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Effects of Pathways Triple P on Pediatric Health-Related Quality of Life in Maltreated Children

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Abstract

Objective—Child maltreatment is an adverse childhood experience associated with reductions in child well-being. This study examines whether an evidence-based parenting intervention delivered to families served by the child welfare system impacts pediatric health-related quality of life (HRQoL).

Method—This study is a randomized-controlled trial of Pathways Triple P delivered to families with open child welfare cases for child physical abuse or neglect ($N=119$). Children were 5 to 11 years old and remained in the home following the investigation. The primary outcome measure for this study was the PedsQL 4.0, which measures HRQoL across 4 subdomains: physical functioning, emotional functioning, social functioning, and school functioning. Child and caregiver-reported PedsQL 4.0 were assessed at baseline and at post-test following the 14-week intervention.

Results—Controlling for other factors, children in families randomly assigned to the Pathways Triple P condition had a significant improvement in overall health-related HRQoL following the intervention, compared to families receiving usual services ($\beta_{\text{child-report}} = 6.08$, $SE = 2.77$, $P = .03$; $\beta_{\text{parent-report}} = 3.83$, $SE = 1.88$, $P = .04$). Subdomain effect sizes differed when considering child self-report or parent proxy report. Child self-report yielded the largest improvement in emotional functioning while social functioning had the largest gain based on parent proxy report.

Conclusion—The Pathways Triple P parenting intervention was associated with higher pediatric health-related quality-of-life, as reported by both the child and the caregiver. This intervention holds promise to improve child well-being when implemented in the child welfare system.

Keywords

Quality of Life; Child Abuse; Parenting

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Child abuse and neglect (maltreatment) is associated with negative health outcomes that persist throughout the life course.^{1–4} The child protection mandate of the child welfare system (CWS) not only involves investigation of alleged maltreatment and ensuring a safe, permanent living situation, but also the provision of services to promote well-being.⁵ Evidence-based parenting programs implemented with CWS-involved families are a “linchpin of governmental responsibility” and have great potential to promote child well-being.⁶ Prior studies have estimated that between 33%–50% of CWS-involved caregivers receive some form of parent training or education.^{6–8} However, most programs do not use an evidence-based model, particularly for reducing child behavior problems.^{7–10} We conducted a randomized-controlled trial (RCT) of an evidence-based parenting program targeting families receiving in-home services. Pathways Triple P (PTP) is an enhanced version of the Triple P-Positive Parenting Program, a program designed to promote positive parent-child relationships and reduce the risk for maltreatment.^{10–11}

Background and Significance

Across the United States (US) in 2016, nearly 4.1 million referrals to CWS involved the alleged maltreatment of 7.4 million children.⁵ In addition to the direct health effects from injury, maltreatment creates “toxic stress,” which is excessive activation of the stress response system, a key social determinant of lifelong health.^{4,12–14} Maltreatment prevention is an important but often overlooked public health priority.^{1,15}

Maltreatment victimization pervades all aspects of a child’s life, cutting across multiple domains of developmental ecology. Indicators of overall child well-being are needed that reflect physical, psychological, cognitive, and social domains.¹⁶ However, research often focuses on one domain, neglecting the impact on the child from a holistic perspective. Health-related quality of life (HRQoL) is a useful construct not only because it reflects the multidimensional aspect of child well-being, but also because it captures changes in multiple domains of health. Intervention studies that measure HRQoL are needed to inform economic analyses that support policy decisions regarding public investment in services for CWS-involved families.^{17,18}

The American Academy of Pediatrics recently recommended that evidence-based parenting programs (eg, Triple P) should be integrated into the medical home to reduce the toxic effects of poverty.¹⁹ Although the primary prevention of maltreatment is a clear priority, by reducing the risk for recurrent maltreatment among children already identified by the CWS as at-risk not only promotes the well-being of these children but is also an opportunity to reduce health disparities.

Overview of Pathways Triple P (PTP) Parenting Program

Triple P was initially developed to help parents manage children with behavior problems and was later enhanced (PTP) to support families with elevated risk for maltreatment.^{6,20} The Triple P program consists of 5 components, which are reflected throughout the intervention: (1) ensuring a safe, engaging environment; (2) promoting a positive learning environment; (3) using assertive discipline; (4) maintaining reasonable expectations; and (5) taking care of

oneself as a parent.²¹ Additionally, the Triple P system uses 5 levels of intervention that increase in intensity and narrow in population reach. Briefly, Level 1 is a universal strategy that employs a broad communication campaign, Level 2 uses brief primary care and seminar series, and Level 3 uses targeted counseling for mild to moderate behavior problems. Given the focus of the CWS on a higher-risk sub-population, a higher level of Triple P intervention was warranted for this study (PTP). Level 4 was delivered over 10 individual sessions in the family home. Level 5 includes several modules that aim to prevent child maltreatment by teaching parents skills for managing their emotions and reframing the way the parents think about and react to child behavior issues.

