17*
SCS-T					
Total Score	33.17	6.15	33.61	6.04	0.36
Prosocial	10.81	2.76	11.26	2.86	0.80
Emotion Regulation	13.00	2.71	13.26	2.65	0.48
Academic Skills	9.36	2.71	9.09	2.61	-.50
Combined	23.81	4.60	24.52	4.57	0.77
CBCL-CTRF					
Total Problem Score	29.64	16.09	32.50	14.56	0.93
Internalizing	9.34	4.36	10.22	4.25	1.02
Externalizing	11.72	8.62	12.07	6.62	0.23

*p < 0.05

Step II: Effectiveness of PATHS Curriculum

For the main effect of time, ANCOVA analysis was used where pre-test scores on outcome measures were controlled, and the difference in means was calculated on the post-test score to evaluate the effectiveness of the intervention. The difference in means

after adjusting the pre-test measures, F values for post-test scores are observed to be statistically significant between the intervention and control group for emotional knowledge, social competence, and behavioral problems. However, non-significant differences were observed on two subscales of social competence, i.e., prosocial/communication and academic skills.

Table 3 Analysis of Covariance for outcome measures at pre and post-assessment (N=101)

Variables	Intervention Group (n = 54)		Control Group (n = 47)		F	Cohen's d
	Pretest M(SD)	Posttest M(SD)	Pretest M(SD)	Posttest M(SD)		
KEI-R						
Total Score	33.65(7.33)	36.67(6.83)	31.89(5.21)	33.49(4.35)	5.49*	.55
Accuracy Score	35.06(17.68)	36.42(17.33)	28.72(9.86)	31.56(9.03)	0.328	
SCS-T						
Total Score	33.61(6.04)	36.17(5.12)	33.17(6.15)	33.28(5.11)	8.28**	.56
Prosocial	11.26(2.86)	11.39(1.94)	10.81(2.76)	10.96 (2.53)	0.479	
Emotion Reg	13.26(2.65)	15.41(2.77)	13.00(2.71)	13.17(2.80)	15.98***	.80
Academic	9.09(2.61)	9.35(2.51)	9.36(2.71)	9.15(2.44)	0.690	
Combined	24.52(4.57)	26.83(3.94)	23.81(4.60)	24.13(4.70)	10.78**	.67
CBCL-CTRF						
Total Score	32.50(14.56)	25.63(10.71)	29.64(16.09)	30.11(15.54)	65.49****	-.33
Externalizing	12.07(6.64)	8.26(3.93)	11.72(8.62)	12.30(9.47)	45.85****	-.55
Internalizing	10.22(4.25)	8.72(3.46)	9.34(4.36)	9.43(4.02)	26.15****	-.18

*p<.05, **p<.01, ***p=.000

Step III: Gender Comparison

To evaluate the effects of the intervention on gender, a repeated-measures ANOVA was conducted on the intervention condition. The results reflect that the time* gender interaction is significant in the total score on behavioral problems and externalizing problems. The difference of means from pre to post-assessment is significantly different for boys and girls in terms of behavioral problems, total score, and externalizing problems. The contrast of means suggests that as a result of the intervention, behavioral problems in boys decreased significantly in girls at post-test.

Table 4

Between Subject Gender Effects on Pre-Post-test Scores for Intervention Status (N=54)

Variables	Pre-test	Post-test
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	Boys (n = 26)	Girls (n = 28)	Boys (n = 26)	Girls (n = 28)	Time* Gender	Cohen 's d
	M(SD)	M(SD)	M(SD)	M(SD)	F	
KEI-R						
Total Score	34.69(7.77)	32.68(6.89)	38.27(8.22)	35.18(4.92)	0.488	
Accuracy Score	36.92(18.94)	33.33(16.58)	40.12(19.56)	32.96(14.49)	0.890	
SCS-T						
Total Score	32.85(5.95)	34.32(6.14)	35.62(4.74)	36.68(5.49)	0.177	
Prosoc/Com	11.08(2.68)	11.43(3.07)	11.42(1.74)	11.43 (2.26)	0.433	
Emotion Reg.	12.73(2.08)	13.75(3.05)	14.73(2.10)	16.04(3.19)	.171	
Academic	9.04(2.93)	9.14(2.33)	9.46(2.70)	9.21(2.18)	0.593	
Combined	23.81(4.12)	25.18(4.94)	26.15(3.05)	27.46(4.58)	.005	
CBCL-CTRF						
Total Score	39.31(13.32)	26.18(12.88)	29.73(10.31)	21.82(9.77)	9.92* *	.78
Externalizing	15.15(6.88)	9.21(5.02)	9.73(4.35)	6.89(2.97)	7.35* *	.76
Internalizing	11.35(3.54)	9.18(4.65)	9.58(2.85)	7.93(3.82)	1.72	

**p<.01

DISCUSSION

The present study was conceptualized and conducted in the context of introducing evidence-based universal prevention programs in the research arena of developing countries like Pakistan. The available data on disturbing mental health scenarios in the country, especially the high prevalence of behavioral problems in young children (Hussein, 2008), suggests a dire need for remedial efforts at the early stages of development. Since preventive interventions have proven effective in reducing the prevalence of childhood behavior disorders in different societies across the globe, the present research intends to shift the focus of researchers and service providers from treatment to prevention of developmental psychopathology. In this context, the current study provides preliminary evidence of an adapted version of the Preschool PATHS curriculum in the indigenous context of Pakistan.