The effectiveness of Triple P has been assessed through meta-analyses. One meta-analysis included 11 studies of Triple P, and another analyzed 15 studies that focused solely on Level 4 of Triple P.^{22,23} The first found overall small-to-medium effects for improvements in parent-reported child behavior found in single group pre/post designs.²² Medium effects were found for Level 4 Standard and Group Triple P in reducing parent-reported child behavior problems. The largest effect was found with Level 5 Enhanced Triple P. The second meta-analysis of Level 4 confirmed these findings. Large effect sizes were found for parent-report of child behavior.²³

The effectiveness of PTP has been demonstrated with parents identified as at risk of maltreating their children.²⁴ Results from a study of 98 Australian families with children between ages 2–7 years showed that as compared with Standard Triple P, the PTP intervention produced a significant short-term reduction in both the potential for child abuse and unrealistic parenting expectations. An RCT of group-based PTP, also conducted in Australia, reported significant positive effects for parent-child relationships and child behavior problems.¹¹ Currently no other known RCTs of PTP are underway in the United States, particularly studies focusing on CWS-involved families.

Thus far, the most compelling evidence of the promise of Triple P as a broad-based public health approach to maltreatment prevention comes from a randomized population trial in South Carolina.²¹ Medium to high levels of effect were for rates of maltreatment investigations, substantiated maltreatment, out-of-home placements, and injuries. However, controversy has surrounded this study and the positive findings regarding Triple P reported in the literature due to concerns about conflict of interest and methodology.^{25–27} Although the current study was not intentionally designed to address these concerns related to prior research, this study does provide arguably the first independent, rigorous evaluation of Triple P implemented in the US.

Aims of the Current Study

The current study builds on prior research by conducting an RCT of PTP implemented with CWS-involved families. The focal outcome of this study was pediatric HRQoL. Other studies have focused on distal outcomes such as maltreatment recidivism or foster care entry. The current focus on pediatric HRQoL explicitly seeks to determine whether implementing PTP results in gains to child well-being. There are no known studies of Triple P, or PTP specifically, that examine program effects on pediatric HRQoL.

METHODS

All study families had open CWS cases in urban or primary suburban counties of a metropolitan area in the Midwest and whose child remained in the home following a maltreatment investigation or family assessment. Data were collected from the primary caretaker and the child. In cases in which 2 caregivers lived in the home, both caretakers were invited to participate in the intervention but data were collected from the person who self-identified as the primary caretaker. The study methods and materials were approved by a university institutional review board, all parents completed consent forms, and children assented to study participation.

Participant Recruitment

Families in a metropolitan Midwest city who received standard or intensive in-home services following CWS investigation or assessment were eligible for study participation. Following a report to child protective services, CWS case managers briefly explained the study and obtained eligible family's permission to share their contact information with the project team. The project manager then contacted interested families by telephone to invite them to participate in the study. Eligibility for study inclusion was based on the following criteria: (1) a child between 5 years and 11 years living in the home (expanded to include children as young as 3 years during recruitment); if more than one child in the age range, the parent chose the child who needed the most behavioral assistance; (2) allegations of child physical abuse or neglect with no current allegation of sexual abuse; (3) parents were at least 18 years old; (4) parents spoke English; (5) child was not medically fragile and did not have a pervasive developmental disorder. All caregivers were the legal guardian of the focal child at the time of CWS referral (i.e., no foster parents). If more than one child met the inclusion criteria, the primary caregiver identified which child would be the focus of the intervention.

Treatment Conditions

Families were randomly assigned to either treatment ($n = 75$) or control groups ($n = 69$). Participants in the treatment group received PTP and participants in the control group received services-as-usual. PTP consists of a 14-week manualized intervention delivered in the home by trained, accredited practitioners. Sessions were scheduled at times convenient for the family. Parents received workbooks containing information and activities that reinforced content introduced by the practitioner. The practitioners also used videos to demonstrate desired parenting skills. More information regarding the Triple P content and implementation in this study is available elsewhere.^{28,29} The 4 practitioners employed by the study to deliver the intervention were trained and accredited in Triple P, and were not child welfare staff. Practitioner's adherence to the treatment model was monitored using several strategies, including assessment rating of randomly selected audio-recorded sessions.

Services-as-usual varied in type and intensity of services. In addition to case management services, nearly 30% of the participants received some other form of parenting training and 24% received mental health and/or behavioral health services. This study had a high retention rate; 83% of participants completed both pre- and post-intervention interviews ($n = 119$). Following randomization, 57 participants received PTP and 62 participants received

services-as-usual. Of this final sample, 70% ($n = 40$) of the treatment group completed 9 or more PTP sessions. Follow-up data collection occurred at the end of the 14-week intervention and a similar time-period for the control group. To reduce expectancy effects and other potential bias, data collection was conducted by a separate trained researcher blinded to the treatment condition. However, bias due to subject-expectancy effects could not be entirely eliminated because the Triple P practitioner intentionally developed a strong relationship with the caregiver and child (perhaps stronger than relationships with providers in the services-as-usual group) and because double-blinding was not possible (parents knew they received Triple P).

Randomization

The study sample ($n = 119$) was analyzed to determine if the randomization procedure yielded similar groups (see Figure 1). Results showed no statistically significant differences on sociodemographic measures or baseline measures of parent anger, stress, or sense of competency (See Table 1). However, there were trends indicating imbalance on parent race ($p = .05$) and caregiver gender ($p = .08$). An attrition analysis was conducted on participants ($n = 25$) who did not complete the post-intervention interview. No statistically significant differences were found between participants who dropped out and those who completed follow-up interviews.

Pediatric Health-Related Quality of Life Outcome

The primary outcome for this study was pediatric HRQoL. The PedsQL 4.0 is a measure of HRQoL in children and adolescents that has been used with both healthy populations and youth with acute or chronic illnesses.³⁰ The measure comprises 23 problem statements related to 4 core health domains: physical functioning, emotional functioning, social functioning, and school functioning. The 8 items from the physical functioning domain make up the Physical Health Summary Score. The other 3 core health domains consist of 5 items each, which are combined to make up the Psychosocial Health Summary Score. Children are asked to report on their perception of the extent to which each situation has been a problem; responses use a Likert-type scale from 0 (never) to 4 (always). Reliability and validity of this measure has been established in a variety of settings and populations. The PedsQL study has been characterized as an ideal tool for consistency with the World Health Organization's definition of HRQoL and has been validated for assessing HRQoL in pediatric trauma settings. The PedsQL was given to both members of the parent-child dyad to yield a caregiver score of the child and a child's self-reported score. The study sample consisted of 119 caregiver-child dyads that completed both pre-and post-intervention interviews. The child self-report analyses included only 96 child participants because the sample included 25 child participants (21%) who were younger than 5 years or who were not present at the time of the interview.

Published analyses of baseline data from the current sample indicate that PedsQL 4.0 scores were significantly lower than a normative pediatric sample as well as other patient groups.³¹ Therefore, a significant positive effect would indicate that child HRQoL was moving in a normative direction. To further contextualize our findings in terms of clinical significance, we provide the minimally clinically important difference (MCID) calculation provided by

Varni et al.³⁰ in Table 2, using the standard error of measurement.³² In this context, the MCID is the smallest change in PedsQL 4.0 score that would be important to an individual patient.

Analysis

Bivariate and multivariate analyses were conducted using SAS version 9.4.³³ First, multiple regression models were developed to assess the relationship between treatment, PedsQL at baseline, and PedsQL at post intervention. In an RCT, this analysis provides an unbiased estimate of the treatment effect. However, to control for possible group effects, additional regression models were developed to assess the treatment effect controlling for child age, race, and gender as well as caregiver age, gender, marital status, and education level. Listwise deletion was used to handle missing data in analyses. Baseline PedsQL scores for each subscales and total score were entered as control variables in each model predicting post-treatment PedsQL score. Separate analyses were conducted for child self-report and parent proxy report to identify any differences in program effects based on reporter source.