The findings of the present study provide ample empirical evidence of the effectiveness of PATHS in different cultural contexts on various child outcomes. Pre-post data for two groups using Analysis of Covariance (ANCOVA) revealed significant differences between the two groups on the total score of recognition of emotions subtest and measure of social competence. Children in the intervention group also showed a significant decrease in behavior problems at post-test, as reported by the class teacher,

compared to children in the control group, where an increasing trend was observed. These findings are consistent with the available evidence on the effectiveness of PATHS for improving social-emotional competence and reducing behavioral problems (Conduct Problems Prevention Research Group, 2010; Crean & Johnson, 2013; Domitrovich et al., 2007; Goossens et al., 2012; Kam et al., 2011). Non-significant findings were observed for the prosocial/communication and academic skills subscale of the social competence scale, which is contrary to the available evidence on PATHS effectiveness (Bierman et al., 2008). However, one study in Turkey reported similar findings on the prosocial communication subscale (Arda & Ocak, 2012).

For intervention research, it becomes essential to evaluate the strength of impact. Cohen's approach calculated the effect sizes (Cohen, 1992). The magnitude of effects of curriculum implementation between intervention and control group were moderate, ranging from 0.55-0.56 for recognition of emotions, social competence, and externalizing subscale of CBCL-CTRF, while a small effect size ranging from -.18 to -.33 was reported for total problem score and internalizing subscale. A large effect size of 0.80 is observed for the emotion regulation subscale of the social competence scale.

The above-reported values of effect size can better be explained by comparing them with those reported in prior studies, as suggested in the literature (Thompson, 2002). Domitrovich et al. (2007) reported an effect size of 0.36 for recognition of emotions and 0.48 for social competence on a sample of 246 preschool children. Bierman et al. (2008) reported a small effect size ($d = 0.24$) for the impact of the intervention on preschool children's social competence as reported by teachers. Another study reported an effect size of 0.34 for the impact of the intervention on the social competence of elementary school children (Conduct Problems Prevention Research Group, 2010). Malti et al. (2012) reported a moderate effect size for the impact of PATHS intervention ranging from 0.42-0.46 for aggressive behavior and ADHD, as reported by teachers for a sample of first graders in Switzerland. The impact strength was sustained for the second-year follow-up on teacher-reported attention deficit hyperactivity behavior (Malti et al., 2012). However, a small effect size of -.15 was also found for conduct problems in a sample of third to fifth-grade children (Crean & Johnson, 2013).

Gender emerged as an important demographic variable in preschool behavioral problems. Between subjects' effects on intervention status regarding gender were calculated to see if the impact of the intervention on outcome measures varies between boys and girls. The findings revealed that a significant time effect was present only on CBCL-CTRF total and externalizing subscale score, suggesting that as a result of the intervention, behavioral problems in boys decreased significantly than girls at post-assessment. These findings align with the earlier available literature in which behavioral issues were reduced considerably in boys after receiving behavioral interventions compared to girls (Webster-Stratton, 1996; Lindsey, 2013).

Implications and Future Suggestions

For future research, certain suggestions have emerged to improve the strength; an improved research design with randomization might have better results and broader generalization. Large-scale intervention studies would further enhance the authenticity of effectiveness. Funding agencies can be engaged to invest resources to design a large study to evaluate cost-benefit analysis, which is a limitation in this research. The fidelity of intervention impact can be assessed through follow-up analysis to ensure sustainability and implementation quality of the intervention.

This study is one of the first prevention studies in developing countries and collectivistic societies. So far, most of the PATHS intervention program has been conducted in communities with individualistic norms, but implementation in a collectivistic society as important as the development of competencies in children is affected by the type of culture. Hence, this research will add to the global literature on the effectiveness of the PATHS program and will also support recent intervention researchers for targeted and universal implementation.

Since it is one of the premier researches in Pakistan on the evidence-based intervention of developmental psychopathology, the current study stands out by focusing on the concept of prevention of childhood disorders and developing positive competencies in children. For researchers in Pakistan, this project would open new avenues of intellectual pursuit of understanding more about evidence-based practices and school-based interventions in the local context. As suggested earlier, a fully funded intervention project in the future would also provide future researchers with an opportunity to reflect on the cost-benefit analysis of the implementation of the PATHS curriculum in Pakistan.

For schools, this project has provided a solution for one of the significant concerns of teachers and school administrators: children's behavioral problems. The use of a social-emotional learning curriculum in schools is not only beneficial for the general behavior management of students. Still, it would also create a better school environment that would enhance students' academic learning. The curriculum can also be used as an effective after-school activity and in summer camps during vacations. Child psychologists can also use the adapted curriculum version in clinical settings.

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