RESULTS

Child Scores

The first model (see Table 2) of the total child-report PedsQL score yielded a significant treatment effect ($\beta = 6.08$, $t = 2.19$, $P = .03$). These findings indicate that children in the treatment group reported an average total PedsQL score more than 6 points higher than the services-as-usual group. A significant treatment effect was observed in models predicting subscales of psychosocial ($\beta = 7.16$, $t = 2.13$, $P = .04$) and emotional functioning ($\beta = 10.36$, $t = 2.43$, $P = .02$). When baseline covariates were included, the positive treatment effect for total score remained ($\beta = 6.42$, $t = 2.19$, $P = .03$). None of the added covariates had a significant relationship with the total PedsQL at post-test. As indicated in Table 2, in the current sample the MCID for child report total score was 4.4 and the difference from pre- to post-test was 6.8, providing support for clinical significance.

Parent Scores

Based on caregiver proxy report, the model predicting PedsQL total score at post-test resulted in a significant treatment effect ($\beta = 3.84$, $t = 2.04$, $P = .04$), with the treatment group reporting higher PedsQL scores in comparison to the services-as-usual group, controlling for the baseline total PedsQL score. The second model included baseline covariates and yielded a treatment effect trending toward significance ($\beta = 3.79$, $t = 1.92$, $P = .058$). None of the covariates had a significant relationship with the PedsQL total score at posttest. The social functioning subscale was the only subscale with a statistically significant treatment effect based on proxy report ($\beta = 6.57$, $t = 2.52$, $P = .01$). In the current sample, the published MCID for parent report total score was 4.5 and the difference from pre- to post-test was 4.7, again providing support for clinical significance.

DISCUSSION

The purpose of this study was to determine whether participation in PTP improved pediatric HRQoL among children in families receiving child welfare services. Examining differences at the end of the 14-week intervention period, this study found that children in families who had received PTP reported significantly higher HRQoL. This positive treatment effect was found in both child self-report and parent proxy reports, lending additional validity to the findings. These results support findings of prior studies that PTP can improve child well-being. Further, the positive findings from our quantitative scale reinforce qualitative findings reported from participants in this trial.²⁹ Interviews with parents in the treatment condition indicated participants learned new parenting skills, used positive alternatives for discipline, and built stronger relationships with their child.

Although overall scores improved for both children and caregivers, differences in intervention effects were found in the subdomain areas of functioning, particularly the psychosocial domain. Child-reported outcomes showed greater gains in emotional functioning while caregiver proxy outcomes were strongest in social functioning. Prior research has suggested that caregiver-child disagreement in HRQoL is expected. Indeed, a prior analysis of discordance in this sample found disagreement between caregivers and children across all domains of the HRQoL measure.³⁴ These differences may represent a greater insight from the perspective of the child on the effects on parenting changes to their emotional well-being. This finding could also represent a concerning disconnect between the emotional health of the child and the parent's perceptions. Disagreement between child and parent reporters is not well understood and is an important area of future inquiry. As such, findings may be best interpreted separately.

Based on child report, effects were greatest in emotional functioning. Items in this domain ask children to respond to prompts relating to how often they experience a negative mood ("I feel angry," "I feel sad") as well as prompts related to anxiety ("I have trouble sleeping," "I worry about what will happen"). Caregivers in the treatment condition were learning positive discipline strategies that might have made them less reliant on coercive and harsh parenting techniques known to elicit a poor emotional state in children.^{35,36} As parents gain empathy for their children and reverse negative attributions of their child's behavior, they are more likely to direct less frustration and anger at the child, resulting in an improved emotional state.

Based on parent reports, child social functioning had the greatest improvement. The social functioning subdomain includes items related to peer relationships ("problems with getting along with peers") and normative peer experiences ("not able to do things other children his or her age can do"). Again, the reported improvements in this area might be related to the focus on attribution errors of child behaviors. Before exposure to the PTP intervention, caregivers might assume that their children differed from their peers. Through the caregivers' participation in PTP and their receipt of psychoeducation regarding child development and appropriate attribution of child behaviors, caregivers might perceive their child as having improved his or her functioning relative to other children. For older children, it is possible that peer relationships were limited as an approach to discipline. More directly,

it is also possible that improved caregiver-child relationships affect the child's ability and desire to form parent-child relationships. However, more research is needed to better understand the direct and indirect pathways through which parent training impacts child well-being. Future studies should also examine whether these effects are maintained over time and correlate with other long-term measures such as maltreatment recidivism or foster care entry.

These findings have several important clinical and policy implications. Foremost, as the first RCT of PTP used in families involved with CWS, this study provides rigorous empirical support for the benefits of this intervention on child well-being. These findings are important because Triple P is currently being scaled up in many communities globally, and concerns regarding the designs and methods of prior studies have left a need for additional research. Second, the positive benefits of PTP were identified among a sample of CWS-involved families referred for child physical abuse or neglect. This study provides some evidence that maltreating caregivers are capable of changing the nature of the relationship of their child, and such change creates a measureable improvement in child well-being. The emphasis on child well-being at the CWS policy level has increased greatly in recent years, and our findings indicate that when PTP is implemented with fidelity, the program is a viable evidence-based strategy for achieving this policy goal. Last, given that PTP is a parent-mediated intervention, this study suggests that clinicians can make an impact on improving child well-being by supporting, educating, and empowering parents.

Strengths and Limitations

This study benefits from key strengths of the research design, including the randomization of participants and the triangulation of data from multiple reporters. Future research should consider how best to implement PTP within the CWS system with fidelity outside the context of a randomized trial. Studies of maltreatment prevention programs are often limited to relatively narrow outcomes (eg, child behavior or parenting stress). Our findings indicate that intervention research can also identify change in broader measures of child health or well-being (ie, PedsQL 4.0) that have direct implications for improving health status and reducing costs. Although the data for this study were obtained from multiple reporters, this study relied on self-reported measures of QoL. It is possible that subject-expectancy effects positively biased these reports. Further, given the study sample was CWS-involved, it is possible that self-report measures have greater risk for social desirability bias and could impact results if differences in this source of bias exist between study conditions. Future research would benefit from use of observational measures of child behavior as well as proxy reports of well-being collected from case workers or other professionals with ongoing interaction with the family. We also noted imbalance in race and caregiver gender that limit generalizability of the findings and potentially threaten internal validity. Finally, this study sample was drawn from a CWS-involved population in one geographic region and is not generalizable to the other populations.

Conclusions

Child welfare policy calls for attention to safety, permanency, *and* the promotion of child well-being—although much less attention has been given to well-being.⁵ CWS-involved

children experience poorer HRQoL than children without such involvement.³¹ Hence, provision of services that effectively address the well-being of CWS-involved children is essential to improving outcomes for this vulnerable population. Yet, less than half of CWS-involved families receive parent training programs, and even fewer receive programs with demonstrated effectiveness.^{6–8} Even when parents agree to participate in parenting programs, sustaining their engagement is an ongoing challenge. One review of home-based maltreatment prevention programs reported retention rates ranging from 33% to 80%.³⁷ A community-based study of group-based PTP delivered in Australia reported 81% of parents completed at least 7 of the 9 sessions.³⁸ In our study, 70% of a child welfare sample completed more than 9 sessions. Results from this RCT have demonstrated that PTP is viewed favorably by parents (thus increasing the likelihood of program completion) and shown effective at improving child HRQoL.²⁹

The CWS should strive to adopt PTP and similar interventions as a means of promoting the well-being of children in their charge. Further, pediatricians and other health providers can be an important access point for services for parents whose children are exhibiting behavior problems and have other risk factors for child maltreatment. This study provides evidence that referral to PTP can be an effective strategy not only to address short-term concerns about parenting but also to benefit the well-being of children. Providers are often involved in multidisciplinary teams that aim to consider the best options to promote the well-being of children involved with CWS. In light of our findings, pediatricians should consider advocating at the family and policy levels for greater access to evidence-based services such as Triple P.

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Figure 1.
Pathways Triple P CONSORT Flow Diagram

Baseline characteristics of Pathways Triple P study sample assessing baseline equivalence of treatment and control groups

Table 1

	Treatment (n=75)		Control (n=69)		Diff	
	Mean	SD	Mean	SD	t	P
PedsQL 4.0 (Caregiver Proxy)						
Physical	85.31	13.68	84.28	14.91	-0.43	.66
Psychosocial	72.69	15.26	73.12	13.89	0.18	.85
Emotional	73.45	18.46	74.48	16.17	0.34	.73
Social	63.58	23.59	66.85	23.99	0.78	.43
School	63.73	20.23	67.62	20.15	1.09	.27
Total Score	77.14	13.39	77.02	12.50	-0.05	.95
PedsQL 4.0 (Child Self-Report)						
Physical	73.71	19.13	79.02	14.46	1.77	.07
Psychosocial	63.15	17.94	63.22	18.78	0.02	.98
Emotional	72.26	19.21	75.76	16.23	1.17	.24
Social	75.06	20.32	74.72	17.99	-0.11	.91
School	69.93	21.15	68.26	17.23	-0.52	.60
Total Score	67.05	16.57	69.40	15.45	0.83	.40
Caregiver Age	31.72	6.14	33.13	8.97	1.11	.26
Child Age	7.13	1.97	7.52	2.02	1.16	.25
No. adults in home	0.72	0.78	0.88	0.98	1.03	.30
No. children in home	2.43	1.85	2.44	1.72	0.03	.97
Income/month (\$)	1950	1394	1998	1328	0.21	.83
Categorical Measures						
	Treatment (%)		Control (%)		χ^2	P
Parent Race					3.72	.05
Caucasian	41.33		26.09			
Black/Bi-racial	58.67		73.91			
Caregiver Ethnicity					0.92	.33
Hispanic	1.33		0			
Non-Hispanic	98.6		100			
Child Race					1.81	.17

	Treatment (n=75)			Control (n=69)			Diff
	Mean	SD	Mean	SD	t	P	
Caucasian		33.3	23.19				
Black/Bi-racial		66.67	76.81				
Child Ethnicity					1.86	.17	
Hispanic		2.67	0				
Non-Hispanic		97.33	100				
Caregiver Gender					2.93	.08	
Male		4.00	11.59				
Female		96.00	88.41				
Child Gender					0.05	.81	
Male		56.00	57.97				
Female		44.00	42.03				
Caregiver Education					0.79	.67	
< High School		32.00	30.43				
H.S. Diploma		25.33	31.88				
> High School		42.67	37.68				
Employed					0.33	.56	
Yes		45.33	40.58				
No		54.67	59.42				
Qualify for Free Lunch					2.96	.39	
Yes		89.86	95.32				
No		10.14	4.68				
Married					0.03	.85	
Yes		33.33	31.88				
No		66.67	68.12				

Table 2

Estimates of program effects on Pediatric Health-Related Quality of Life

	Services as Usual (Control)		Pathways Triple P (Treatment)		Regression Model (n=96)		Minimally Clinically Important Difference (SEM) ^a
	Baseline (n=63)	Post-test (n=54)	Baseline (n=68)	Post-test (n=43)	Estimate (S.E.)	P	
	M(SD)	M(SD)	M(SD)	M(SD)			
Child Self-Report							
Total	69.3 (15.4)	67.2 (15.0)	66.8 (16.6)	73.1 (13.2)	6.08 (2.77)	0.031	4.36
Physical	78.8 (14.4)	74.5 (15.9)	73.4 (19.2)	77.0 (14.4)	3.03 (3.17)	0.343	6.66
Psychosocial	64.2 (18.5)	63.4 (17.7)	63.1 (17.7)	70.9 (17.1)	7.16 (3.36)	0.036	5.30
Emotional	58.0 (22.6)	56.1 (20.4)	62.6 (22.3)	68.4 (21.2)	10.36 (4.27)	0.017	8.94
Social	66.6 (23.9)	66.9 (26.5)	63.4 (23.5)	74.1 (23.3)	7.66 (4.79)	0.113	8.36
School	67.7 (20.0)	66.6 (19.7)	63.5 (20.1)	70.5 (22.9)	4.89 (4.18)	0.245	9.12
Parent Proxy-Report	Services as Usual		Pathways Triple P		Regression Model (n=114)		
	Baseline (n=69)	Post-test (n=62)	Baseline (n=75)	Post-test (n=52)	Estimate (S.E.)	P	
Total	77.0 (12.5)	77.1 (14.2)	77.1 (13.4)	81.8 (10.5)	3.83 (1.88)	0.044	4.50
Physical	84.3 (14.9)	82.6 (18.1)	85.3 (13.7)	88.3 (10.5)	4.30 (2.53)	0.092	6.92
Psychosocial	73.1 (13.9)	74.1 (15.4)	72.7 (15.3)	78.2 (12.0)	3.80 (2.12)	0.076	5.49
Emotional	75.8 (16.2)	73.3 (18.7)	72.3 (19.2)	76.1 (16.5)	4.70 (2.68)	0.082	7.79
Social	74.7 (18.0)	77.1 (18.8)	75.1 (20.3)	84.5 (14.0)	6.57 (2.61)	0.013	8.98
School	68.3 (17.2)	71.8 (18.1)	69.9 (21.2)	73.1 (17.9)	1.11 (3.18)	0.727	9.67

^aFrom Varni et al., (2003) validation study, SEM=Standard Error of Measurement